

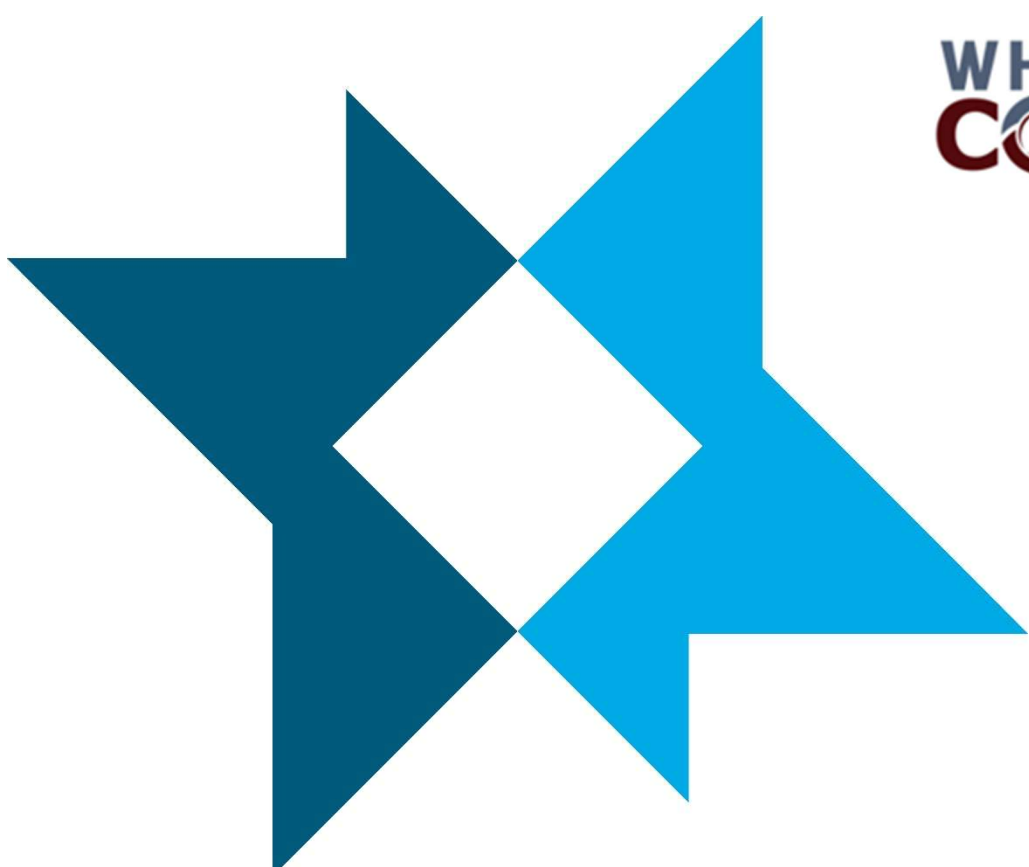


Permit Application

Environmental Impact Assessment

White Pine North Project Volume IIG

Appendix C-2 (1 of 4)



White Pine Copper LLC

White Pine, Michigan

September 2026

Project I.D.: 23W200

C-2
Deep Bedrock Hydrogeology Report
(1 of 4)



Report

Deep Bedrock Hydrogeology



White Pine Copper LLC

White Pine, Michigan

May 2026

Project ID: 23W200

Solving our clients' toughest
science and engineering challenges.

Deep Bedrock Hydrogeology

Project ID: 23W200

Prepared for
White Pine Copper LLC
White Pine, Michigan

Prepared by
Foth Infrastructure & Environment, LLC

May 2026

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Deep Bedrock Hydrogeology

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List of Abbreviations, Acronyms, and Symbols

cm/s	centimeter per second
COLOG	COLOG, Inc.
CRC	Copper Range Company
DGI	DGI Geoscience Inc.
DI	deionized
EIA	Environmental Impact Assessment
FEC	fluid electrical conductivity
FEC/T	fluid electrical conductivity and temperature
Foth	Foth Infrastructure & Environment, LLC
ft bgs	feet below ground surface
FT NAVD88	feet above the North American Datum of 1988
ft ² /d	square feet per day
ft/ft	feet per foot
Ga	billion years ago
gpm	gallon per minute
HpL	HydroPhysical Logging™
LF	linear feet
mg/L	milligram per liter
mL/min	milliliter per minute
PFS	Prefeasibility Study
Project	White Pine North Copper Project
QAPP	Quality Assurance Project Plan
Report	Deep Bedrock Hydrogeology Report
RQD	Rock Quality Designation
SOP	standard operating procedures
TDS	total dissolved solid
µS/cm	microsiemens per centimeter
VWP	vibrating wire piezometer
WPC	White Pine Copper LLC

1. Introduction

White Pine Copper LLC (WPC) is a wholly owned subsidiary of Kinterra Copper USA, LLC. WPC is seeking to develop the brownfield site of the previous White Pine Mine located approximately 3 miles south of Lake Superior, east of M-64, in Carp Lake Township, Ontonagon County, Michigan (Figure 1-1). White Pine Mine was part of the Upper Peninsula of Michigan's historical copper mining district. Underground mining on site began in the late 1800s. In 1952, the Copper Range Company began construction of a fully functioning underground mine and surface processing facilities, including a concentrator, smelter, and refinery. Tailings were placed in three tailings areas: North Dam 1, North Dam 2, and South Dam. Mining and processing ceased in 1997, and a State of Michigan Consent Decree was established.

The White Pine North Copper Project (Project) encompasses infrastructure associated with the closed White Pine Mine. The underground mine workings will advance northeast of, and separate from, the historic underground mine workings of White Pine Mine. Copper ore will be extracted using conventional drill and blast room and pillar mining methods. A processing plant will be constructed on site to produce a copper concentrate, and processing will include crushing, grinding, flotation, concentrate thickening, and filtrations. Tailings will be managed through re-use of one or more of the existing tailings dams.

To support both the Prefeasibility Study (PFS) and permitting requirements, a variety of environmental baseline studies documenting existing pre-Project biological resources, wetlands and streams, cultural resources, surface water hydrology, and groundwater hydrology were initiated in 2024. Foth recently completed a baseline assessment of the groundwater and surface water resources present at the Project site. The baseline groundwater and surface water data, which are summarized in Foth (2026) focused on groundwater present in the unconsolidated deposits and shallow bedrock. This Deep Bedrock Hydrogeology Report (Report) provides an assessment of the hydrogeologic conditions of the deep bedrock groundwater focusing on depths greater than 200 feet below ground surface (ft bgs).

1.1 Location

The Project is located at the White Pine Mine site within the historical Copper Range district of the Upper Peninsula of Michigan, in Ontonagon County (Figure 1-1). The Project is proposing an underground mine targeting a mineralized area previously undeveloped by the White Pine Mine. WPC plans to reuse the existing tailings facilities for tailings management and will develop a new mine portal and processing infrastructure. The underground mine workings will extend under an area of approximately 9,000 acres and extend from the surface to a maximum depth of approximately 3,700 feet.

1.2 Project Background

White Pine Mine was part of the Upper Peninsula of Michigan's historical copper mining district. Underground mining for native copper began in the late 1800s. In 1952, the Copper Range Company (CRC) began construction of a fully functioning underground mine and surface processing facilities including a concentrator, smelter, and refinery.

Following mine closure in the late 1990s, the deep mine workings filled with groundwater and supplemental water from Lake Superior, creating a unique hydrogeologic setting involving

stratified fresh water overlying saline brine water emanating from deep bedrock. The deep groundwater is largely isolated from shallow groundwater above because of limited hydraulic connectivity and density differences.

1.3 Purpose

The purpose of this Report was to develop a hydrogeological dataset that supports the data needs of the Mine Permit Application and Environmental Impact Assessment (EIA). This Report provides understanding of the deep bedrock hydrogeologic characteristics (occurrence, movement, and quality of water) that is necessary to support evaluations and plans to safeguard any future mining activities for the new White Pine North Project (Part 632 EIA) from adversely impacting regional groundwater or surface water. The deep bedrock beneath the White Pine Mine is very old (greater than 1 billion years). It is part of the ancient Canadian Shield, and in geological timescale is identified as Precambrian. This Report summarizes related Precambrian bedrock hydrogeological investigations and characterizes the following:

- ◆ Ambient data on the physical and chemical conditions of the Precambrian bedrock hydrostratigraphic system.
- ◆ Hydraulic conductivity data on the Precambrian bedrock.
- ◆ Water quality data for groundwater in the Precambrian bedrock.

1.4 Report Organization

This Report is organized into the following sections:

- ◆ Section 2 provides background information on the Project's history and exploration programs.
- ◆ Section 3 summarizes the geologic setting.
- ◆ Section 4 provides the results of the deep bedrock field investigation.
- ◆ Section 5 discusses hydrochemistry.
- ◆ Section 6 summarizes the interpretations and conclusions.
- ◆ Section 7 provides the references used in this Report.

2. Property History and Exploration Programs

Historically, mining at White Pine Mine has been conducted via underground methods since the late 1800s. Physical development and start of operations of the mill and smelting facilities occurred in 1954 and the first copper was produced in 1955. Refinery and continuous casting operations were added to the mine complex in 1981. In 1995, smelting operations were suspended in January, and both conventional underground mining and milling operations were suspended in September. A brief timeline of closure and post-closure activities of the WPM are summarized as follows (MFG, 1999):

- ◆ **1996: Dewatering Discontinued**
Underground mine dewatering discontinued in October 1996 (MFG, 1999).
- ◆ **1996-1997: Consideration of Solution Mining and Deep Groundwater classified as “Not an Aquifer”**
In May 1996, Michigan Department of Environmental Quality approved a pilot scale study for solution mining. Consideration for solution mining was suspended and subsequently withdrawn in May 1997. In the pilot test approval, state regulators recognized deep bedrock groundwater was an unusable brine considering total dissolved solid (TDS) concentrations exceeded 100,000 milligrams per liter (mg/L). This designation was based on remedial investigation data showing extremely high salinity and negligible yield.
- ◆ **1997: Underground mine closure plan**
The underground mine closure plan for permanent abandonment of the mine workings submitted in 1997 (SMI, 1995).
- ◆ **1998-1999: Fresh water fill**
The proposal to fill the White Pine Mine with fresh water from Lake Superior was submitted (SMI, 1995) and subsequently approved in 1998. Flooding of the mine with fresh water started in June 1999.
- ◆ **2010s: Deep groundwater system in equilibrium**
By the 2010s the flooded mine water level stabilized at roughly the elevation of Lake Superior (about 600 feet above sea level). The deep brine remained largely contained with only limited volumes of fresh water skimmed off and discharged via the permitted outfall (Repaal, 2015).
- ◆ **2024-2025: Deep hydrogeologic study**
Deep borehole hydraulic tests were completed to characterize the hydraulic properties and hydrochemistry of deep bedrock groundwater. Multiple core holes drilled to over 1,600 feet in depth were logged using geophysical and hydrophysical methods, with select intervals packer tested, and vibrating wire piezometers (VWPs) were installed at discrete intervals to monitor head elevations.

The methods of recent hydrogeologic studies are outlined in Section 2.2. Results of the recent work are summarized in Section 4. Limited historical hydrogeologic data on the deep bedrock are available prior to the work initiated in 2024. This available geologic and hydrogeologic

information are discussed below, along with Foth's 2024-2025 bedrock investigation methodologies.

2.1 Historical Exploration Programs

Copper exploration and drilling began at the White Pine Mine in earnest in the early 20th century. Systematic drilling exploration began in 1907 when the Calumet and Hecla Mining Co. conducted a drilling campaign that discovered locally high grades of native copper (Bornhorst, and Lankton, 2009). The property was acquired by the CRC who initiated a more extensive drilling program in 1929 to better delineate the deposit.

CRC conducted a continuous drilling program at the White Pine Mine from 1929 through the early 1970s. There was a hiatus in exploration drilling until the commencement of the solution mining exploration in 1994 and the subsequent expansion of the exploration drilling program starting in 2014 to target the northern section of the historical mineral resource area. Historical explorations conducted prior to 2014 were summarized by G Mining Service in the Preliminary Economic Assessment (G Mining, 2023). A generalized summary of historical exploration programs is included in Table 2-1. Subsurface data from the exploration programs have been utilized by WPC to construct the three-dimensional geological model for the Project. The geological model provides an accurate and comprehensive model that captures crucial subsurface information including structural contacts and features. The representative geologic data have been inspected and are considered accurate. However, limited historical groundwater hydraulic and water quality information were available prior to 2024.

The solution mining investigation conducted in 1994 included the installation of four deep bedrock monitoring wells (BMW-1, BMW-3, BMW-4A, and BMW-4B) that were installed at depths between 570 and 2,650 ft bgs. The screened intervals for these wells vary between 471 and 2,600 ft bgs. These monitoring wells are not currently being monitored for baseline data collection, but have historical data available, including piezometric head and hydraulic testing information for BMW-1 and BMW-3. Well construction details for BMW-1 and BMW-3 are summarized in Table 2-2. A matrix of additional hydraulic testing information is summarized in Table 2-3.

2.1.1 Historical Hydraulic Testing

Historical hydraulic testing data are available for seven monitoring well or borehole locations and consisted of in-situ hydraulic conductivity (slug) testing and isolated interval packer testing (Table 2-3). Slug testing was conducted at wells BMW-1 and BMW-3, while packer tests were conducted at boreholes DDH-508, 94-3, and 94-4. The two historical slug test results at wells BMW-1 and BMW-3 indicated hydraulic conductivity results ranging from $2.0\text{e-}5$ centimeters per second (cm/s) to $4.7\text{e-}7$ cm/s as summarized in Table 2-4. The historical packer testing at boreholes DDH-508 and 94-3/94-4 (conducted across T4 Fault), which are summarized in Table 2-5A and 2-5B, respectively, indicate hydraulic conductivities that ranged from $4.2\text{e-}4$ cm/s to $1.3\text{e-}7$ cm/s. The historical results from the Copper Harbor Conglomerate were about two orders of magnitude less than results from the Freda Sandstone on average. However, the testing conditions varied from intervals with open discontinuities to intervals of rock matrix. In addition, tests completed within the Freda Sandstone included shallow bedrock results which have higher fracture density and subsequent hydraulic transmission. Furthermore, limited tests were available for sufficient assessment. As a result, historical hydraulic testing

data were supplemented with recent hydraulic testing information conducted in 2024 and 2025 described in Section 2.2.

Historical hydraulic testing also included laboratory permeability tests conducted vertically and horizontally on several deep bedrock core samples. The results of the laboratory testing are summarized in Table 2-6. Permeability tests typically indicated matrix permeabilities in the $10\text{e-}9$ to $10\text{e-}10$ cm/s range for the Precambrian bedrock. This suggests that the intact rock matrix is essentially impermeable. As a result, any movement of groundwater, including field hydraulic testing observed in the field, is assumed to be associated with secondary porosity features. Location of historical boreholes are provided in Foth (2026).

2.2 Observations from Historical Underground Mine Workings

Observations made by former WPC employees are important for characterizing the nature of the bedrock and the occurrence and transmission of groundwater through it. The following synopsis was completed by Tom Repaal in an internal memorandum (2015).

Groundwater was observed to seep into the former underground mine workings via two mechanisms:

1. Inflow of meteoric groundwater along preferential pathways, including open boreholes, service openings, and shafts.
2. Inflow transmitted through bedrock via discontinuities, including fractures, joints, bedding plane disturbances, etc. Seepage did not occur through rock pores.

The mine is located in an area of minimal seismic activity where no active fault movement has occurred in recent geologic time frames. Faults and fractures are widely distributed throughout the mine but many of these systems are filled with crystallized minerals and do not conduct groundwater. Faults and fractures that are not completely mineralized contributed groundwater inflow to the mine. The most significant flows were observed to occur near the White Pine Fault. Other fracture systems were observed to contribute to smaller quantities of flow in localized areas. A net inflow was estimated to be about 65 gallons per minute (gpm) per square mile of underground mine workings. As a result, the former underground mine workings of the White Pine Mine were relatively dry (especially compared to many other underground mines). The average natural inflow of water to the mine was estimated to be about 880 gpm across the underground mine workings of a little over 13 square miles that had an approximate void volume of 15.8 billion gallons (SMI, 1995).

During active mining, two types of mine water inflow were distinguished to have distinctive characteristics of rate and quality. About 45% of natural mine inflow was estimated to be from shallow groundwater and surface (meteoric) water, whereas 55% was estimated to emanate from deep bedrock formation water. These estimates were based on total chloride concentrations that differentiated meteoric water (about 50 mg/L) from formation water, which increased with depth, but observed to be as high as almost 200,000 mg/L in some very deep parts of the mine. Similar brines occur at depth throughout the Canadian Shield (Bottomley et al., 1999).

2.3 Bedrock Hydrogeologic Investigations (2024-2025)

Foth conducted a hydrogeologic testing and characterization program of the deep bedrock that systematically evaluated subsurface data to advance a targeted investigation and testing program. A total of nine boreholes were selected for field screening of hydraulic properties and water quality sampling as summarized in Table 2-7 and displayed on Figure 2-1.

The deep bedrock investigation and testing program was conducted as summarized below:

- ◆ Downhole geophysical logging was conducted on nine boreholes (WP-583, WP-584, WP-585, WP-586, WP-587, WP-588, WP-592, WP-594, and WP-598) to assess fracture distribution and orientation, rock type, unit contacts, degree of weathering, and the frequency, orientation, and characteristics of hydrogeologic features. Geophysical logging was performed using acoustic and optical borehole imaging tools combined with a caliper log. Borehole imaging produced a continuous high-resolution unwrapped digital image of the borehole wall. Borehole imaging and caliper logs are included in Appendix A.
- ◆ HydroPhysical Logging™ (HpL) was performed on nine boreholes that were geophysically logged (as listed above). HpL was conducted using fluid temperature and conductivity logging of ambient borehole water followed by injection of deionized water. The HpL testing results are included in Appendix B. Data from the geophysical and HpL testing were cross-referenced with the rock-core imagery where available to identify about 16 intervals for discrete depth interval hydraulic testing within each borehole.
- ◆ Hydraulic testing of isolated borehole intervals (packer testing) was conducted at each of the nine boreholes. Packer testing was conducted by sealing specific intervals with inflatable packers and evaluating head conditions within the sealed interval. Constant extraction, constant injection, and slug removal tests were performed at six sealed intervals within each of the nine boreholes. Packer testing results are included in Appendix C. Analysis of packer test data from these intervals produced estimates of hydraulic conductivity and transmissivity for the Precambrian bedrock.
- ◆ Deep bedrock groundwater quality samples were collected from sealed intervals within nine exploratory boreholes ranging from 82 to 1738 ft bgs. The deep groundwater sampling results are included in Appendix D.
- ◆ Three VWPs were each installed in three boreholes (WP-583, WP-584, and WP-585) for a total of nine remote, continuously monitored (6 hour) head monitoring instrumentation. VWP information, including the as-built reports, head data, and vertical hydraulic gradient summaries are included in Appendix E.

Further discussion of the methods of the phased deep bedrock investigation program are summarized in the following sections.

2.3.1 Geophysical Logging

WPC retained DGI Geoscience Inc. (DGI) to conduct geophysical logging of nine selected open exploration boreholes to identify fracture zones and structures to better target zones of interest for subsequent packer testing. Each of the nine selected open exploration boreholes (WP-583,

WP-584, WP-585, WP-586, WP-587, WP-588, WP-592, WP-594, and WP-598) were logged using a caliper tool, and optical and acoustic televewers. Some boreholes also included natural gamma logging and provided estimated Rock Quality Designation (RQD). The geophysically logged boreholes were also evaluated with HpL testing to provide comprehensive flow data as summarized in Table 2-7. Locations of these deep exploratory boreholes are illustrated on Figure 2-1.

The three-arm caliper tool was used to measure borehole diameter and identify fractures, rubble/fracture zones, or areas of competent versus friable rock where the borehole has expanded beyond the drill bit. Optical and acoustic televewers produced continuous 360-degree images as the tools were run through the length of the borehole. The images allowed for identifying fractures, fracture density/frequency, and orientation. DGI provided caliper logs and acoustic and optical televewer plots (Appendix A) which included the following information shown as depth below ground surface:

- ◆ Natural gamma
- ◆ Borehole orientation
- ◆ Acoustic and optical televewer analysis, including image logs, acoustic logs, fracture features and frequency, and rock quality designation
- ◆ Caliper measurements

Acoustic and optical televewer plots were reviewed by Foth and used in conjunction with HpL results to select zones for packer testing.

2.3.2 Hydrophysical Logging

WPC retained COLOG, Inc. (COLOG) to perform HpL on nine selected open exploration boreholes to identify the location of conductive zones within each borehole. Foth oversaw and provided support for COLOG's HpL field activities. The boreholes were logged using measurements of fluid electrical conductivity and temperature (FEC/T) parameters under ambient and pumping conditions. In addition to ambient condition testing which records downflows and upflows in the borehole, the HpL technique involved pumping while injecting the borehole with deionized (DI) water. During these processes, profiles of the changes in FEC/T of the column are recorded. These changes occur when electrically contrasting formation water is drawn back into the borehole by pumping or by native formation pressure. A downhole wire hydrophysical tool, which simultaneously measures fluid electrical conductivity (FEC), temperature, and depth is employed to log the physical and chemical changes of the emplaced fluid. Based upon reviewing FEC/T data, Foth selected specific intervals for follow-up packer testing. HpL logging included:

- ◆ FEC/T Logging (ambient) – this process measured the fluid electrical conductivity and temperature with depth. This was accomplished by running probes through the standing water column under ambient conditions and observing changes in electrical conductivity and temperature from formation water.
- ◆ Hydrophysical FEC/T Logging (ambient flow characterization) – this process was performed after the hole was flushed and replaced with DI. Borehole water was pumped

out of the hole at a constant flow rate while DI was injected simultaneously at the bottom of the hole. During this process, the borehole water extraction and DI injection were maintained at similar rates in order to not create drawdown and not induce hydraulic gradient in or out of the formation. Following DI emplacement, several successive FEC/T logs were run to document natural changes in FEC/T of the DI water. Spikes in FEC/T data indicate zones where groundwater flows under natural gradient into or out of the borehole.

- ◆ Hydrophysical FEC/T Logging (pumping) – this process was run after the hole was flushed and replaced with DI. Borehole water was pumped out of the hole at a constant flow rate and DI was injected simultaneously at the bottom of the hole. Following DI emplacement, the formation was stressed to induce gradient into the borehole. The borehole was pumped from the top of the hole, inducing inflow from the formation into the borehole. Several successive FEC/T logs were run to document changes in FEC/T of the DI water and spikes in FEC/T show zones where groundwater flows into the borehole.

COLOG provided preliminary HpL results to Foth for real time analysis to select zones for packer testing (Appendix B). In addition, COLOG also provided tabulated interval specific hydraulic conductivity and transmissivity values, which are also included in Appendix B and discussed in Section 4. HpL results were additionally analyzed by Foth to provide information on the deeper bedrock system. The results of the HpL and geophysical logs were used to select depth intervals for packer testing. Zones that showed inflow during HpL testing, that also correlated with fractures and deviations in the caliper log were given preference. Packer testing intervals were selected to provide hydraulic conductivity estimates across the length of the borehole, focusing on zones with sufficient hydraulic conductivity to conduct water quality sampling.

2.3.3 Packer Testing (Isolated Interval Hydraulic Testing)

The select depth intervals identified through geophysical logging and HpL testing were isolated by COLOG using inflatable packers to estimate the hydraulic properties of deep bedrock. Six intervals tested in each of the nine open exploration boreholes resulting in a total of 54 isolated interval (packer) hydraulic tests conducted. Foth oversaw and provided support for COLOG's packer testing field activities.

The purpose of packer testing was to obtain an estimate of the transmissivity and hydraulic conductivity of discrete intervals targeting fault or fracture zones and intervals with indicators for potential localized zones of enhanced hydraulic conductivity. Based on the review of preliminary HpL plots, zones of interest with high FEC values were selected by Foth for packer testing. Equipment used for the packer testing included:

- ◆ Packers – consisted of two packers, used in tandem to seal off the borehole above and below the zone of interest by inflation, and three pressure transducers used to monitor pressure below the bottom packer, in the test interval, and above the top packer. This allowed data to be collected from specific zones with indicators of potential zones of enhanced hydraulic conductivity.
- ◆ Pressure Transducers – allowed for the measurement and recording of pressure within the packer interval. Three pressure transducers were situated along the packer

assembly, including an upper transducer recording pressure above the zone of interest, a middle transducer recording pressure within the zone of interest, and a lower transducer recording pressure below the zone of interest. The transducers record pressure within the sealed packer interval before, during, and after a hydraulic test. Data from the upper and lower pressure transducers provide data to assess potential for leakage or short-circuiting across the sealed interval.

Isolated (packer) interval testing consisted of three hydraulic testing variants:

- ◆ Slug-out test – consisted of nearly instantaneous change in head by removing water from the borehole via sampling pump or by airlifting water out of the tubing and recording the rate of recovery in the borehole. Recovery was monitored until heads within the sealed interval returned to near pre-test levels. The recovery curve was used to estimate hydraulic conductivity.
- ◆ Constant rate extraction test – consisted of slowly pumping from the target interval at a constant rate, with the pumping rate and head pressures being recorded. After pumping was completed (as determined by field personnel), the recovery of groundwater was recorded. Drawdown and recovery data were used to estimate hydraulic conductivity and transmissivity of the selected interval. The observed head declines within the sealed intervals ranged from 6 feet (at a minimum) to more than 115 feet. Head losses averaged about 50 feet, which indicates substantial head differential for hydraulic testing purposes.
- ◆ Constant rate pressure injection – During this test, water was injected at a constant rate into the sealed interval until stable pressures were observed. After the desired pressure was obtained, injection was stopped, and the recovery of the interval was recorded.

Data obtained from COLOG were used to plot pressure differences during testing over elapsed time (Appendix C). This allowed for the calculation of displacement within each interval. Analyses of this data were performed by Foth using AQTESOLV® (Duffield, 2007) to calculate hydraulic conductivity and transmissivity for each isolated interval.

The following solution methods were used to calculate hydraulic conductivity and transmissivity:

Pumping Tests

- ◆ Cooper-Jacob
- ◆ Theis/Hantush
- ◆ Theis Recovery

Slug Tests

- ◆ Bouwer-Rice
- ◆ Hvorslev

The hydraulic test data were analyzed using the solutions listed above. Hydrographs recorded during packer testing are included in Appendix C. Hydraulic test data curves were matched using the automatic fitting function and then adjusted manually if needed to better fit the test

data curve. Adjustments were made to account for the angle of incline of each of the boreholes. To simplify the hydraulic testing results, density differences caused by the increasing salinity were not accounted for. The simplification does not compromise the validity of the hydraulic test interpretation because even though salinity does increase water density, the resulting density contrast is often minor compared to the dominant forces driving groundwater flow during packer testing. Hydraulic tests primarily measure pressure responses governed by hydraulic conductivity, storativity, and formation properties. Small density-driven buoyancy effects rarely influence these short-term, localized pressure responses enough to change the interpretation. Density-driven flow only becomes significant over long time frames or large spatial area.

2.3.4 Water Quality Sampling

One-time water quality sampling was performed by Foth during packer testing. Intervals were selected based on the review of HpL data collected by COLOG. Two sets of samples were collected at each selected interval for the validation of results and contingency. The first sample set was collected after the removal of one system volume, and the second was collected after the removal of two system volumes. Field parameters, including temperature, pH, and specific conductivity, were collected from each interval being sampled. Lab analyses included several metals, hardness, chloride, bromide, fluoride, sulfate, ammonia, phosphorus, alkalinity, sulfide, total organic carbon, dissolved organic carbon, TDS, and total suspended solids. In addition, one duplicate sample was collected for quality assurance.

One-time water quality sampling was conducted at 8 of the 9 exploration holes planned for hydraulic testing. No samples were collected at WP-592 due to the proximity to WP-589. Approximately 900 feet of drill rods were “lost” in borehole WP-589 and since WP-592 was drilled adjacent to WP-589, and there was potential for non-representative water quality data to be collected from WP-592 due to the steel rods in the WP-589 hole. To avoid uncertainty in the water quality results, no groundwater samples were collected from WP-592. Laboratory reports are included in Appendix D.

Groundwater sampling was conducted by trained and experienced field representatives in accordance with the Project Quality Assurance Project Plan (QAPP) using standard operating procedures (SOPs). The Project QAPP is provided in Foth (2026). The QAPP outlines the sampling goals, data needs, responsibilities, and quality assurance/quality control procedures to ensure reliable, usable data to assist in decision-making. Field parameters were collected using a calibrated multi-parameter meter positioned within a flow-through cell. Field monitoring included pH, temperature, specific conductance, dissolved oxygen, and oxidation reduction potential which are tabulated in Appendix D.

Unfiltered samples were collected directly into clean bottles provided by the analytical laboratory, with preservatives where required. Samples were placed on ice and stored in a cooler through shipment to the laboratory. Coolers were sealed with chain of custody forms intact. All non-dedicated and non-disposable equipment was decontaminated prior to use and between sampling locations. Adherence to the sampling procedures outlined in the QAPP allowed for the collection of representative groundwater samples. The groundwater collection and analysis met quality standards for characterization uses.

2.3.5 Vibrating Wire Piezometer Installation

Three open exploration boreholes were selected for installation of VWP based on geographical location and access, as well as responses from geophysical logging data, HpL data, and packer test data. Through this review process, three open exploration boreholes (WP-584, WP-585, and WP-598) were selected for VWP installation. The location of these selected boreholes is presented on Figure 2-2. VWPs were installed at three depth locations in each borehole to monitor water level fluctuation in the bedrock and gather data on seasonal variations in comparison to shallower monitoring points to provide information on the connectivity within the bedrock groundwater system between the shallow aquifer and the deep bedrock groundwater system.

VWPs manufactured by GEOKON® (Model 4500S Vibrating Wire Piezometers attached to Model 02-250V6 Cables) were attached to a sacrificial steel tremie pipe at downhole depths summarized in Table 2-8 and the boreholes were backfilled with neat cement grout. The VWP cables were routed to the surface and connected to a Loadensing LS-G6 Wireless Data Logger. The data logger is located inside a lockable fiberglass housing attached to the aboveground portion of the sacrificial tremie pipe. Additional details of the VWP include the following:

Cascade performed VWP installation. Foth oversaw, assisted, and documented the installation process. Below is an overview of the installation process followed at each selected borehole:

- ◆ The borehole was prepared by circulating potable water using the VWP installation tremie to ensure the borehole was clean and no blockages were present.
- ◆ Each piezometer was zeroed at ground surface at the borehole site and recorded for future reference. Zeroing allows the piezometers to record pressure differential.
- ◆ Each piezometer was hydrated before installation, and its filter was placed under water to minimize the chance for air bubbles in the filter.
- ◆ Each cable was marked at the surface to distinguish depth of installation.
- ◆ Piezometers were fastened to the tremie pipe and were protected with a small diameter plastic casing around them.
- ◆ Electrical wires from each piezometer were pulled taut and taped to the pipe every 5 feet.
- ◆ Depth to water through the pipe was recorded and the pressure reading documented for each piezometer upon reaching installation depths. Data collected from the piezometers was started prior to grouting.
- ◆ Grouting was performed in a single stage to ensure successful installation. Grouting operations ceased after the grout was observed to have returned to the surface.

Figures documenting the as-built specifications of each VWP installation location are included in Appendix E.

3. Geologic Setting

The White Pine Mine area is on the southern flank of the 1,200 to 1,800-mile-long Midcontinent rift system of North America, as illustrated on Figure 3-1. Rocks associated with the rift system are only exposed in the Lake Superior region and are notable for hosting economic deposits of copper, including the Keweenaw Copper Deposits. Keweenaw Copper Deposits are the economically important concentrations of copper found within certain formations of the Keweenaw Supergroup, formed by hydrothermal fluids moving through these rift rocks.

The White Pine Mine, along with Copperwood and several prospects in the Iron River Syncline, are located on the margin of the Porcupine Mountains hosted in shales and siltstones of the Nonesuch Formation (Figure 3-2). Due to their geographic proximity, these deposits have been grouped into the Porcupine Mountains sediment-hosted copper district (Bornhorst and Barron, 2013). The copper occurs as chalcocite (and lesser native copper) mineralized nearly stratiform within the fine-grained clastic sedimentary host rocks.

3.1 Bedrock Geology

The bedrock units in the vicinity of the White Pine Mine consist mainly of the Precambrian Freda Sandstone, Nonesuch Shale, and Copper Harbor Conglomerate formations. Shallow bedrock near the contact with the unconsolidated deposits has higher bulk hydraulic conductivity than deeper bedrock due to increased frequency of fracturing. With increasing depth, the Precambrian bedrock is highly consolidated and cemented. Fracture frequencies diminish with depth resulting and are much lower in the deep bedrock as compared to the shallow bedrock.

3.1.1 Regional Bedrock Geology

The Midcontinent rift in the region is filled with up to 18 miles of Keweenaw Supergroup volcanic and clastic sedimentary rocks that were deposited about 1.1 billion years ago (Ga) (Cannon et al., 1989). During the syn-rift (extensional) phase, tholeiitic flood basalts with minor interbedded red conglomerate and sandstone were deposited within the broad 100-mile-wide rift. The rift basin was filled with post-rift clastic sedimentary rocks of the Oronto and Bayfield Groups (which are within the Keweenaw Supergroup).

3.1.2 Local Lithology and Stratigraphy

The Oronto Group has a maximum exposed thickness of about 4 miles and is subdivided into three formations (in order of youngest to oldest):

1. Freda Formation (upper bedrock, reddish sandstone/siltstone)

Freda Formation (also referred to as the Freda Sandstone) consists mainly of red-brown fine to very-fine sandstone, siltstone, and mudstone which were deposited by a system of shallow winding river channels that gradually transitioned from coarser to finer sediments (Elmore et al., 1989). Maximum exposed thickness of greater than 12,130 feet as the top is not exposed.

2. Nonesuch Shale (a gray/black shale and siltstone; host of the historic copper orebody)

The Nonesuch Formation (also referred to as the Nonesuch Shale) conformably overlies the Copper Harbor Conglomerate consisting of black-to-gray-to-green siltstones, shales, carbonate laminates, and minor sandstones (Elmore et al., 1989). The Nonesuch Shale are interbedded or intermixed in places with the Copper Harbor Formation. The rocks of the Nonesuch Formation are assigned to three genetic facies based on the depositional environment and the characteristics of the sediments within the formation (Elmore et al. 1989), including:

- a) a sandflat-mudflat marginal lacustrine deposition consisting of siltstones, mudstone, and sandstones;
- b) a lacustrine depositional environment consisting of massive to well-laminated dark siltstones and shales, and minor carbonate laminates; and
- c) a fluvial to lacustrine deposition consisting of red to brown siltstones, mudstones, and fine sandstones.

Anoxic lacustrine bottom conditions promote the retention of organic carbon and pyrite in black to gray shales and siltstones whereas under oxic conditions the deposited siltstones and sandstones have low total organic carbon and are reddish in color. The Nonesuch Formation consists of up to 720 feet of characteristically black-to-gray-to-green siltstones, shales, carbonate laminates, and minor sandstones. The variable vertical facies sequences in the Nonesuch Formation are interpreted to a combination of rates of sedimentation, subsidence, and fluctuations in lake level (Elmore et al., 1989). The interpretation of the Nonesuch Formation as lacustrine is supported by associated fluvial rocks. The Nonesuch Formation is gradational conformable upward into the Freda Formation.

3. Copper Harbor Conglomerate (basal sandstone/conglomerate unit)

The oldest of the Oronto Group formations is the Copper Harbor Formation (also referred to as the Copper Harbor Conglomerate), which is made up of red-brown conglomerates and well-cemented sandstones with lesser siltstones. The Copper Harbor Formation sedimentary rocks were fluvial deposited in coalescing alluvial fans and range up to 1.1 miles in thickness. (Cannon et al., 1989, Elmore et al., 1989).

Underlying the Oronto Group are older volcanic rocks which include the Porcupine Volcanics and Portage Lake Volcanics which are essentially impermeable. At the White Pine Mine, historic mining excavated the upper 3 to 22 feet of the Nonesuch and the top 2 to 10 feet of the Copper Harbor (the stratiform copper ore zone). The deepest mine workings extended to ~2,840 ft bgs in the far west part of the old mine, to around 1000 to 1500 feet near the northern ore body. Oronto Group is of Keweenawan age and is often described as transitional, with underlying interbedded volcanics and sediments. Depth to bedrock in the mine area is approximately 25 and 75 feet (Foth, 2026).

The bedrock geology of the local mine area is illustrated on Figure 3-3, with shaded relief of the bedrock surface. The subsurface geology and hydrogeology are illustrated in four cross-sections (A-A' through D-D') provided on Figures 3-4 through 3-7, respectively. The

hydrogeologic cross-sections illustrate profiles cut through the WPC geologic model which is annotated with the subsurface testing results from the 2024-2025 Exploration Program discussed in Section 4.

3.1.3 Structure

All three formations of the Oronto Group are present at White Pine Mine and typically found underlying unconsolidated glacial deposits. Bedrock is largely monoclinical, with a gentle northerly dip. Structurally, the area is on the flank of the Porcupine Mountains syncline in an area of minimal seismic activity. The Iron River syncline (illustrated on Figure 3-2) can be inferred southwest of the proposed White Pine North underground mining area on Figure 3-3.

Faults and fractures are widely distributed throughout the underground mine workings but many of these systems are infilled with crystallized minerals and indicate no active fault movement has occurred in recent geologic time frames (Repaal, 2015). The White Pine Fault is the notable dominant fault that controls the occurrence and distribution of fractures within the White Pine Mine (Carpenter, 1963). The White Pine Fault is a large normal fault that strikes at 131 degrees (southeast) and dips steeply at 221 degrees (southwest), as illustrated on Figure 3-3. The White Pine Fault dissects a large anticlinal structure which plunges at approximately 10 degrees along a trend of approximately 130 degrees southeast (Pearson et al., 1996). Another fault, informally labeled the “T-4 fault” was intersected in deep drilling in 1994. Hydraulic testing conducted across the fault did not indicate enhanced permeability, as summarized in Table 2-5B.

Overall, the deep bedrock is highly consolidated and cemented very low-permeability rock matrix, with limited groundwater flow occurring via fractures or bedding plane partings. Near-surface bedrock yields high degree of fracturing which has high transmission rates which provides for the flow of meteoric groundwater.

3.1.4 Porcupine Mountains Sediment-Hosted Copper District

The base of the Nonesuch Formation is enriched in copper along its entire exposed strike length. However, ore deposits and known prospects are restricted to the exposed margins of the Porcupine Mountains. This localized enrichment suggests both basin-scale mineralizing process coupled with local influence of the volcanic structure of the Porcupine Mountains. The chalcocite mineralization at the White Pine Mine formed at low temperatures (<130 degrees Celsius) during early diagenesis (Brown, 2009; Hitzman, et al., 2005; Swenson et al., 2004; Mauk et al., 1992).

The first, main-stage mineralization, formed a classic sediment-hosted stratiform copper deposit during early diagenesis. Clastic red-bed sedimentary rocks in the underlying Copper Harbor Formation provided the paleoaquifer for the copper-mineralizing ore fluids and were likely the source of the copper. Thinning of the Copper Harbor paleoaquifer rocks focused upward movement of mineralizing fluids which may have been further focused by faults (Brown, 2009; Swenson et al., 2004; Johnson et al., 1995; White, 1971) into the reducing environments of the silts and shales of the Nonesuch Formation. The reducing conditions resulted in the mineral precipitation of main-stage copper sulfides and native copper.

The second stage of copper mineralization at the White Pine Mine occurred during compressional thrust faulting, which created fissures that allowed new mineralizing fluids to

enter the ore body. This second stage introduced additional copper to the deposit, which is found as native copper in veins and fractures associated with these thrust faults, in contrast to the earlier, main stage stratiform chalcocite mineralization (Mauk et al., 1992).

3.1.5 Mineralization of Sediment-Hosted Copper Deposits

The White Pine Mine ore body consists of the lowermost 3 to 22 feet of the Nonesuch Formation fine-grained sediments and the uppermost 2 to 10 feet of the Copper Harbor Formation conglomerates. The copper occurs as chalcocite (a copper sulfide mineral) hosted by fine-grained clastic sedimentary rocks. Mineralized zones are nearly stratiform within layers of the sedimentary rocks. At the White Pine Mine, stratiform chalcocite is about 80% of the ore in which very fine-grained chalcocite occurs as fine grains and as concentrations along preferential deposition planes. In the top 10 feet of sandstone lithologies within the Copper Harbor Formation, native copper occurs as disseminations and cement. Native copper also occurs within the chalcocite-mineralized zones along bedding planes and as sheets along faults (Mauk et al., 1992).

3.2 Unconsolidated/Quaternary Deposits

The unconsolidated (overburden) sediments at the White Pine Mine mainly consist of reddish-brown glacial lacustrine deposits of Pleistocene and recent ages. The unconsolidated sediments consist of silts, sand, and low-permeability clays. The average thickness of the glacial overburden deposits is between 25 and 75 feet across the Project site (Foth, 2026).

4. Deep Bedrock Hydrogeologic Investigation Results

A series of field investigations were conducted in 2024 and 2025 to characterize bedrock geologic and hydrogeologic conditions to supplement the available data and strengthen the hydrogeologic dataset with further detail, as discussed in Section 2. This section provides the results and interpretation of the subsurface investigation, including hydraulic testing results. The results of water quality testing and interpretation are provided separately in Section 5.

4.1 Geophysical Investigation Results

The results of the downhole geophysical testing using the acoustic and optical televiewers, coupled with a caliper, were primarily used to develop target intervals for hydraulic packer testing and water quality sampling intervals. However, inspection of the geophysical testing logs provides evidence that much of the deep bedrock (below shallow fracturing) can be essentially classified as *unfractured* since fractures are commonly not observed within the approximate 15-foot depth intervals of the geophysical logs (Appendix A). The next descriptor of fracture density “*very slightly fractured*” overemphasizes the fracture density considering *very slightly fractured* density has criteria of more than 3-feet between discontinuities (USBR, 1998). Minor discontinuities were commonly observed to be spaced much greater than 3 feet, but rather between 20 feet to over 50 feet apart and increased with depth. Minor discontinuities are interpreted to be joints (fractures with no obvious displacement parallel to plane), bedding plane separations or minor/random fractures.

Strong signatures of distinct discontinuities such as open or displaced fractures were very uncommon averaging less than one observed strong signature per borehole. Shear zones, breccia zones, or significant faulting were not observed. The deep bedrock structure, including nature of fractures and faulting were summarized by a WPC employee taken from the former underground mine workings, as described in Section 2.2.

Where logged, RQD values were excellent with most 10-foot intervals resulting in value of 100%. Occasionally, slightly lower RQD values were observed, but the lowest RQD values of about 90% still represent very high quality. Slightly higher fracture density is observed in shallow bedrock. While depths are not consistent between boreholes, fracture density was observed to decrease significantly between 50 and 150 ft bgs. The increased fracture density in shallow bedrock provides pathways for the transmission of shallow groundwater. Besides the fracture density, water quality and hydraulic testing provided additional evidence that characterized the difference between the shallow and deep groundwater.

In summary, the geophysical records provide continuous optical and ultrasonic pulse (acoustic) records of the deep bedrock geology and provide evidence of the unfractured nature of site bedrock that have low frequency of discontinuities that decrease with depth – especially below the upper 50 to 150 feet of the bedrock surface.

4.2 HpL Investigation Results

HpL was used to directly measure flow of water within the borehole to assist in identifying conductive intervals. Estimated aquifer properties from HpL included net flow during ambient conditions, interval specific FEC, hydraulic conductivity, and transmissivity, as well as net borehole transmissivity. The HpL testing results are included in Appendix B and summarized in Table 4-1. A total of 137 HpL intervals were tested, or about 15 intervals per borehole which

varied based on borehole depths and signatures identified during initial geophysical logging. Five of the nine boreholes, including WP-585, WP-586, WP-587, WP-588 and WP-598 had flowing artesian conditions encountered at the start of testing.

Ambient flow conditions assessed whether inflow was occurring into the borehole (positive flow), or if outflow was occurring from the borehole to bedrock (negative flow). The vast majority of HpL intervals indicated groundwater inflowed from surrounding bedrock into the borehole. A plot of ambient flow versus depth is illustrated on Figure 4-1. The highest inflow rate was just less than 1.5 gpm (or about 5,500 milliliters per minute [mL/min]), but the median flow inflow was significantly less at about 0.005 gpm (or about 19 mL/min). Intervals with outflow were essentially limited to two boreholes (WP-583 and WP-584), and in these boreholes, only about 20% of tested intervals were observed to have flow out of the boreholes into surrounding bedrock.

Temperature and FEC logs obtained from HpL are included in Appendix B. Locations of conductive zones were identified as sharp increases or spikes in FEC as a function of depth of borehole (lineal feet [LF] below ground surface). The HpL reports assembled by COLOG include several plots and data summaries that combine FEC, temperature and flow conditions, including the following:

- ◆ Ambient FEC/T Logs – plots ambient temperature and FEC conditions along the entire length of the borehole and is performed prior to any DI water emplacement or pumping.
- ◆ FEC Logs during Ambient Flow Characterization – plots FEC immediately after emplacement of DI water during ambient flow conditions. Depth intervals with high FEC that may be indicative of flow zones are annotated with estimated flow rates.
- ◆ Pumping and Drawdown during Hydrophysical Stress Tests – This log documents drawdown (feet) of water level in the borehole during hydrophysical stress tests. Annotations of extraction and injection rates, along maximum drawdown during pumping are provided.
- ◆ FEC Logs during Hydrophysical Stress Tests – Estimated flow rates of depths with high FEC are provided under pumping conditions.

4.2.1 HpL Hydraulic Estimations

Hydraulic parameters obtained from the HpL for the nine boreholes are summarized in Table 4-1. Interval hydraulic conductivity values were found to exceed eight orders of magnitude, from $1.6\text{e-}1$ cm/s in shallow bedrock (approximate 33 ft bgs) to $5.7\text{e-}9$ cm/s at depths that exceeded 2,000 ft bgs. The large range of conductivity values is not unexpected considering the discrete and targeted testing results from fractured zones to zones consisting exclusively of the bedrock matrix. While the geometric mean of HpL hydraulic conductivities estimated from HpL was $1.6\text{e-}5$ cm/s, hydraulic conductivity values markedly decreased with depth. These results are discussed further in Section 4.4. Borehole transmissivities ranged from 1.5 to 108 square feet per day (ft^2/d), and averaged $53 \text{ ft}^2/\text{d}$. These transmissivities are low considering productive aquifers have transmissivities that exceed $1,000 \text{ ft}^2/\text{d}$ (USGS, 2000).

4.2.2 HpL Fluid Electrical Conductivity Results

As described in Section 2, HpL provided specific FEC data by measuring time-series changes in conductivity as a borehole was pumped after being filled with DI water. The resulting, interval-specific FEC profiles identified water-bearing fractures and quantified their salinity concentrations. FEC was plotted as a function of depth on Figure 4-2 and indicated that FEC increased with depth. The fresh water/saline water interface is variable, but the FEC data indicate that fresh water (as defined by FEC of <1,000 microsiemens per centimeter [$\mu\text{S}/\text{cm}$]) was only present in the upper 200 feet of the groundwater system. However, it is noteworthy that poor water quality, as defined as brackish (>1,000 to <10,000 $\mu\text{S}/\text{cm}$) and saline (>10,000 to <50,000 $\mu\text{S}/\text{cm}$) water, was also found at shallow depths of less than 100 ft bgs. High FES values at shallow depths may be indicative of low connectivity or diffusion from underlying brines.

Overall FEC data indicated increased conductance (and inferred increases in TDS concentration) with depth in bedrock. The highest concentration brines that exceeded 100,000 $\mu\text{S}/\text{cm}$ were observed at depths of 500 to 3,000 ft bgs. The maximum FEC was 310,000 $\mu\text{S}/\text{cm}$ at a depth of about 2,000 ft bgs. All boreholes except WP-592 and WP-588 observed FEC readings over 100,000 $\mu\text{S}/\text{cm}$. The median and average FEC readings were approximately 31,000 and 53,000 $\mu\text{S}/\text{cm}$, respectively.

Review of the HpL logs (Appendix B) indicated numerous water-bearing fractures identified with the ambient FEC logging. However, the FEC data suggested that the fluid was connate water trapped in formation rather than meteoric derived groundwater. At least nine water-bearing fractures yielded TDS concentrations that exceeded the FEC sensors or indicated elevated FEC values, as outlined below:

Elevated FEC Readings		
Borehole	Maximum FEC Readings	Depth of Borehole
	(> indicates over-range of sensor)	(LF = lineal feet down hole)
WP-583	86,000 $\mu\text{S}/\text{cm}$	600 to 650 LF
WP-584	>140,000 $\mu\text{S}/\text{cm}$	600 LF
WP-592	56,000 $\mu\text{S}/\text{cm}$	2,500 LF
WP-594	>141,000 $\mu\text{S}/\text{cm}$ at several depths including: 1,800-2,400 LF 2,700-2,800 LF 2,900-3,000 LF	
WP-598	>95,000 $\mu\text{S}/\text{cm}$ at 1000 LF; >110,000 $\mu\text{S}/\text{cm}$ at 1,350 LF; and >120,000 $\mu\text{S}/\text{cm}$ at 2,850 LF	

Typical seawater has about 35 parts per thousand (ppt) salinity which is equivalent to an FEC of 50,000 to 55,000 $\mu\text{S}/\text{cm}$ at 25°C (Tyler et al., 2017). Based on these results, the deep bedrock brine is several times more saline than modern-day seawater, indicating that the deep groundwater is very old, possibly originating from trapped paleo-seawater subject to leaching of

ions and salts from the surrounding rock matrix over geologic time, with limited recharge. The inference is that the deep groundwater system is hydraulically isolated, in low permeability rock, with minimal mixing with modern meteoric water leading to long residence times resulting in deep bedrock brines. Fluid temperature data also suggested increasing trends with depth. Temperature logging data indicated fluid temperatures steadily increased from meteoric derived groundwater temperatures of 8.5°C to 12.5°C in shallow bedrock to deep bedrock temperatures that exceeded 18.5°C. Rates of temperature increases ranged from 1°C for every 300 feet to 500 feet of borehole depth. This geothermal gradient range is similar to, but slightly lower than average gradients for older, stable cratons that are on the order of 1°C for every 200 to 300 feet (Nathenson and Guffanti, 1988). This indicates a lack of deep, underlying geothermally warmed circulating fluid.

When combined with inspection of the geophysical testing results, the HpL data were used to delineate zones within the bedrock and develop interval targets for packer testing. Packer testing provided quantitative assessments of the hydraulic properties of bedrock, which are summarized in the following section.

4.3 Packer Testing Hydraulic Conductivity Testing Results

The deep bedrock investigation program conducted 54 different intervals of packer tests that spanned from the top of bedrock to over 3,000 ft bgs. The geometric mean of hydraulic conductivity from the packer testing was 1.5e-6 cm/s. This mean result was an order of magnitude lower than the mean conductivity determined from HpL which was estimated to be 1.6e-5 cm/s. However, the packer testing data spanned a similar eight orders of magnitude (from 2.3e-3 cm/s to 3.9e-11 cm/s) in hydraulic conductivity estimates and indicated similar decreases of hydraulic conductivity values with increasing depth. Near the top of bedrock at shallow depths of less than 200 ft bgs, hydraulic conductivity values from packer testing were on the order of 10e-4 to 10e-6 cm/s. These values are consistent with the shallow bedrock slug testing results summarized in baseline reporting (Foth, 2026) and allow for the moderate transmission of groundwater.

At depths greater than 500 ft bgs, hydraulic conductivity values were typically 10e-6 cm/s or lower. Tested intervals at depths greater than 1,000 ft bgs often had no measurable inflow, which effectively indicated hydraulic conductivities on the order of 10e-9 to 10e-11 cm/s which is equivalent to the lower limit of the testing equipment. For example, one test interval in the Nonesuch Shale around 1,100 ft bgs indicated essentially no water entry over a 24-hour period, implying an extremely low hydraulic conductivity. These new data reinforce the low intrinsic permeability of the deep bedrock.

4.3.1 Historical Hydraulic Testing Results

Historical hydraulic testing results have been gathered to supplement the recent deep bedrock subsurface investigations. The historical datasets are described as follows:

- ◆ **Slug Tests (1990s):** Two deep monitoring wells installed in the 1990s (BMW-1 and BMW-3) had historical slug testing data available (Table 2-4). Deep monitoring well BMW-1, which is screened in bedrock at a depth of 460 to 580 ft bgs, yielded a mean hydraulic conductivity of 2e-5 cm/s. The deeper of the two wells, BMW-3, is screened between 1,170 and 1,280 ft bgs and had an estimated hydraulic conductivity of

4.7e-7 cm/s. Since the deeper interval was found to be two orders of magnitude less permeable than the shallower one, these data support the recent investigation results that found decreasing permeability with depth.

- ◆ **Packer Tests (1994):** During the 1994 exploratory drilling, a limited number of isolated interval (packer) tests were conducted (Tables 2-5A and 2-5B). The results indicated three orders of magnitude difference in values between fault zone results where hydraulic conductivity was measured around 4.2e-4 cm/s to the surrounding bedrock conductivities were on the order of 6.5e-6 cm/s to 1.3e-7 cm/s. These data are consistent with the recent data indicating that isolated fractures may have slightly higher conductivity but have limited interconnectivity.
- ◆ **Laboratory Core Analyses:** A limited number of core samples had laboratory permeability tests conducted historically (Table 2-6). These data typically yielded matrix permeabilities in the range of 1e-9 to 1e-10 cm/s which suggests the intact rock matrix is essentially impermeable. Thus, any movement of groundwater observed in field testing is from secondary porosity features.

4.4 Summary of Hydraulic Conductivity Testing Results

Summaries of hydraulic conductivity testing that were conducted within bedrock are summarized in Table 4-3. The summary includes slug tests that were completed in bedrock, as well as the HpL and packer testing results that were summarized in Tables 4-1 and 4-2, respectively. For reference, the shallow bedrock slug testing data are included in the baseline report (Foth, 2026). The hydraulic conductivity testing results are sorted by depth, which were specifically determined using the midpoint of test interval at depths bgs for monitoring wells, or LF down the length of open boreholes. In most cases, boreholes were advanced at high angles from horizontal, so lineal borehole depths and depths bgs were negligible.

For purposes of sorting the data, shallow bedrock included all hydraulic conductivity tests completed at depths less than 200 ft bgs, while deep bedrock tests had midpoints greater than 200 ft bgs. Deep bedrock tests were further divided into nine different intervals between 200 and 2,959 ft bgs to assist in data interpretation. The hydraulic conductivity testing data as sorted by depth interval is summarized in Table 4-4. A total of 153 individual hydraulic conductivity tests were conducted and assessed. The testing results clearly indicate the general decrease in hydraulic conductivity with increasing depth and the significant magnitude of difference between shallow bedrock and deep bedrock. The mean and median hydraulic conductivities decrease three to four orders of magnitude between shallow and deep bedrock.

The hydraulic conductivity results are graphically illustrated versus depth for all bedrock tests (Figure 4-3), by test type (Figure 4-4), and by depth interval (Figure 4-5), respectively. On average, hydraulic conductivity decreases about one order of magnitude for every 500 feet of depth spanning eight orders of magnitude from 10e-2 in shallow bedrock (<200 ft bgs) to less than 10e-10 cm/s at depths exceeding 2,500 ft bgs. Shallow bedrock results varied from 3.9e-7 cm/s to 1.6e-1 cm/s and have a mean hydraulic conductivity of 9.6e-5 cm/s. The mean hydraulic conductivity of deep bedrock was estimated to be 4.3e-6 cm/s and varied considerably – between 3.9e-11 and 1.3e-2 cm/s.

Hydraulic conductivity estimates provided by COLOG through HpL were generally within two orders of magnitude but systematically higher than the hydraulic conductivity estimated by Foth from packer test data. The difference between the estimates is believed to be caused by the scale-dependent nature of hydraulic behavior. Packer testing integrates over a larger test volume straddling water-bearing fractures along with adjacent rock that has much lower bulk hydraulic conductivity. Conversely, HpL can target, isolate, and analyze more discrete intervals that generally result in higher values. For example, some fractures may provide an initial flush of water for which HpL documents. However, due to lack of larger scale connectivity to storage, flow may diminish rapidly. Slug testing results appeared to bridge the two methodologies since slug test results were within the range of the HpL and packer test data, but closer to mean values. All results consistently indicated decreasing conductivity values at greater depths.

4.5 Vibrating Wire Piezometer Head Readings

Piezometric head levels calculated from the VWP's head pressures have been plotted as a function of time throughout much of 2025 (February 2025 through February 2026), as provided in Appendix E. By all indications, the VWPs appear to be functioning properly based on the consistency of readings recorded at the same location, the consistency of data observed between boreholes, and consistency with other VWPs installed at similar depths.

Five of the nine VWPs (WP-584-1, WP-584-3, WP-585-2, WP-585-3, and WP-598-3) indicated slowly building head levels. In these VWPs, which included the shallowest piezometer in each of the three nested boreholes, head levels increased between 30 and 90 feet over the last 12 months. This is interpreted to be related to the slow recovery of head levels after installation within the very low-transmissivity bedrock. The interpretation is consistent with expected behavior in tight, low permeability bedrock settings where borehole storage effects persist for long periods, fracture connectivity is limited, and hydraulic diffusivity is extremely low. Several of the intervals may be close to equilibration, including WP-584-3, WP-585-3, and WP-598-2, considering their piezometric head levels exceed 900 feet above the North American Datum of 1988 (FT NAVD88). It suggests these intervals may be converging toward true formation pressures, particularly where the rate of change has slowed.

However, at three of the remaining four VWPs (WP-584-2, WP-585-1, and WP-598-1), including the deepest piezometer at two of the three boreholes, head pressures were low (less than 25 feet) but stable. At these VWPs head changes were within +/- 5 feet of head change throughout the 2025 monitoring period. The stable pressure readings may indicate head recovery at these VWPs may occur over longer time periods, or in the case of the deepest piezometers, head pressures may not build during the entire life of the VWP considering the impermeable nature and limited interconnected nature of the deep bedrock. The lone anomaly was the middle piezometer at WP-598(2) which indicated high, but stable head pressures of 500 feet that continued throughout the monitoring period. These high head pressures equated to stable piezometric head levels of about 800 feet above FT NAVD88 throughout 2025.

4.5.1 Seasonal/Temporal Head Variations

Slowly increasing heads were observed, but seasonal fluctuations were not, which provide evidence that the shallow and deep groundwater units are essentially not connected. Groundwater in deep bedrock is an ancient brine isolated from meteoric recharge. Conversely, seasonal fluctuations are observed in shallow groundwater (Foth, 2026). The lone exception

was a minor fluctuation that was observed in the shallow piezometer at the WP-585 location (WP-585 VWP-3). A slight head loss of about 10 feet, followed by subsequent recovery was observed at this location in November 2025. While the cause of this occurrence is unclear, this piezometer has a corrected depth of about 70 ft bgs, so is more indicative of shallow groundwater conditions than the remaining VWPs that do not indicate fluctuating head conditions.

4.5.2 Vertical Hydraulic Gradients

Vertical hydraulic gradients of heads observed at the nested VWP were estimated by using the hydraulic head difference between two vertically nested sensors and dividing the head by the vertical distance separating them. Positive gradients indicate downward flow, while negative gradients indicate upward flow. The vertical gradients are plotted alongside the piezometric head versus time graphs included in Appendix E. Aside from two exceptions, downward vertical gradients were found that varied between 0.75 and 2.0 feet per foot (ft/ft). The two exceptions were observed at WP-598 which were caused by the high head levels at the middle piezometer (VWP-2) relative to the deep (VWP-1) and shallow (VWP-3) piezometers at that nested location. The head difference between the middle and deep piezometers (VWP2-VWP1) resulted in high downward gradients that were close to 4 ft/ft. Conversely, the only upward gradients between VWPs were observed between WP-598's middle and shallow piezometers (VWP3-VWP-2).

However, since piezometric heads have not reached equilibrium and hydraulic connectivity is limited, these estimates must be interpreted with caution. For example, five of the VWPs appear to be slowly equilibrating, at which time, estimating vertical gradients may be more appropriate. Furthermore, the application of estimating hydraulic gradients assumes hydraulic connection. As outlined above, several VWPs appear to be hydrologically isolated and may not equilibrate over the course of the instrument's lifespan. The head differential doesn't imply hydraulic connectivity.

4.5.3 Comparison to Piezometric Head Levels at well BMW-1

Comparison of VWP heads can be made using the piezometric levels from existing data obtained from deep groundwater monitoring well BMW-1 (Table 4-5). As shown by the depth to water measurements taken between 2021 and 2024 at this largely inactive well, piezometric head elevations at BMW-1 have varied between 692 and 699 FT NAVD88. This indicates the piezometric head elevations derived from the VWPs appear to be appropriate considering the BMW-1 head data are within range of VWP head elevations. Interestingly, the head levels at BMW-1 were observed to be steadily increasing throughout the available 3-year monitoring period and may suggest very slow equilibration that is also being observed at several VWPs.

5. Deep Bedrock Hydrochemistry

Groundwater at the White Pine Mine becomes increasingly saline and dense with depth. Shallow groundwater has relatively low TDS concentrations and are bicarbonate-type water, as characterized in Foth (2026). Deep bedrock groundwater has significantly higher TDS and chloride concentrations resulting in much higher densities. Many inorganic constituents occur naturally in the Project area groundwater at concentrations that make it unusable as a drinking or industrial water source. These findings and additional details on the deep bedrock groundwater quality samples collected as part of 2024-2025 field investigation are summarized below.

5.1 Results of Deep Bedrock Water Quality Sampling

One-time water quality sampling was conducted at 10 bedrock intervals across eight of the nine exploration boreholes. Sampling and analysis were conducted for total and dissolved metals, as well as general chemistry parameters. The detected constituents, reporting limits, method detection limits, and laboratory qualification notes are summarized in Table 5-1. The full laboratory reports, including quality control sampling results, chain of custodies, and certifications, are included in Appendix D. Sample collection, handling, preservation, and analysis were conducted in accordance with the Project QAPP and SOPs, as outlined in Section 2.3.4.

The water quality results indicate that the bedrock hydrochemistry is not uniform but varies considerably spatially between boreholes and vertically with depth. Concentrations of numerous constituents varied two orders of magnitude in their detections, including total aluminum, total barium, iron, and uranium, dissolved manganese, as well as total and dissolved sodium, strontium, and zinc. Most detected constituents increased concentration with increasing depth, which is discussed further below. This trend was magnified between the nearly 1,000-foot difference between the deepest interval (1,428 to 1,738 ft bgs) at WP-587 and the next deepest interval (440 to 407 ft bgs) at WP-585. The results from WP-587 (1,428 to 1,738 ft bgs) yielded concentrations one to two orders of magnitude higher than shallower results also collected in the deep bedrock investigation. TDS results exceeded 90,000 mg/L in the deepest zone, which was buoyed by extremely high sodium and chloride concentrations. These diverse results confirm the isolated non-uniform hydrochemistry and water changes with increasing depth.

Groundwater from the deep borehole water samples is naturally occurring and confined. Based on the differences in water quality, it is evident that shallow and deep groundwater have limited interaction. These differences are visualized in the Schoeller and Trilinear diagrams provided in Appendix D. The Schoeller diagram offers a visual comparison of the relative concentrations of major ions (i.e., Ca, Mg, Na, Cl, SO₄, HCO₃) in multiple groundwater samples on logarithmic scales to display geochemical patterns of the overburden, shallow bedrock, and deep bedrock sources. The overburden and shallow bedrock groundwater data are included in Foth, 2026. The increase in solute concentrations of one to two orders of magnitude (or more) within the deep bedrock is apparent. The increases in calcium, sodium, and chloride concentrations, along with the corresponding decrease in bicarbonate demonstrates the long residence time of the deep groundwater and lack of mixing with recent meteoric water due to limited to no recharge.

The trilinear diagrams include a plot that displays all the one-time water quality monitoring data, as well as several depth interval plots of: 1) less than 200 feet; 2) 200 to 300 feet; 3) 300 to

400 feet; 4) 400 to 500 feet; 5) 500 to 600 feet; and 6) and >600 feet down borehole to visualize water quality changes within depth. Calcium or sodium cations combined with chloride anions are dominant water quality types in deep bedrock. These dominant ions relationships between Ca, Na, and Cl provide evidence that the water produced after compositional stabilization is natural formation water, whose salinity originated primarily from evaporatively concentrated paleoseawater (Bottomley et al., 1999). Sulfate is present but in low concentrations of less than 20 mg/L, which suggests most sulfate minerals have leached out or precipitated. With limited hydraulic connectivity, the chemical evolution of salinity and enrichment of dominant speciation/water-type in groundwater proceeds very gradually caused by slow dispersivity and molecular diffusion processes (Freeze & Cherry, 1979; Bottomley et al., 1999).

Trace metals in deep groundwater (e.g., dissolved Cu, Pb, and Zn) have generally low concentrations and are suspected to be the result of the chemically reducing environment. Thus, available metals likely precipitate as sulfides over time. Based on historical mine data, the collected deep water is strongly reducing since it often contained detected concentrations of ferrous iron (Fe^{2+}) and had distinct sulfurous or petroliferous odor, which was suggestive of dissolved hydrogen sulfide or methane gas in saturated pores (Repaal, 2015). These hydrogeochemical conditions indicate deep groundwater is isolated with minimal intermixing with meteoric recharge.

5.2 Hydrochemistry Plots

Several concentration ratio plots were used to distinguish source water type and to visually depict the hydrogeochemistry of various constituents at varying bedrock depths (Appendix D). Most of the plots include direct comparison of wells that are completed in shallow bedrock (which had samples collected at depths less than 200 ft bgs versus deep bedrock samples collected at depths greater than 200 ft bgs. The following hydrogeochemistry plots are provided in Appendix D and include the following analyses:

1. Depth vs. concentration (semi-log plots of Ca, Cl-, Mg, K, Na, TDS, and salinity)
2. Chloride vs. TDS concentrations (shallow and deep bedrock)
3. Calcium vs. sodium concentrations (shallow and deep bedrock; with size Ca/Na ratio denoted)
4. Ca/Na ratio vs. salinity concentrations (shallow and deep bedrock)
5. Ca/Na ratio vs. salinity concentrations (shallow and deep bedrock; with size Mg/salinity ratio denoted)
6. Ca/Na ratio vs. salinity concentrations (shallow and deep bedrock; with size K/salinity ratio denoted)
7. Depth vs. salinity concentrations

The key findings from these graphic plots include the following:

- ◆ For almost every constituent, concentrations increased dramatically, typically over several orders of magnitude, with increasing depth.
- ◆ Nearly all deep bedrock concentrations exceeded (or were close to exceeding) the maximum concentrations observed in shallow bedrock.

- ◆ The lone anomaly constituent that did not increase within increasing depth was magnesium. The magnesium concentrations in deep bedrock (between 2 and 11 mg/L) were observed to be within the range of shallow bedrock concentrations (>0.1 and <13 mg/L). However, it should be noted that potassium concentrations did increase within increasing depth, but not excessively.
- ◆ When TDS concentrations exceed about 1,000 mg/L, chloride becomes the dominant source of salinity making up about 60 to 70% of total salinity.
- ◆ Potassium contributes less to salinity with increasing depth.
- ◆ Ca/Na and Mg/salinity ratios were poor indicators of source water quality. K/salinity ratios provided a better indicator.
- ◆ The salinity versus depth data indicates that the fresh water/brine water salinity interface (assuming salinity >1,000 mg/L) is between 150 and 250 ft bgs. Specifically, using the recent groundwater data and ignoring shallow bedrock monitoring well data, the modeled salinity versus depth solution indicates an interface at approximately 260 ft bgs.

5.3 Effects of Increased Density, Pressure, and Temperature

Water in the old underground mine workings is stratified. Shallow meteoric groundwater is less dense than the older, saline and connate water due to much lower concentrations of dissolved salts and minerals. This density difference is the primary reason the fresh groundwater is buoyant at the top of the brine. The density contrast is significant enough that the shallow groundwater and brines do not readily mix (Post and Simmons, 2022).

Another factor that influences chemical evolution of groundwater flow in deep stratified sedimentary rocks is unbalanced surface charges that dictate how water and solutes can move through small pores under increased temperatures and pressures. This *membrane effect* is essentially a semi-permeable membrane that restricts or filters water and solutes (Freeze & Cherry, 1979). These factors are coupled with the limited hydraulic connectivity of the Precambrian bedrock which results in limited intermixing of shallow and deep groundwater.

6. Summary of Bedrock Hydrogeology

The Project encompasses infrastructure associated with the closed White Pine Mine. The underground mine workings will advance northeast of, and separate from, the historic underground mine workings of White Pine Mine. Copper ore will be extracted using conventional drill and blast room and pillar mining methods. An assessment of the hydrogeologic conditions of the deep bedrock groundwater focusing on depths greater than 200 ft bgs to support both the PFS and permitting requirements has been completed. The fracture density, water quality and hydraulic testing provided evidence to characterize the bedrock hydrogeology and establish the differences between shallow and deep groundwater systems. The following summaries reflect the hydrogeologic understanding of the deep bedrock hydrogeology.

Geology – The bedrock units in the vicinity of the White Pine Mine consist mainly of the Precambrian Freda Sandstone, Nonesuch Shale, and Copper Harbor Conglomerate formations. Shallow bedrock near the contact with the unconsolidated deposits has higher bulk hydraulic conductivity than deeper bedrock due to increased frequency of fracturing. With increasing depth, the Precambrian bedrock is highly consolidated and cemented. Fracture frequencies diminish with depth and are much lower in the deep bedrock as compared to the shallow bedrock. The increased fracture density in shallow bedrock provides discrete pathways for the transmission of groundwater in an otherwise very low transmissivity bulk rock matrix.

Hydraulic Conductivity – HpL and packer testing data indicated hydraulic conductivity values markedly decreased with depth. Interval hydraulic conductivity values were found to exceed eight orders of magnitude, from 1.6×10^{-1} cm/s in shallow bedrock (approximate 33 ft bgs) to 3.9×10^{-11} cm/s at depths that exceeded 200 ft bgs and extend beyond 2,000 ft bgs. At shallow bedrock depths of less than 200 ft bgs, hydraulic conductivity values from packer testing were on the order of 10^{-4} to 10^{-6} cm/s, whereas at depths greater than 500 ft bgs, hydraulic conductivity values were typically 10^{-6} cm/s or lower. Tested intervals at depths greater than 1,000 ft bgs often had no measurable inflow, which effectively indicated hydraulic conductivities on the order of 10^{-9} to 10^{-11} cm/s which is equivalent to the lower limit of the testing equipment. Laboratory permeability tests yielded similar permeabilities in the range of 10^{-9} to 10^{-10} cm/s which indicates the intact rock matrix is essentially impermeable. Thus, any movement of groundwater observed in field testing is from secondary porosity features.

Taken together, these results show that meaningful groundwater movement in the bedrock system is restricted to discrete fractures and other secondary porosity features in the upper portion of the bedrock. At greater depths, the extremely low hydraulic conductivity values indicate that groundwater flow is negligible, dominated by long residence times, minimal hydraulic communication, and near-static conditions. In essence, the deep bedrock behaves as a hydraulically isolated system where groundwater movement is exceedingly slow and limited to rare, localized transmissive structures rather than the rock matrix itself.

Fluid Electrical Conductivity – The FEC profiles show a clear and consistent increase in electrical conductance with depth, indicating progressively higher dissolved-solids concentrations in the deeper portions of the bedrock. These elevated FEC values, coupled with the extreme salinity of the sampled fluids, several times greater than modern seawater, strongly suggest that the deep formation water is not derived from present-day meteoric recharge.

Instead, the chemistry is characteristic of long residence time connate water that has remained trapped within the bedrock since its geologic formation.

In summary, the depth-dependent increase in salinity and the presence of highly evolved brines point to a deep groundwater system that is hydraulically isolated, extremely slow-moving, and dominated by ancient formation fluids rather than active circulation of modern groundwater.

Fluid Temperature – Fluid temperature data also increased with increasing depth. Fluid temperatures increased 1°C for every 300 feet to 500 feet of borehole depth. This geothermal gradient range is similar to, but slightly lower than average gradients for older, stable cratons that are on the order of 1°C for every 200 to 300 feet (Nathenson and Guffanti, 1988). This indicates a lack of deep, underlying geothermally warmed circulating fluid.

Piezometric Head Pressures – VWP data indicated that heads were building slowly at five of the nine piezometers throughout the 2025 monitoring period. In these VWPs, which included the shallowest piezometer in each of the three nested boreholes, head levels increased between 30 and 90 feet over the last 12 months. This is interpreted to be related to the slow recovery of head levels after installation within the low-transmissive bedrock. While one of the VWP (WP-598 VWP2) indicated high head pressures that were roughly equivalent to the static water table, three of the remaining four VWPs observed significantly less head buildup. These are interpreted to be from intervals that are isolated from the shallow groundwater system. VWP heads compare well to existing deep groundwater monitoring data.

Deep Bedrock Hydrochemistry

Groundwater becomes increasingly saline and dense with depth. Shallow groundwater has relatively low TDS concentrations and are bicarbonate-type water (Foth, 2026). Deep bedrock groundwater has significantly higher TDS and chloride concentrations resulting in much higher densities. Many inorganic constituents occur naturally at concentrations that make it unusable as a water source.

- ◆ One-time water quality sampling indicates that the bedrock hydrochemistry is not uniform but rather varies considerably between boreholes and depths, i.e., spatially and vertically.
- ◆ Concentrations of numerous constituents varied two orders of magnitude. Most detected constituents increased concentration with increasing depth.
- ◆ TDS results exceeded 90,000 mg/L in the deepest zone, which was buoyed by extremely high calcium, sodium, and chloride concentrations. These diverse results confirm the isolated non-uniform hydrochemistry and water changes with increasing depth.
- ◆ Groundwater from the deep borehole water samples is naturally occurring and confined. Based on the differences in water quality, it is evident that shallow and deep groundwater have limited interaction.
- ◆ Increases in calcium, sodium, and chloride concentrations correspond to decreases in bicarbonate and low sulfate concentrations. These relationships provide evidence that

the water produced after compositional stabilization is natural formation water, whose salinity originated primarily from evaporatively concentrated paleoseawater (Bottomley et al., 1999).

- ◆ Trace metals in deep groundwater (e.g., dissolved Cu, Pb, and Zn) have generally low concentrations and are suspected to be the result of the chemically reducing environment. Thus, available metals likely precipitate as sulfides over time. Based on historical mine data, the collected deep water is strongly reducing since it often contained detected concentrations of ferrous iron (Fe^{2+}) and had distinct sulfurous or petroliferous odor, which was suggestive of dissolved hydrogen sulfide or methane gas (Repaal, 2015). These hydrogeochemical conditions indicate deep groundwater is isolated with minimal intermixing with meteoric recharge.
- ◆ The salinity versus depth data indicates that the fresh water / brine water salinity interface (assuming salinity $>1,000$ mg/L) is between 150 and 250 ft bgs.

Historical Mine Operations – Hydraulic head (water level) in the former underground mine workings is maintained at levels at or just below the surface of Lake Superior, which results in the underground mine workings functioning as a sink for meteoric groundwater. The fresh groundwater is less dense than the deep brines and results in a stratified water column within the flooded underground mine workings. Chloride and TDS concentrations within the “freshwater cap” at the top of the flooded underground mine workings have remained relatively low (often well below 1,000 mg/L) while the underlying denser brines remain at lower elevations of the old mine (Repaal, 2015). White Pine North will be advanced separately from the historical White Pine Mine which severely limits the interactions between the former underground mine and the new mine that would un-stratify the flooded mine workings and would potentially result in brine discharges to the surface over the duration of continued hydraulic head maintenance of the historical mine.

Summary – The deep bedrock hydrogeology at the White Pine North Mine is characterized by highly saline, isolated brines that are naturally occurring within an extremely low-productivity fracture system that render it unusable as a water source. Provided that mining of White Pine North remains separate from the historical underground mine workings, the deep formation brine will remain stable in place, stratified, and pose no meaningful environmental concern.

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Tables

Table 2-1
Generalized Summary of Historical Exploration Programs
White Pine Copper

Exploration Program	Dates	Subsurface Information
Continuous Drilling Program	1929 through early 1970s	Subsurface data used to develop 3-D Geologic Model
Feasibility Studies	1994-1995	Historical packer test and slug test hydraulic testing data
White Pine North Drilling Program	2014-2015	Subsurface data used to fill-in 3-D Geologic Model in northern section of deposit
	Winter 2022-2023	
Foth's Hydrogeologic Testing and Characterization Program	2024-2025	Hydrogeology Characterization
Additional White Pine North Drilling Programs	Winter/Summer 2024	Subsurface data used to fill-in 3-D Geologic Model in northern section of deposit
	Winter 2026	

Prepared by: GMB
Checked by: VXT

Table 2-2
Details of Deep Bedrock Monitoring Wells
White Pine Copper

Well	Status	Date Installed	Location		Top of Casing (Collar) Elevation	Ground Surface Elevation	Well Depth / Bot. of Borehole	Screened Interval		Hydrogeologic Unit	Casing Diameter	Area
			Northing	Easting				From	To			
			(NAD83 16N)	(NAD83 16N)	(FT NAVD88)	(FT NAVD88)	(ft bgs)	(ft bgs)	(ft bgs)		(inches)	
BMW-1	Inactive	2/21/1994	5,184,553.5	304,382.1	784.00	782.5	570.8	471.4	570.8	Copper Harbor Conglomerate	4.80	Tailings Basin Area
BMW-3	Inactive	5/6/1994	5,175,970.3	306,679.4	1068.50	1066.1	1279.0	1192.0	1279.0	Copper Harbor Conglomerate	3.95	South of Mine site

Notes:

FT NAVD88 = Feet above North America Vertical Datum of 1988

ft bgs = feet below ground surface

NAD83 16N = Universal Transverse Mercator (UTM) Zone 16 North; North America Datum of 1983

Prepared by: KRM2

Checked by: GMB

Table 2-3
Matrix of Hydraulic Testing - Locations and Method
White Pine Copper

Well Identification	Date(s)	Hydrogeologic Unit(s)	Slug Testing	Packer Testing	Continuous Hydrophysical Logging Interval	
					Casing Depth (ft bgs)	Total Depth (ft bgs)
BMW-1	8/21/1994	Copper Harbor Conglomerate	1	---	---	---
BMW-3	9/1/1994	Copper Harbor Conglomerate	1	---	---	---
DDH-508 Zone A	9/5 - 9/19 1994	Freda Sandstone	---	3 intervals	---	---
DDH-508 Zone B	9/5 - 9/19 1994	Freda Sandstone	---	2 intervals	---	---
DDH-508 Zone C	9/5 - 9/19 1994	Freda Sandstone	---	2 intervals	---	---
T4 Fault - 94-3	9/5 - 9/19 1994	Copper Harbor Conglomerate	---	1 interval	---	---
T4 Fault - 94-4	9/5 - 9/19 1994	Copper Harbor Conglomerate	---	1 interval	---	---
WP-583	7/22/2024	Freda Sandstone, Nonesuch Shale & Copper Harbor Conglomerate	---	6 intervals	52	2306
WP-584	7/28/2024	Freda Sandstone & Nonesuch Shale	---	7 intervals	70	1679
WP-585	8/22/2024	Freda Sandstone, Nonesuch Shale & Copper Harbor Conglomerate	---	6 intervals	36	2316
WP-586	8/25/2024	Freda Sandstone, Nonesuch Shale & Copper Harbor Conglomerate	---	7 intervals	25	2505
WP-587	7/14/2024	Freda Sandstone	---	4 intervals	33	2857
WP-588	7/16/2024	Freda Sandstone	---	5 intervals	116	3313
WP-592	8/1/2024	Freda Sandstone, Nonesuch Shale & Copper Harbor Conglomerate	---	7 intervals	68.5	3210
WP-594	8/16/2024	Freda Sandstone & Nonesuch Shale	---	6 intervals	70	3018
WP-598	9/5/2024	Freda Sandstone, Nonesuch Shale & Copper Harbor Conglomerate	---	6 intervals	37	3032

Notes:

--- = indicates no testing data available

ft bgs = feet below ground surface

Prepared by: KRM2

Checked by: GMB

Table 2-4
Deep Bedrock Slug Test Results
White Pine Copper

Well Identification	Test Date	Hydrogeologic Unit	Depth to Mid-point of Screen	Mean Hydraulic Conductivity
			(ft bgs)	(cm/sec)
BMW-1	8/21/1994	Freda Sandstone	521.1	2.0E-05
BMW-3	9/1/1994	Freda Sandstone	1235.5	4.7E-07

Notes:

cm/sec = centimeter per second

ft bgs = feet below ground surface

OB / BR Interface = Well screen spans the overburden / bedrock interface

Prepared by: KRM2

Checked by: GMB

Table 2-5A
Historical Packer Test Results (Part 1)
White Pine Copper

Drill Hole Identification	Date	Hydrogeologic Unit	Test Interval	Test Type	Hydraulic Conductivity	
			(ft bgs)		(cm/sec)	(ft/day)
DDH-508 Zone A, Test 1	Sep-94	Freda Sandstone	Below 958 (958 to 2997)	Packer	3.2E-07	9.1E-04
DDH-508 Zone A, Test 2	Sep-94	Freda Sandstone	958 to 994	Packer	6.5E-06	1.8E-02
DDH-508 Zone A, Test 3	Sep-94	Freda Sandstone	Above 994 (230 to 994)	Packer	4.9E-07	1.4E-03
DDH-508 Zone C, Test 1	Sep-94	Freda Sandstone	249-254	Packer	4.2E-04	1.2E+00
DDH-508 Zone C, Test 2	Sep-94	Freda Sandstone	Below 249 (294 to 2997)	Packer	1.3E-07	3.7E-04

Notes:

Surface casing installed and grouted to 230 ft bgs.

DDH-508 advanced with a 2.98-inch diameter corehole to a total depth of 2997 ft bgs.

cm/sec = centimeter per second

ft bgs = feet below ground surface

ft/day = feet per day

Prepared by: KRM2

Checked by: MJG4

Table 2-5B
Historical Packer Tests (Part 2)
Hydraulic Property Estimates - T-4 Fault Packer Tests
White Pine Copper

Test No.	Borehole Angle	Test Interval	Test Depth Below Collar	Hydrogeologic Unit	Static Fresh Water Level Elevation	Static Brine- Level Elevation	Hydraulic Conductivity	
	(degrees from vertical)	(feet along borehole)	(feet)		(ft msl)	(ft msl)	(cm/sec)	(ft/day)
94-3	-2	37.5 - 315	1.2 - 9.9	Copper Harbor Conglomerate	550 ± 50	280 ± 75	1.40E-07	4.10E-04
94-4	-45	30.7 - 45.7	20.9 - 29.7	Copper Harbor Conglomerate	1060 ± 50	700 ± 75	8.30E-07	2.40E-03

Notes:

Water levels are referenced to an estimated drill collar elevation of 1,158.83 ft-MSL at 94-3, and 1,161.38 ft-MSL at 94-4. Brine elevations calculated from average brine density of 1.192 obtained from three samples collected from borehole 94-2.

cm/sec = centimeter per second

ft = feet

ft/day = feet per day

ft msl = feet above mean sea level

Prepared by: JMW3

Checked by: VXT/GMB

Table 2-6
Laboratory Permeability Testing Results
White Pine Copper

Sample Number	Description	Orientation	Hydraulic Conductivity		Porosity (percent)
			(cm/sec)	(ft/day)	
MS-13-1	Nonesuch Shale	Horizontal	8.8E-10	2.5E-06	1.79
MS-13-2	Nonesuch Shale	Horizontal	7.7E-10	2.2E-06	1.89
BC-1-1	Nonesuch Shale	Vertical	4.7E-10	1.3E-06	2.31
BC-1-2	Nonesuch Shale	Vertical	5.0E-10	1.4E-06	2.14
BC-2-1	Nonesuch Shale	Horizontal	1.3E-10	3.4E-07	1.88
BC-2-2	Nonesuch Shale	Horizontal	7.1E-10	2.0E-06	2.05
WP-3up	Upper shale	Vertical	< 9.5E-10	< 2.7E-6	---
WP-3low	Parting shale	Horizontal	7.8E-09	2.2E-05	---
WP-3low	Parting shale	Vertical	< 9.5E-10	< 2.7E-6	---
WP-4	Copper Harbor	Horizontal	< 9.5E-10	< 2.7E-6	---
WP-4	Copper Harbor	Vertical	5.6E-09	1.6E-05	---
WP-5	Upper sandstone	Horizontal	3.8E-09	1.1E-05	---
WP-5	Upper sandstone	Vertical	< 9.5E-10	< 2.7E-6	---
1b	Fine-grained sandstone	---	---	---	5.8
3b	Shale/Siltstone	---	---	---	2.6
Geometric Mean (Vertical):			1.0E-09	2.9E-06	---
Geometric Mean (Horizontal):			1.1E-09	3.0E-06	---
Average:			---	---	2.6

Notes:

"---" = indicates no data

cm/sec = centimeters per second

ft/day = feet per day

Historical exploration borehole locations are provided in Baseline Groundwater Report (Foth, 2026).

Geometric mean calculated using non-detected flow of the detection limit of approximately 9.5E-10 cm/sec or 2.7E-6 ft/day.

Prepared by: KRM2

Checked by: MJG4

Table 2-7
Deep Bedrock Testing and Instrumentation Summary
White Pine Copper

Borehole	Location ¹		Ground Surface Elevation (Ft NAVD88)	Total Depth (feet bgs) ²	Testing Program Component ("X" indicates completed test or install)				
					Downhole Geophysical Logging (3-Arm Caliper, Acoustic and Optical logging)	Hydrophysical Logging (HpL)	Packer Interval Hydraulic Testing ³	Vibrating Wire Piezometer Installation	Intervalled Water Quality Sampling
	Northing	Easting							
	(meters)	(meters)							
WP-583	5,182,650	308,660	853.9	2,308	X	X	X		X
WP-584	5,182,538	307,706	853.5	1,683	X	X	X	X	X
WP-585	5,184,339	307,786	808.9	2,318	X	X	X	X	X
WP-586	5,184,319	308,318	807.4	2,506	X	X	X		X
WP-587	5,183,123	313,065	809.5	2,858	X	X	X		X
WP-588	5,184,178	313,698	786.3	3,305	X	X	X		X
WP-592	5,184,573	311,707	767.0	3,239	X	X	X		
WP-594	5,183,303	311,804	809.1	3,009	X	X	X		X
WP-598	5,184,771	309,875	777.7	3,049	X	X	X	X	X

Notes:

¹ Coordinate System = NAD83 UTM 16N; Vertical Datum: North America Datum of 1988 (feet)

² feet bgs = feet below ground surface

³ Sealed-interval hydraulic testing included select slug and pumping extraction tests

Prepared by: KRM2

Checked by: GMB

Table 2-8
Vibrating Wire Piezometer Installation Details
White Pine Copper

Exploration Borehole ID	Ground Surface Elevation	Subject	Units	VWP1	VWP2	VWP3
	(FT NAVD88)					
WP-584	853.5	Installed Depth	(Borehole LF)	613.5	364.0	152.2
		Tip of Piezometer Elevation	(FT NAVD88)	242.6	491.1	702.0
		Angle of Borehole	(Degrees from Horz.)	84.7°		
		Corrected Depth	(ft bgs)	610.9	362.4	151.5
WP-585	808.9	Installed Depth	(Borehole LF)	720.0	460.0	70.0
		Tip of Piezometer Elevation	(FT NAVD88)	92.1	351.0	739.2
		Angle of Borehole	(Degrees from Horz.)	84.6°		
		Corrected Depth	(ft bgs)	716.8	458.0	69.7
WP-598	777.7	Installed Depth	(Borehole LF)	650.0	486.2	247.4
		Tip of Piezometer Elevation	(FT NAVD88)	149.8	308.0	538.7
		Angle of Borehole	(Degrees from Horz.)	75.0°		
		Corrected Depth	(ft bgs)	627.9	469.6	239.0

Notes:

Borehole LF = lineal feet down borehole

ft bgs = feet below ground surface

FT NAVD88 = feet above North America Datum of 1988

Horz. = horizontal

VWP = vibrating wire piezometer

Prepared by: MJW4

Checked by: JCB1/GMB

Table 4-1
Open Borehole Hydrophysical Testing Results
White Pine Copper

Borehole	Ground Surface Elevation	Interval No.	Depth to Top of Interval	Depth of Bottom of Interval	Length of Interval	Ambient Flow (negative flow is outflow from borehole to bedrock; positive flow is inflow to the borehole;)		Interval-Specific Fluid Electrical Conductivity	Interval-Specific Hydraulic Conductivity		Interval-Specific Transmissivity	Borehole Transmissivity using Thiem Equation
	(FT NAVD88)		(LF bgs)	(LF bgs)	(feet)	(gpm)	(mL/min)	(µS/cm)	(cm/s)	(ft/day)	(ft ² /day)	(ft ² /day)
WP-583	853.9	1	96.0	111.6	15.6	0.087	329	19,100	1.2E-04	0.33	5.1	48.5
		2	128.3	137.4	9.1	0.016	61	11,500	2.0E-05	0.058	0.53	
		3	169.6	184.6	15.0	0.048	182	10,500	2.5E-04	0.71	10.6	
		4	196.3	204.7	8.4	0.005	19	29,500	8.3E-05	0.24	2.0	
		5	233.0	281.2	48.2	0.011	42	18,500	1.2E-04	0.35	17.0	
		6	303.1	316.1	13.0	-0.013	-49	33,000	9.2E-06	0.026	0.34	
		7	350.5	353.7	3.2	0.005	19	30,262	2.0E-04	0.56	1.8	
		8	384.1	393.7	9.6	-0.082	-310	38,963	1.3E-04	0.36	3.4	
		9	420.0	426.2	6.2	0.045	170	50,735	9.2E-05	0.26	1.6	
		10	475.4	483.4	8.0	0.003	11	74,000	3.6E-05	0.10	0.82	
		11	526.5	530.5	4.0	0.0003	1	77,000	6.2E-07	0.002	0.007	
		12	547.8	556.5	8.7	-0.06	-227	57,000	1.1E-04	0.31	2.7	
		13	594.4	600.7	6.3	0	0	107,690	7.5E-05	0.21	1.4	
		14	634.5	650.4	15.9	0.001	4	106,515	6.3E-07	0.002	0.028	
		15	685.2	711.1	25.9	0.001	4	77,000	1.4E-06	0.004	0.10	
		16	793.6	802.8	9.2	-0.074	-280	NA	4.0E-05	0.11	1.1	
		17	1208.3	1248.6	40.3	0.0007	3	57,000	8.7E-08	0.0002	0.010	
		18	1452.3	1499.6	47.3	0.0008	3	107,690	4.2E-08	0.0001	0.006	
		19	1524.5	1532.8	8.3	0.0006	2	106,515	6.0E-08	0.0002	0.001	
		20	1668.9	1711.8	42.9	0.0003	1	77,000	3.5E-08	0.0001	0.004	
		21	1826.5	1888.6	62.1	0.0006	2	57,000	8.9E-08	0.0003	0.016	
		22	1981.1	1982.1	1.0	0.0013	5	107,690	1.0E-06	0.003	0.003	
		23	2018.5	2071.0	52.5	0.002	8	106,515	1.9E-08	0.0001	0.003	
		24	2111.0	2111.2	0.2	0.00016	1	107,690	1.0E-06	0.003	0.001	
		25	2153.7	2180.1	26.4	0.0002	1	77,060	5.7E-09	0.00002	0.000	
		26	2285.3	2293.7	8.4	0.00016	1	118,550	2.4E-08	0.0001	0.001	
WP-584	853.5	1	28.7	30.0	1.3	0	0	6,114	7.7E-04	2.17	2.8	108.0
		2	37.8	53.3	15.5	0.357	1351	958	6.0E-04	1.71	26.5	
		3	91.3	99.1	7.8	0.067	254	4,547	2.6E-03	7.25	56.6	
		4	144.7	193.7	49.0	-0.175	-662	12,836	1.1E-04	0.31	15.4	
		5	342.2	386.9	44.7	0.04	151	54,049	1.0E-06	0.003	0.13	
		6	451.5	462.5	11.0	-0.12	-454	107,000	6.2E-05	0.18	1.9	
		7	477.3	488.5	11.2	0.07	265	100,000	1.6E-05	0.046	0.51	
		8	610.7	613.6	2.9	-0.19	-719	90,000	3.0E-04	0.85	2.5	
		9	742.7	754.1	11.4	0.0004	2	90,000	2.0E-04	0.56	0.006	
		10	842.8	853.3	10.5	0.01	38	85,997	2.0E-05	0.056	0.59	
		11	1523.1	1529.9	6.8	0.0005	2	61,300	2.8E-07	0.001	0.005	
		12	1611.9	1643.4	31.5	-0.06	-227	61,300	8.7E-06	0.025	0.78	
WP-585	808.9	1	69.8	71.7	1.9	0.05	189	1,150	1.0E-04	0.30	0.56	3.0
		2	97.5	121.8	24.3	0	0	1,150	2.7E-05	0.078	1.9	
		3	186.5	190.6	4.1	0.07	265	6,015	1.7E-04	0.48	2.0	
		4	216.9	218.8	1.9	0.1	379	6,600	8.4E-04	2.37	4.5	
		5	267.8	269.9	2.1	0.68	2574	NA	2.6E-03	7.23	15.2	
		6	285.8	288.4	2.6	0.03	114	1,153	7.6E-05	0.22	0.56	
		7	383.1	387.1	4.0	0.09	341	8,070	2.0E-04	0.57	2.3	
		8	448.7	459.2	10.5	0.78	2953	5,457	1.5E-03	4.12	43.3	
		9	562.1	563.5	1.4	0.1	379	31,100	7.3E-04	2.07	2.9	
		10	629.6	634.2	4.6	0.013	49	48,620	6.3E-05	0.18	0.82	
		11	686.1	720.1	34.0	0.007	26	28,470	3.2E-06	0.009	0.31	
		12	1228.5	1230.0	1.5	0.0005	2	13,400	5.0E-05	0.14	0.21	
		13	1387.3	1391.7	4.4	0	0	13,400	2.9E-05	0.083	0.37	
		14	1609.9	1624.4	14.5	0.0007	3	13,250	3.0E-05	0.086	1.2	
		15	1774.6	1780.0	5.4	0	0	39,800	5.5E-07	0.002	0.008	
		16	1909.8	1916.2	6.4	0.0008	3	240,000	1.5E-06	0.004	0.028	
		17	1975.3	1986.5	11.2	0.0005	2	240,000	4.4E-07	0.001	0.014	
		18	2140.9	2154.5	13.6	0.00006	0	240,000	1.0E-07	0.0003	0.004	

Table 4-1 (continued)

Borehole	Ground Surface Elevation (FT NAVD88)	Interval No.	Depth to Top of Interval (LF bgs)	Depth of Bottom of Interval (LF bgs)	Length of Interval (feet)	Ambient Flow (negative flow is outflow from borehole to bedrock; positive flow is inflow to the borehole;)		Interval-Specific Fluid Electrical Conductivity (µS/cm)	Interval-Specific Hydraulic Conductivity		Interval-Specific Transmissivity (ft ² /day)	Borehole Transmissivity using Thiem Equation (ft ² /day)
						(gpm)	(mL/min)		(cm/s)	(ft/day)		
WP-586	807.4	1	29.0	31.6	2.6	0	0	4,200	3.7E-04	1.04	2.7	33.7
		2	35.7	41.7	6.0	0.073	276	4,200	1.3E-04	0.36	2.2	
		3	93.0	96.9	3.9	0.12	454	8,430	1.3E-04	0.38	1.5	
		4	114.8	130.7	15.9	0.104	394	8,390	2.0E-05	0.057	0.90	
		5	193.3	198.0	4.7	0.335	1268	8,380	1.2E-04	0.33	1.6	
		6	227.8	232.6	4.8	0.012	45	8,750	2.2E-04	0.62	3.0	
		7	348.7	354.0	5.3	0.241	912	9,570	2.3E-05	0.064	0.34	
		8	440.6	441.2	0.6	0.014	53	8,930	7.1E-03	20.0	12.0	
		9	468.9	471.2	2.3	0.001	4	21,000	3.3E-04	0.92	2.1	
		10	516.8	517.2	0.4	0.063	238	24,500	5.2E-03	14.7	5.9	
		11	606.1	609.9	3.8	0.008	30	61,590	1.3E-05	0.037	0.14	
		12	639.5	640.3	0.8	0.011	42	61,590	4.1E-04	1.16	0.92	
		13	783.1	789.7	6.6	0	0	100,000	1.1E-05	0.030	0.20	
		14	884.6	885.6	1.0	0.016	61	100,000	2.5E-05	0.070	0.070	
		15	930.8	933.9	3.1	0.013	49	121,000	1.1E-06	0.003	0.010	
		16	957.0	961.1	4.1	0.022	83	121,000	8.7E-07	0.002	0.010	
		17	1438.5	1439.0	0.5	0.024	91	121,000	7.1E-05	0.20	0.10	
		18	1581.0	1583.8	2.8	0.011	42	103,500	NA		NA	
		19	1807.2	1816.1	8.9	0.0003	1	76,100	1.5E-06	0.004	0.037	
		20	2119.7	2137.8	18.1	0.0004	2	103,500	3.1E-07	0.001	0.016	
		21	2172.5	2184.6	12.1	0.0007	3	46,950	9.7E-07	0.003	0.033	
WP-587	809.5	1	33.4	33.5	0.1	0.04	151	6,114	1.6E-01	451	45.1	102.0
		2	53.7	59.6	5.9	0	0	2,991	5.2E-04	1.48	8.7	
		3	69.0	70.3	1.3	0	0	4,852	1.0E-03	2.93	3.8	
		4	203.6	208.8	5.2	0.001	4	5,326	6.6E-05	0.19	0.97	
		5	240.8	252.5	11.7	0.235	890	2,044	7.7E-05	0.22	2.6	
		6	277.7	280.3	2.6	0.211	799	7,819	2.6E-03	7.28	18.9	
		7	307.0	334.5	27.5	0.227	859	8,917	6.0E-05	0.17	4.7	
		8	346.8	354.4	7.6	0.277	1049	9,121	6.5E-04	1.84	14.0	
		9	1430.3	1441.5	11.2	0.4	1514	92,650	1.1E-04	0.32	3.6	
WP-588	786.3	1	112.0	112.1	0.1	-0.43	-1628	4,930	8.0E-03	22.8	2.3	77.7
		2	154.3	160.4	6.1	0.077	291	6,465	7.4E-04	2.10	12.8	
		3	246.4	247.8	1.4	0.032	121	20,780	1.3E-02	38.1	53.3	
		4	260.0	265.3	5.3	0.053	201	49,580	5.3E-04	1.51	8.0	
		5	275.4	285.7	10.3	0	0	51,470	1.4E-05	0.038	0.40	
		6	287.1	302.4	15.3	0.087	329	53,630	2.4E-06	0.007	0.11	
		7	346.0	352.5	6.5	0.053	201	52,470	2.1E-05	0.061	0.40	
		8	372.9	379.7	6.8	0.066	250	51,275	1.0E-05	0.029	0.20	
		9	416.6	425.5	8.9	0.018	68	39,040	5.9E-06	0.017	0.15	
		10	609.4	618.3	8.9	0.04	151	7,065	9.9E-07	0.003	0.025	
		11	945.0	952.1	7.1	0	0	3,360	1.2E-06	0.004	0.025	
		12	980.5	995.3	14.8	0	0	3,360	4.8E-07	0.001	0.020	
		13	1194.5	1202.9	8.4	0	0	3,360	3.1E-07	0.001	0.007	
		14	1782.5	1934.0	151.5	0.004	15	3,360	NA		NA	
WP-592	767.0	1	72.5	78.5	6.0	0	0	450	3.4E-05	0.10	0.57	1.5
		2	91.6	95.3	3.7	0	0	620	4.9E-05	0.14	0.51	
		3	172.6	180.9	8.3	0	0	700	5.6E-06	0.016	0.13	
		4	257.2	287.6	30.4	-0.027	-102	1,020	1.4E-06	0.004	0.12	
		5	408.5	418.4	9.9	0.008	30	3,580	2.9E-06	0.008	0.081	
		6	426.0	436.4	10.4	0.005	19	4,540	1.3E-06	0.004	0.039	
		7	562.0	567.0	5.0	0	0	7,280	5.4E-07	0.002	0.008	
		8	613.6	617.7	4.1	0.006	23	7,140	1.3E-06	0.004	0.015	
		9	2500.5	2502.4	1.9	0.008	30	52,090	7.2E-07	0.002	0.004	
		10	2881.0	2884.5	3.5	0	0	8,190	3.1E-06	0.009	0.031	
		11	2955.0	2960.9	5.9	0	0	7,330	1.4E-06	0.004	0.023	
WP-594	809.1	1	79.6	82.0	2.4	0.0003	1	12,400	5.7E-05	0.16	0.39	8.8
		2	95.9	99.9	4.0	0.027	102	12,400	1.1E-04	0.32	1.3	
		3	165.7	171.4	5.7	0.0029	11	12,400	3.8E-07	0.001	0.006	
		4	348.8	354.7	5.9	-0.097	-367	30,000	4.1E-04	1.16	6.9	
		5	2050.0	2058.4	8.4	0.019	72	310,000	3.3E-06	0.009	0.078	
		6	2162.1	2194.8	32.7	0.0004	2	240,000	1.3E-08	0.00004	0.001	
		7	2321.0	2345.4	24.4	0.026	98	240,000	9.3E-07	0.003	0.065	
		8	2752.6	2757.0	4.4	0.018	68	240,000	4.4E-06	0.012	0.054	
		9	2876.4	2884.8	8.4	0.001	4	140,000	6.5E-08	0.0002	0.002	
		10	2917.0	2921.1	4.1	0.002	8	130,000	4.0E-07	0.001	0.005	

Table 4-1 (continued)

Borehole	Ground Surface Elevation	Interval No.	Depth to Top of Interval	Depth of Bottom of Interval	Length of Interval	Ambient Flow (negative flow is outflow from borehole to bedrock; positive flow is inflow to the borehole;)		Interval-Specific Fluid Electrical Conductivity	Interval-Specific Hydraulic Conductivity		Interval-Specific Transmissivity	Borehole Transmissivity using Thiem Equation
	(FT NAVD88)		(LF bgs)	(LF bgs)	(feet)	(gpm)	(mL/min)	(μ S/cm)	(cm/s)	(ft/day)	(ft ² /day)	(ft ² /day)
WP-598	777.7	1	48.1	49.9	1.8	0.34	1287	19,100	2.3E-03	6.63	11.9	91
		2	217.7	221.3	3.6	0.119	450	11,500	2.5E-03	7.19	25.9	
		3	245.8	250.1	4.3	0.766	2900	10,500	1.2E-03	3.32	14.3	
		4	353.3	359.1	5.8	0.766	2900	29,500	4.1E-04	1.16	6.7	
		5	487.3	493.9	6.6	1.453	5500	18,500	1.5E-03	4.35	28.7	
		6	504.6	528.6	24.0	0.088	333	33,000	1.1E-06	0.003	0.075	
		7	535.2	536.3	1.1	0	0	30,262	3.6E-05	0.10	0.11	
		8	569.9	579.2	9.3	0.02	76	38,963	1.7E-06	0.005	0.045	
		9	593.5	597.7	4.2	0.001	4	50,735	7.5E-06	0.021	0.090	
		10	889.4	899.4	10.0	0.004	15	74,000	3.3E-05	0.095	0.95	
		11	994.0	1001.9	7.9	0.119	450	77,000	2.7E-05	0.077	0.61	
		12	1041.6	1053.5	11.9	0.008	30	57,000	4.4E-07	0.001	0.015	
		13	1359.3	1374.7	15.4	0.251	950	107,690	3.6E-05	0.10	1.6	
		14	1514.8	1516.9	2.1	0	0	106,515	2.5E-07	0.001	0.002	
		15	2337.6	2350.7	13.1	0.0007	3	77,060	6.1E-08	0.0002	0.002	
		16	2850.7	2898.4	47.7	0	0	118,550	1.1E-08	0.00003	0.002	

Notes:

Hydraulic conductivity and transmissivity estimates are based on single well drawdown data, a porous medium equivalent model and the Thiem equation.

Bottom of casing represents top of interval.

cm/sec = centimeter per second

ft/day = feet per day

ft²/day = square feet per day

FT NAVD88 = feet above North America Vertical Datum of 1988

gpm = gallon per minute

LF bgs = lineal feet down borehole below ground surface

mL/min = milliliter per minute

 μ S/cm = microsiemens per centimeter

Prepared by: KRM2

Checked by: GMB

Table 4-2
Hydraulic Conductivity Estimates from 2024 Packer Tests
White Pine Copper

Borehole ID	Packer Test Type	Packer Test Top of Interval (ft bgs) ¹	Packer Test Bottom of Interval (ft bgs) ¹	Total Downhole Boring Depth (lineal feet)	Bottom of Surface Casing (lineal feet)	Depth to Water - Prior to Testing (ft bgs)	Test Interval Length (b, L)	Static Water Column H (ft)	Inside Radius Well Casing r(c) (ft)	Radius of Well/Hole r(w) (ft)	Radius of Downhole Equipment r(eq) ft	Dip from Horizontal (degrees)	Pumping Rate and Time (min)/(gpm)	Solution Method	Hydraulic Conductivity (per test) (cm/sec)	Hydraulic Conductivity (per interval) (cm/sec)	Transmissivity (ft ² /day) (of saturated interval thickness; per test method)
WP-583	Constant Rate Extraction Test	164	189.9	2308	52	0.0	25.9	NA	0.0835	0.1575	0.032	85	200 min. / 1.0 GPM	Cooper-Jacob	4.0E-05	1.64E-05	2.9
														Theis/Hantush	6.8E-06		0.5
	Constant Rate Extraction Test	233	284.4				51.4	NA	0.0835	0.1575	0.032		122 min. / 2.2 GPM	Cooper-Jacob	8.0E-05	7.76E-05	11.7
														Theis/Hantush	7.5E-05		11.0
	Slug Out	380	431.4				51.4	422.3	0.0835	0.1575	0.032		NA	Bouwer-Rice	3.1E-06	3.35E-06	0.46
													NA	Hvorslev	3.6E-06		0.52
	Slug Out	520	571.4				51.4	534.1	0.0835	0.1575	0.032		NA	Bouwer-Rice	1.1E-06	1.18E-06	0.16
													NA	Hvorslev	1.3E-06		0.19
	Slug Out	720.43	2308				1587.5	2179.2	0.0261	0.1575	NA		NA	Bouwer-Rice	5.0E-09	5.55E-09	0.02
													NA	Hvorslev	6.2E-09		0.03
WP-584	Constant Rate Extraction Test	0	720.4	1683	20	5.0	668.3	NA	0.1578	0.1575	0.073	87.3	171.8 min. / 15 GPM	Cooper-Jacob	1.0E-05	1.05E-05	19.0
														Theis/Hantush	1.1E-05		20.8
	Constant Rate Extraction Test	5.0	82.0				62.0	NA	0.2012	0.2011	0.073		125 min. / 9.9 GPM	Cooper-Jacob	2.8E-04	2.85E-04	49
														Theis/Hantush	2.9E-04		51
	Constant Rate Extraction Test	82.0	133.4				51.4	NA	0.0834	0.2011	0.032		78 min. / 3 GPM	Cooper-Jacob	2.7E-04	2.60E-04	39
														Theis/Hantush	2.5E-04		37
	Constant Rate Extraction Test	340.0	391.4				51.4	NA	0.0834	0.2011	0.032		44 min. / 1.67 GPM	Cooper-Jacob	9.9E-06	1.01E-05	1.4
														Theis/Hantush	1.0E-05		1.5
	Constant Rate Extraction Test	455.0	506.4				51.4	NA	0.0834	0.2011	0.032		74 min. / 0.85 GPM	Cooper-Jacob	7.5E-06	6.39E-06	1.1
														Theis/Hantush	5.5E-06		0.80
WP-585	Slug Out	820.0	871.4	2318	30	0 (flowing artesian)	51.4	879.15	0.0208	0.2011	0.000	84.4	NA	Bouwer-Rice	1.3E-07	1.39E-07	0.02
														Hvorslev	1.5E-07		0.02
	Slug Out	870.0	1683.0				813.0	1692.05	0.0208	0.2011	0.000		NA	Bouwer-Rice	1.1E-06	1.35E-06	2.4
														Hvorslev	1.7E-06		4.0
	Constant Rate Extraction Test	867.0	5.0				847.0	NA	0.2012	0.2011	0.073		191 min. / 28.5 GPM	Cooper-Jacob	3.8E-05	3.85E-05	90.3
														Theis/Hantush	3.9E-05		94.6
	Constant Rate Extraction Test	0	233				203.0	NA	0.1579	0.1575	0.036		132 min. / 2.4 GPM	Cooper-Jacob	9.5E-06	1.19E-05	5.5
														Theis recovery	1.5E-05		8.6
	Constant Rate Extraction Test	284	303.9				19.9	NA	0.0835	0.1575	0.032		147 min. / 2.06 GPM	Cooper-Jacob	3.2E-05	3.52E-05	1.8
														Theis/Hantush	3.9E-05		2.2
WP-585	Constant Rate Extraction Test	440	470	2318	30	0 (flowing artesian)	30.0	NA	0.0835	0.1575	0.032	84.4	200 min. / 2.8 GPM	Cooper-Jacob	3.1E-04	3.01E-04	26.2
														Theis/Hantush	2.9E-04		25.0
	Slug Out	750	2318				1568.0	2318	0.0209	0.1575	0.000		NA	Bouwer-Rice	2.1E-09	1.72E-09	0.009
														Hvorslev	1.4E-09		0.006
	Constant Rate Extraction Test	0	750				720.0	NA	0.1579	0.1575	0.073		123 min. / 13.4 GPM	Cooper-Jacob	6.2E-06	1.03E-05	27.6
														Theis/Hantush	1.7E-05		34.7
	Slug Out	1600	2318				718.0	2318	0.0209	0.1575	0.000		NA	Bouwer-Rice	2.2E-09	1.94E-09	0.005
														Hvorslev	1.7E-09		0.003

Table 4-2 (continued)

Borehole ID	Packer Test Type	Packer Test Top of Interval (ft bgs) ¹	Packer Test Bottom of Interval (ft bgs) ¹	Total Downhole Boring Depth (lineal feet)	Bottom of Surface Casing (lineal feet)	Depth to Water - Prior to Testing (ft bgs)	Test Interval Length (b, L)	Static Water Column H (ft)	Inside Radius Well Casing r(c) (ft)	Radius of Well/Hole r(w) (ft)	Radius of Downhole Equipment r(eq) ft	Dip from Horizontal (degrees)	Pumping Rate and Time (min)/(gpm)	Solution Method	Hydraulic Conductivity (per test) (cm/sec)	Hydraulic Conductivity (per interval) (cm/sec)	Transmissivity (ft ² /day) (of saturated interval thickness; per test method)
WP-586	Constant Rate Extraction Test	0	241	2506	20	0 (flowing artesian)	221.0	241.0	0.1578	0.1575	0.036	85	122 min. / 2.5 GPM	Cooper-Jacob	2.5E-05	2.44E-05	16
														Theis	2.4E-05		15
	Constant Rate Extraction Test	436.4	486.8				50.4	486.8	0.0835	0.1575	0.032		123 min. / 2.6 GPM	Cooper-Jacob	2.8E-05	2.89E-05	3.95
														Theis	3.0E-05		4.33
	Constant Rate Extraction Test	510	560.4				50.4	560.4	0.0835	0.1575	0.032		267 min. / 1.3 GPM	Cooper-Jacob	4.5E-06	1.40E-05	0.64
														Theis Recovery	4.3E-05		6.21
	Slug Out	600	650.4				50.4	650.4	0.0209	0.1575	0.000		NA	Bouwer-Rice	6.2E-06	6.82E-06	0.89
														Hvorslev	7.5E-06		1.07
	Slug Out	650.4	2506				1855.6	2506.0	0.0209	0.1575	0.000		NA	Bouwer-Rice	2.2E-07	1.69E-07	1.18
														Hvorslev	1.3E-07		0.67
	Slug Out	1420	1470.4				50.4	1470.4	0.0209	0.1575	0.000		NA	Bouwer-Rice	2.2E-07	7.45E-07	0.03
														Hvorslev	2.5E-06		0.35
	Slug Out	1470	2506				1036.0	2506.0	0.0209	0.1575	0.000		NA	Bouwer-Rice	4.9E-10	4.10E-10	0.001
														Hvorslev	3.4E-10		0.001
WP-587	Constant Rate Extraction	0	370	2857.5	30	0 (flowing artesian)	340.0	370.0	0.1604	0.1575	0.074	74.6	63 min. / 12.8 GPM	Cooper-Jacob	1.3E-04	1.34E-04	126
														Theis	1.4E-04		132
	Constant Rate Extraction	305	335.5				30.5	335.5	0.0849	0.1575	0.033		341 min. / 2.4 GPM	Cooper-Jacob	4.2E-05	1.08E-04	3.60
														Theis Recovery	2.8E-04		24.27
	Slug Out	1428	1438.3				10.3	1438.3	0.0212	0.1575	0.000		NA	Bouwer-Rice	1.4E-05	1.72E-05	0.42
														Hvorslev	2.0E-05		0.60
	Slug Out	1450	2857				1407.5	2858	0.0212	0.1575	0.000		NA	Bouwer-Rice	7.9E-10	6.68E-10	0.00
														Hvorslev	5.7E-10		0.00

Table 4-2 (continued)

Borehole ID	Packer Test Type	Packer Test Top of Interval (ft bgs) ¹	Packer Test Bottom of Interval (ft bgs) ¹	Total Downhole Boring Depth (lineal feet)	Bottom of Surface Casing (lineal feet)	Depth to Water - Prior to Testing (ft bgs)	Test Interval Length (b, L)	Static Water Column H (ft)	Inside Radius Well Casing r(c) (ft)	Radius of Well/Hole r(w) (ft)	Radius of Downhole Equipment r(eq) ft	Dip from Horizontal (degrees)	Pumping Rate and Time (min)/(gpm)	Solution Method	Hydraulic Conductivity	Hydraulic Conductivity	Transmissivity (ft ² /day) (of saturated interval thickness; per test method)
															(per test)	(per interval)	
															(cm/sec)	(cm/sec)	
WP-588	Constant Rate Extraction	150	165.8	3305.2	116.1	0.95 (above ground)	15.8	NA	0.0848	0.1575	0.033	75	110 min. / 2.9 GPM	Cooper-Jacob	9.0E-05	3.16E-04	4.0
														Theis Recovery	1.1E-03		49
	Constant Rate Extraction	237	252.8				15.8	NA	0.0848	0.1575	0.033		144 min. / 4.1 GPM	Cooper-Jacob	2.0E-03	2.31E-03	88.64
														Theis	2.7E-03		121.18
	Constant Rate Extraction	340	355.8				15.8	NA	0.0848	0.1575	0.033		414 min. / 0.6 GPM	Cooper-Jacob	8.3E-06	9.54E-06	0.37
														Theis Recovery	1.1E-05		0.49
	Constant Rate Extraction	0	700.7				584.6	NA	0.1603	0.1575	0.074		171 min. / 24.7 GPM	Cooper-Jacob	1.3E-05	2.85E-05	20.83
														Theis Recovery	6.5E-05		107.42
	Slug Out	700.7	3305				2604.5	3305.2	0.0212	0.1575	0.000		NA	Bouwer-Rice	4.6E-11	3.94E-11	0.0003
														Hvorslev	3.4E-11		0.0002
WP-592	Slug Out	70	99.8	3268	68.5	0 (flowing artesian)	29.8	99.8	0.0848	0.1575	0.031	75	NA	Bouwer-Rice	7.8E-06	8.79E-06	0.66
														Hvorslev	9.9E-06		0.84
	Slug Out	0	200				131.5	200.00	0.0848	0.1575	0.031			Bouwer-Rice	4.6E-07	4.36E-07	0.17
														Hvorslev	4.2E-07		0.16
	Slug Out	395	445				50.0	445.00	0.0212	0.1575	0.000			Bouwer-Rice	5.7E-08	6.16E-08	0.01
														Hvorslev	6.6E-08		0.01
	Slug Out	605	655				50.0	655.00	0.0212	0.1575	0.000			Bouwer-Rice	1.3E-08	1.32E-08	0.002
														Hvorslev	1.3E-08		0.002
	Slug Out	0	2487				2418.5	2487.0	0.0848	0.1575	0.031			Bouwer-Rice	4.0E-08	3.08E-08	0.27
														Hvorslev	2.4E-08		0.16
	Slug Out	2490	2540				50.0	2540.00	0.0212	0.1575	0.000			Bouwer-Rice	1.1E-08	1.19E-08	0.002
														Hvorslev	1.3E-08		0.002
	Slug Out	2540	3268				728.0	3268.00	0.0212	0.1575	0.000			Bouwer-Rice	2.3E-10	1.92E-10	0.0005
														Hvorslev	1.6E-10		0.0003
WP-594	Constant Rate Extraction Test	21.3	110	3080.7	78.8	21.3	31.3	88.7	0.2046	0.1575	0.034	75	99 min. / 0.4 GPM	Cooper-Jacob	2.5E-06	2.46E-06	0.2
														Theis Recovery	2.4E-06		0.2
	Constant Rate Extraction Test	329	379.4				50.4	358.1	0.0848	0.1575	0.031		308 min. / 2.9 GPM	Cooper-Jacob	4.8E-05	6.34E-05	6.9
														Theis Recovery	8.4E-05		11.9
	Slug Out	2318	2368.4				50.4	2347.1	0.0212	0.1575	0.000		NA	Bouwer-Rice	3.5E-07	3.78E-07	0.05
														Hvorslev	4.1E-07		0.06
	Slug Out	2730	2780.4				50.4	2759.1	0.0212	0.1575	0.000		NA	Bouwer-Rice	2.2E-07	2.44E-07	0.03
														Hvorslev	2.7E-07		0.04
	Constant Rate Extraction Test	21.3	2832				2753.3	NA	0.0848	0.1575	0.031		216 min. / 2.6 GPM	Cooper-Jacob	3.5E-07	3.93E-07	2.7
														Theis Recovery	4.4E-07		3.4
	Slug Out	2837	3081				243.7	3059.4	0.0212	0.1575	0.000		NA	Bouwer-Rice	2.3E-08	2.10E-08	0.02
														Hvorslev	1.9E-08		0.01

Table 4-2 (continued)

Borehole ID	Packer Test Type	Packer Test Top of Interval (ft bgs) ¹	Packer Test Bottom of Interval (ft bgs) ¹	Total Downhole Boring Depth (lineal feet)	Bottom of Surface Casing (lineal feet)	Depth to Water - Prior to Testing (ft bgs)	Test Interval Length (b, L)	Static Water Column H (ft)	Inside Radius Well Casing r(c) (ft)	Radius of Well/Hole r(w) (ft)	Radius of Downhole Equipment r(eq) ft	Dip from Horizontal (degrees)	Pumping Rate and Time (min)/(gpm)	Solution Method	Hydraulic Conductivity (per test)	Hydraulic Conductivity (per interval)	Transmissivity (ft ² /day) (of saturated interval thickness; per test method)
															(cm/sec)	(cm/sec)	
WP-598	Constant Rate Extraction Test	0	260	3049	34.1	0 (flowing artesian)	225.9	260.0	0.1603	0.1575	0.074	75	90 min. / 24.6 GPM	Cooper-Jacob	8.7E-06	9.62E-06	5.6
															Theis Recovery		1.1E-05
	Constant Rate Extraction Test	350	400.5				50.5	400.5	0.0848	0.1575	0.033		115 min. / 2.3 GPM	Cooper-Jacob	2.8E-05	2.79E-05	4.1
															Theis Recovery		2.8E-05
	Constant Rate Extraction Test	485	535.5				50.5	535.5	0.0848	0.1575	0.033		215 min. / 3.4 GPM	Cooper-Jacob	2.8E-04	2.85E-04	39.9
															Theis		2.9E-04
	Constant Rate Injection ²	1330	1380.4				50.4	1380.4	0.0212	0.1575	0.000		NA	Bouwer-Rice	4.0E-07	5.12E-07	0.06
															Hvorslev		6.5E-07
	Constant Rate Extraction Test	0	1330				1295.9	1330.0	0.1603	0.1575	0.074		201 min. / 9.4 GPM	Cooper-Jacob	1.6E-04	3.08E-04	580.5
															Theis Recovery		6.0E-04
	Slug Out	1382	3049				1667.0	3049.0	0.0212	0.1575	0.000		NA	Bouwer-Rice	8.8E-11	9.02E-11	0.0004
															Hvorslev		9.2E-11

Notes:

¹ Intervals refer to lineal feet down borehole below ground surface.² This test was analyzed as a slug test due to the test not reaching a constant pressure.

b = AQTESOLV® input parameter; saturated formation thickness

bgs = below ground surface

cm/sec = centimeters per second

cm²/sec = square centimeter per second

ft/day = feet per day

ft²/day = square feet per day

ft = feet

ft bgs = feet below ground surface

gpm = gallon per minute

H(0) = AQTESOLV® input parameter; Initial Displacement (change in water level from static)

H = AQTESOLV® input parameter; Static water column height

L = AQTESOLV® input parameter; length of open interval during testing. In tests to water level (WL), the bottom of the surface casing is considered the top of the interval.

NA = Not Applicable

r(c) = AQTESOLV® input parameter; radius of casing

r(eq) = AQTESOLV® input parameter; radius of downhole equipment

r(w) = AQTESOLV® input parameter; radius of well

WL = water level (static)

Prepared by: MJW4

Checked by: JCB1/GMB

Table 4-3
Summary of Hydraulic Conductivity Testing of Bedrock
White Pine Copper

Hydrogeologic Unit	Depth Interval	Borehole ID	Hydraulic Testing Type	Midpoint of Test Interval (Borehole LF)	Hydraulic Conductivity		Hydraulic Conductivity Statistics			
					Per well / Interval (cm/sec)	Geometric mean per Hydrogeological Unit (cm/sec)	Count	Minimum (cm/sec)	Maximum (cm/sec)	Median (cm/sec)
Shallow Bedrock (<200 feet)		MW-36	Slug Test	10.0	1.23E-03	9.57E-05	45	3.85E-07	1.59E-01	1.16E-04
		MW-42	Slug Test	22.0	1.45E-04					
		MW-38	Slug Test	22.7	9.66E-06					
		MW-1B-R	Slug Test	27.8	6.73E-04					
		WP-584	HpL	29.4	7.66E-04					
		WP-586	HpL	30.3	3.68E-04					
		WP-587	HpL	33.5	1.59E-01					
		WP-586	HpL	38.7	1.28E-04					
		WP-584	Packer Test	43.5	2.85E-04					
		WP-584	HpL	45.6	6.03E-04					
		WP-598	HpL	49.0	2.34E-03					
		WP-587	HpL	56.7	5.22E-04					
		WP-594	Packer Test	65.7	2.46E-06					
		WP-587	HpL	69.7	1.03E-03					
		WP-585	HpL	70.8	1.04E-04					
		WP-592	HpL	75.5	3.36E-05					
		WP-594	HpL	80.8	5.68E-05					
		WP-592	Packer Test	84.9	8.79E-06					
		MW-5SB	Slug Test	89.7	7.75E-05					
		WP-592	HpL	93.5	4.87E-05					
		WP-586	HpL	95.0	1.33E-04					
		WP-584	HpL	95.2	2.56E-03					
		WP-594	HpL	97.9	1.14E-04					
		SMW-1SB	Slug Test	99.8	1.49E-05					
		WP-592	Packer Test	100.0	4.36E-07					
		WP-583	HpL	103.8	1.16E-04					
		WP-584	Packer Test	107.7	2.60E-04					
		WP-585	HpL	109.7	2.73E-05					
		WP-588	HpL	112.1	8.04E-03					
		WP-585	Packer Test	116.5	1.19E-05					
		WP-586	Packer Test	120.5	2.44E-05					
		WP-586	HpL	122.8	2.01E-05					
		MW-43SB	Slug Test	124.4	5.19E-06					
		WP-598	Packer Test	130.0	9.62E-06					
		WP-583	HpL	132.9	2.04E-05					
		WP-588	HpL	157.4	7.41E-04					
		WP-588	Packer Test	157.9	3.16E-04					
		WP-594	HpL	168.6	3.85E-07					
		WP-584	HpL	169.2	1.10E-04					
		WP-592	HpL	176.8	5.57E-06					
		WP-583	Packer Test	177.0	1.64E-05					
		WP-583	HpL	177.1	2.49E-04					
		WP-587	Packer Test	185.0	1.34E-04					
		WP-585	HpL	188.6	1.69E-04					
		WP-586	HpL	195.7	1.17E-04					
Summary of All Deep Bedrock (>200 feet) Hydraulic Testing Results:						4.25E-06	153	3.94E-11	1.34E-02	6.82E-06
Bedrock (>200 and <400 Borehole LF)		WP-583	HpL	200.5	8.33E-05	8.59E-05	39	1.01E-06	1.34E-02	7.73E-05
		WP-587	HpL	206.2	6.56E-05					
		WP-585	HpL	217.9	8.35E-04					
		WP-598	HpL	219.5	2.54E-03					
		WP-586	HpL	230.2	2.20E-04					
		WP-588	Packer Test	244.9	2.31E-03					
		WP-587	HpL	246.7	7.73E-05					
		WP-588	HpL	247.1	1.34E-02					
		WP-598	HpL	248.0	1.17E-03					
		WP-583	HpL	257.1	1.25E-04					
		WP-583	Packer Test	258.7	7.76E-05					
		WP-588	HpL	262.7	5.33E-04					
		WP-585	HpL	268.9	2.55E-03					
		WP-592	HpL	272.4	1.43E-06					
		WP-587	HpL	279.0	2.57E-03					
		WP-588	HpL	280.6	1.35E-05					
		WP-585	HpL	287.1	7.63E-05					
		WP-585	Packer Test	294.0	3.52E-05					
		WP-588	HpL	294.8	2.42E-06					
		WP-583	HpL	309.6	9.24E-06					
		WP-587	Packer Test	320.3	1.08E-04					
		WP-587	HpL	320.8	6.03E-05					
		WP-588	Packer Test	347.9	9.54E-06					
		WP-588	HpL	349.3	2.14E-05					
		WP-588	Packer Test	350.4	2.85E-05					
		WP-587	HpL	350.6	6.49E-04					
		WP-586	HpL	351.4	2.28E-05					
		WP-594	HpL	351.8	4.09E-04					
		WP-583	HpL	352.1	1.99E-04					
		WP-594	Packer Test	354.2	6.34E-05					
		WP-598	HpL	356.2	4.09E-04					
		WP-583	Packer Test	360.2	1.05E-05					
		WP-584	HpL	364.6	1.01E-06					
		WP-584	Packer Test	365.7	1.01E-05					
		WP-585	Packer Test	375.0	1.03E-05					
		WP-598	Packer Test	375.3	2.79E-05					
		WP-588	HpL	376.3	1.04E-05					
		WP-585	HpL	385.1	2.01E-04					
		WP-583	HpL	388.9	1.26E-04					

Table 4-3 (continued)

Hydrogeologic Unit	Depth Interval	Borehole ID	Hydraulic Testing Type	Midpoint of Test Interval (Borehole LF)	Hydraulic Conductivity		Hydraulic Conductivity Statistics			
					Per well / Interval	Geometric mean per Hydrogeological Unit	Count	Minimum	Maximum	Median
					(cm/sec)	(cm/sec)		(cm/sec)	(cm/sec)	(cm/sec)
Deep Bedrock (>200 feet)	Bedrock (<400 and <600 Borehole LF)	WP-583	Packer Test	405.7	3.35E-06	2.62E-05	31	6.16E-08	7.07E-03	2.89E-05
		WP-592	HpL	413.5	2.89E-06					
		WP-592	Packer Test	420.0	6.16E-08					
		WP-588	HpL	421.1	5.93E-06					
		WP-583	HpL	423.1	9.21E-05					
		WP-592	HpL	431.2	1.31E-06					
		WP-584	Packer Test	436.0	3.85E-05					
		WP-586	HpL	440.9	7.07E-03					
		WP-585	HpL	454.0	1.45E-03					
		WP-585	Packer Test	455.0	3.01E-04					
		WP-584	HpL	457.0	6.17E-05					
		WP-586	Packer Test	461.6	2.89E-05					
		WP-586	HpL	470.1	3.25E-04					
		WP-583	HpL	479.4	3.63E-05					
		WP-584	Packer Test	480.7	6.39E-06					
		WP-584	HpL	482.9	1.62E-05					
		WP-598	HpL	490.6	1.53E-03					
		WP-598	Packer Test	510.3	2.85E-04					
		WP-598	HpL	516.6	1.10E-06					
		WP-586	HpL	517.0	5.18E-03					
		BMW-1	Slug Test	521.1	2.00E-05					
		WP-583	HpL	528.5	6.24E-07					
		WP-586	Packer Test	535.2	1.40E-05					
		WP-598	HpL	535.8	3.60E-05					
		WP-583	Packer Test	545.7	1.18E-06					
		WP-583	HpL	552.2	1.10E-04					
		WP-585	HpL	562.8	7.30E-04					
		WP-592	HpL	564.5	5.43E-07					
		WP-598	HpL	574.6	1.71E-06					
		WP-598	HpL	595.6	7.55E-06					
		WP-583	HpL	597.6	7.55E-05					
	Bedrock (>600 and <800 Borehole LF)	WP-586	HpL	608.0	1.31E-05	9.89E-06	15	1.32E-08	4.08E-04	1.07E-05
		WP-584	HpL	612.2	2.98E-04					
		WP-588	HpL	613.9	9.91E-07					
		WP-592	HpL	615.7	1.33E-06					
		WP-586	Packer Test	625.2	6.82E-06					
		WP-592	Packer Test	630.0	1.32E-08					
		WP-585	HpL	631.9	6.25E-05					
		WP-586	HpL	639.9	4.08E-04					
		WP-583	HpL	642.5	6.28E-07					
		WP-598	Packer Test	665.0	3.08E-04					
		WP-583	HpL	698.2	1.35E-06					
		WP-585	HpL	703.1	3.21E-06					
		WP-584	HpL	748.4	1.99E-04					
		WP-586	HpL	786.4	1.07E-05					
		WP-583	HpL	798.2	4.02E-05					
	Bedrock (>800 and <1,000 Borehole LF)	WP-584	Packer Test	845.7	1.39E-07	3.21E-06	9	1.39E-07	3.33E-05	1.24E-06
		WP-584	HpL	848.1	1.99E-05					
		WP-586	HpL	885.1	2.48E-05					
		WP-598	HpL	894.4	3.33E-05					
		WP-586	HpL	932.4	1.14E-06					
		WP-588	HpL	948.6	1.24E-06					
		WP-586	HpL	959.1	8.65E-07					
		WP-588	HpL	987.9	4.76E-07					
	Bedrock (>1,000 and <1,400 Borehole LF)	WP-598	HpL	998.0	2.71E-05	1.20E-06	10	3.08E-08	4.96E-05	4.91E-07
		WP-598	HpL	1047.6	4.45E-07					
		WP-588	HpL	1198.7	3.15E-07					
		WP-583	HpL	1228.5	8.68E-08					
		WP-585	HpL	1229.3	4.96E-05					
		BMW-3	Slug Test	1235.5	4.70E-07					
		WP-592	Packer Test	1243.5	3.08E-08					
		WP-584	Packer Test	1276.5	1.35E-06					
		WP-598	Packer Test	1355.2	5.12E-07					
		WP-598	HpL	1367.0	3.60E-05					
	Bedrock (>1,400 and <1,800 Borehole LF)	WP-585	HpL	1389.5	2.93E-05	5.44E-07	15	1.72E-09	1.13E-04	2.83E-07
		WP-594	Packer Test	1426.7	3.93E-07					
		WP-587	Packer Test	1433.2	1.72E-05					
		WP-587	HpL	1435.9	1.13E-04					
		WP-586	HpL	1438.8	7.09E-05					
		WP-586	Packer Test	1445.2	7.45E-07					
		WP-583	HpL	1476.0	4.23E-08					
		WP-583	Packer Test	1514.2	5.55E-09					
		WP-598	HpL	1515.9	2.52E-07					
		WP-584	HpL	1526.5	2.83E-07					
		WP-583	HpL	1528.7	6.03E-08					
		WP-585	Packer Test	1534.0	1.72E-09					
		WP-586	Packer Test	1578.2	1.69E-07					
		WP-585	HpL	1617.2	3.03E-05					
		WP-584	HpL	1627.7	8.68E-06					
		WP-583	HpL	1690.4	3.50E-08					

Table 4-3 (continued)

Hydrogeologic Unit	Depth Interval	Borehole ID	Hydraulic Testing Type	Midpoint of Test Interval (Borehole LF)	Hydraulic Conductivity		Hydraulic Conductivity Statistics			
					Per well / Interval	Geometric mean per Hydrogeological Unit	Count	Minimum	Maximum	Median
					(cm/sec)	(cm/sec)		(cm/sec)	(cm/sec)	(cm/sec)
Bedrock (>1,800 and <2,200 Borehole LF)	Bedrock (>1,800 and <2,200 Borehole LF)	WP-585	HpL	1777.3	5.51E-07	6.11E-08	18	3.94E-11	3.26E-06	2.08E-07
		WP-586	HpL	1811.7	1.47E-06					
		WP-583	HpL	1857.6	8.85E-08					
		WP-585	HpL	1913.0	1.55E-06					
		WP-585	Packer Test	1959.0	1.94E-09					
		WP-585	HpL	1980.9	4.43E-07					
		WP-583	HpL	1981.6	1.00E-06					
		WP-586	Packer Test	1988.0	4.10E-10					
		WP-588	Packer Test	2002.9	3.94E-11					
		WP-583	HpL	2044.8	1.91E-08					
		WP-594	HpL	2054.2	3.26E-06					
		WP-583	HpL	2111.1	1.00E-06					
		WP-586	HpL	2128.8	3.14E-07					
		WP-585	HpL	2147.7	1.02E-07					
		WP-587	Packer Test	2153.5	6.68E-10					
		WP-583	HpL	2166.9	5.68E-09					
		WP-594	HpL	2178.5	1.26E-08					
		WP-586	HpL	2178.6	9.67E-07					
	Bedrock (>2,200 and <2,600 Borehole LF)	WP-598	Packer Test	2215.5	9.02E-11	4.53E-08	7	9.02E-11	9.31E-07	6.07E-08
		WP-583	HpL	2289.5	2.38E-08					
		WP-594	HpL	2333.2	9.31E-07					
		WP-594	Packer Test	2343.2	3.78E-07					
		WP-598	HpL	2344.2	6.07E-08					
		WP-592	HpL	2501.5	7.16E-07					
	Bedrock (>2,600 and <3,000 Borehole LF)	WP-592	Packer Test	2515.0	1.19E-08	1.21E-07	9	1.92E-10	4.37E-06	2.44E-07
		WP-594	HpL	2754.8	4.37E-06					
		WP-594	Packer Test	2755.2	2.44E-07					
		WP-598	HpL	2874.6	1.11E-08					
		WP-594	HpL	2880.6	6.53E-08					
		WP-592	HpL	2882.8	3.11E-06					
		WP-592	Packer Test	2904.0	1.92E-10					
		WP-594	HpL	2919.1	4.02E-07					
		WP-592	HpL	2958.0	1.38E-06					
		WP-594	Packer Test	2959.0	2.10E-08					

Notes:

bgs = below ground surface

cm/sec = centimeters per second

Borehole LF =lineal feet down-borehole

HpL = Hydrophysical Logging

Prepared by: MJW4

Checked by: GMB

Table 4-4
Bedrock Hydraulic Testing Statistics by Interval
White Pine Copper

Depth in Borehole (Lineal Feet)	Geometric Mean	Number of Data Points	Minimum	Maximum	Median
	(cm/sec)		(cm/sec)	(cm/sec)	(cm/sec)
Shallow Bedrock(<200 feet)	9.57E-05	45	3.85E-07	1.59E-01	1.16E-04
Bedrock (>200 and <400 LF)	8.59E-05	39	1.01E-06	1.34E-02	7.73E-05
Bedrock (>400 and <600 LF)	2.62E-05	31	6.16E-08	7.07E-03	2.89E-05
Bedrock (>600 and <800 LF)	9.89E-06	15	1.32E-08	4.08E-04	1.07E-05
Bedrock (>800 and <1,000 LF)	3.21E-06	9	1.39E-07	3.33E-05	1.24E-06
Bedrock (>1,000 and <1,400 LF)	1.20E-06	10	3.08E-08	4.96E-05	4.91E-07
Bedrock (>1,400 and <1,800 LF)	5.44E-07	15	1.72E-09	1.13E-04	2.83E-07
Bedrock (>1,800 and <2,200 LF)	6.11E-08	18	3.94E-11	3.26E-06	2.08E-07
Bedrock (>2,200 and <2,600 LF)	4.53E-08	7	9.02E-11	9.31E-07	6.07E-08
Bedrock (>2,600 and <3,000 LF)	1.21E-07	9	1.92E-10	4.37E-06	2.44E-07
Hydraulic Results of All Deep Bedrock Tests (>200 feet):	4.25E-06	153	3.94E-11	1.34E-02	6.82E-06

Notes:

All lengths calculated using midpoint of tested interval

cm/s = centimeters per second

LF = linear feet down borehole below ground surface

Prepared by: KRM2

Checked by: GMB

Table 4-5
Piezometric Head Elevation Summary for well BMW-1
White Pine Copper

Well Number and Data	BMW-1		Head above Mid-point of Screen
Date	Depth to Water (feet below measuring point)	Piezometric Head Elevation (FT NAVD88)	(feet)
6/18/2021	91.30	692.70	429.80
10/18/2021	88.89	695.11	432.21
6/14/2023	87.56	696.44	433.54
8/9/2023	88.15	695.85	432.95
10/7/2023	88.41	695.59	432.69
6/12/2024	87.35	696.65	433.75
8/13/2024	84.40	699.60	436.70

Monitoring Well Details

Top of Casing [Measuring Point] Elevation (FT NAVD88):
Screened Interval - Top (ft bgs):
Screened Interval - Bottom (ft bgs):
Midpoint of Screened Interval (ft bgs):
Midpoint of Screened Interval (FT NAVD88):

784.0
471.40
570.80
521.10
262.90

Piezometric Head Elevation Statistics

Number of Readings:
Minimum Piezometric Elevation (FT NAVD88):
Maximum Piezometric Elevation (FT NAVD88):
Average Piezometric Elevation (FT NAVD88):
Standard Deviation:

7
692.70
699.60
695.99
2.06

Notes:

Piezometric elevations relative to feet (ft) above North American Vertical Datum of 1988 (NAVD88)
ft bgs = feet below ground surface

Prepared by: BNK

Checked by: GMB

Table 5-1
One-time Borehole Groundwater Quality Sample Results
White Pine Copper

Borehole ID	Sample ID		Detected Analytes																					
			Methyl Mercury (ng/L)	Mercury, Low Level Total (ng/L)	Mercury, Low Level Dissolved (ng/L)	Uranium Total (µg/L)	Uranium Dissolved (µg/L)	Aluminum Total (µg/L)	Aluminum Dissolved (µg/L)	Antimony Total (µg/L)	Arsenic Total (µg/L)	Arsenic Dissolved (µg/L)	Barium Total (µg/L)	Barium Dissolved (µg/L)	Boron Total (µg/L)	Boron Dissolved (µg/L)	Cadmium Total (ug/L)	Cadmium Dissolved (µg/L)	Calcium Total (µg/L)	Calcium Dissolved (µg/L)	Chromium Total (µg/L)	Chromium Dissolved (µg/L)	Cobalt Total (µg/L)	Cobalt Dissolved (µg/L)
			RL	0.05	0.5	0.03		100		3	1		2.5		50		0.5		200		5		1	
			MDL	0.022	0.2	0.0098		25		1.3	0.23		0.73		13		0.17		44		1.1		0.4	
Results																								
WP-583	WP-583-233-284.4-1	-	-	-	0.57	0.53	33 J	-	-	0.34 J	0.28 J	1300	1400	180 B	190 B	-	-	360000	370000	-	-	-	-	
	WP-583-233-284.4-2	-	-	-	0.53	0.53	36 J	-	-	0.33 J	0.30 J	1300	1300	190 B	190 B	-	-	380000	380000	-	-	-	-	
WP-584	WP-584-82-132-1	-	-	-	32	32	69 J	-	-	0.57 J	0.55 J	1500	1500	290 B	280 B	-	-	300000	290000	-	-	-	-	
	WP-584-82-132-2	-	-	-	32	31	-	-	-	0.48 J	0.49 J	1500	1500	280 B	290 B	-	-	280000	290000	-	-	-	-	
WP-585	WP-585-440-470-1	-	-	-	0.27 B	0.27 B	-	-	-	-	-	350	370	730 B	770 B	-	-	260000 B	270000 B	-	-	-	-	
	WP-585-440-470-2	-	-	-	0.28 B	0.26 B	-	-	-	-	-	350	360	760 B	760 B	-	-	260000 B	260000 B	-	-	-	-	
	DUP-1	-	-	-	0.26 B	0.27 B	-	-	-	-	-	360	350	770 B	730 B	-	-	270000 B	250000 B	-	-	-	-	
WP-586	WP-586-510-560-1	-	0.47 J	-	0.74 B	0.46 B	1100	-	-	0.57 J	0.28 J	3000	3000	380 B	380 B	-	-	1100000	1200000	6.8	-	0.66 J	-	
	WP-586-510-560-2	-	-	-	1.2 B	1.1 B	120	-	1.9 J	0.28 J	0.28 J	3000	3000	380 B	380 B	-	-	1200000	1200000	1.9 J	1.1 J	-	-	
WP-587	WP-587-305-335.54-1	-	0.5	-	0.43	0.038	12000	39 J F1	-	2.7	0.23 J	420	320 F1	1400 B	1200 B	-	-	450000 B	440000 B	27	-	-	-	
	WP-587-305-335.54-2	-	0.22 J	0.24 J	0.083	0.046	920	28 J	-	0.41 J	-	290	290	1200 B	1400 B	-	-	380000 B	390000 B	2.4 J	-	0.49 J	-	
	WP-587-1428-1738.3-1	0.025 J	0.65	0.042 J	0.43	0.43	55 J ^+	-	-	7.2 F1	11	19000	18000	350 F1 B	420 B	0.22 J	0.32 J	24000000	24000000	-	-	1.1 F1	1.2	
WP-588	WP-588-150-165-1	-	-	-	1.8	1.8	800	-	-	0.47 J	0.38 J	240	260	940 B	960 B	-	-	79000 B	88000 B	4.0 J	-	-	-	
	WP-588-150-165-2	-	-	-	1.8	1.9	340	-	-	0.37 J	0.33 J	250	250	980 B	990 B	-	-	83000 B	84000 B	1.6 J	-	-	-	
	WP-588-340-355-1	-	0.32 J	-	0.32	0.28	890	-	-	0.55 J	0.31 J	2600	3500	430 B	420 B	-	-	940000 B	1200000 B	3.6 J	-	0.54 J	-	
	WP-588-340-355-2	-	0.20 J	-	0.32	0.28	460	-	-	0.44 J	0.37 J	4100	4800	410 B	390 B	-	-	1400000 B	1600000 B	3.5 J	-	-	-	
WP-594	WP-594-329-379-1	-	0.58	-	0.15 B	0.11 B	580	-	-	0.51 J	0.27 J	1900	1900	330	300	-	-	1100000	1100000	12	-	0.73 J	-	
	WP-594-329-379-2	-	0.34 J	0.28 J	0.17 B	0.18 B	65 J	-	-	0.42 J	0.39 J	3400	3500	300	280	-	-	2000000	2000000	2.7 J	-	-	-	
WP-598	WP-598-485-535.4-1	-	0.23 J	-	0.019 J	0.028 J	-	25 J	-	-	-	4800	4800	680 B	640 B	-	-	1800000	1700000	-	-	-	-	
	WP-598-485-535.4-2	-	-	0.20 J	0.012 J	0.010 J	-	-	-	-	-	5000	5100	690 B	680 B	-	-	1800000	1700000	-	-	-	-	

Table 5-1 (continued)

Borehole ID	Sample ID		Detected Analysis																					
			Copper Total (µg/L)	Copper Dissolved (µg/L)	Iron Total (µg/L)	Iron Dissolved (µg/L)	Lead Total (µg/L)	Lead Dissolved (µg/L)	Lithium Total (µg/L)	Lithium Dissolved (µg/L)	Magnesium Total (µg/L)	Magnesium Dissolved (µg/L)	Manganese Total (µg/L)	Manganese Dissolved (µg/L)	Nickel Total (µg/L)	Nickel Dissolved (µg/L)	Molybdenum Total (µg/L)	Molybdenum Dissolved (µg/L)	Potassium Total (µg/L)	Potassium Dissolved (µg/L)	Silver Total (µg/L)	Silver Dissolved (µg/L)	Selenium Total (µg/L)	Selenium Dissolved (µg/L)
			RL	2	100	0.5	10	200	2.5	2	5	500	0.5	2.5										
			MDL	0.5	47	0.19	2.5	49	0.79	0.63	2.5	110	0.12	0.98										
Results																								
WP-583	WP-583-233-284.4-1	0.96 J	-	1700	1600	-	-	260	270	3500	3600	500	510	-	-	31	32	2500	2600	-	-	-	-	
	WP-583-233-284.4-2	0.60 J	-	1400	1200	-	-	240	240	3300	3200	490	470	-	-	32	32	2500	2400	-	-	-	-	
WP-584	WP-584-82-132-1	1.9 J	-	1000	860	-	-	99	96	17000	17000	1500	1500	1.4 J	0.86 J	-	-	1100	1100	-	-	-	-	
	WP-584-82-132-2	-	-	800	740	-	-	95	96	17000	17000	1500	1500	0.75 J	0.73 J	-	-	1000	1000	-	-	-	-	
WP-585	WP-585-440-470-1	-	-	59 J	57 J	-	-	270 B	280 B	2200	2200	150	160	-	-	51	53	1500	1600	-	-	1.0 J	1.1 J	
	WP-585-440-470-2	-	-	56 J	-	-	-	270 B	260 B	2200	2200	150	160	-	-	51	52	1500	1600	-	-	-	1.4 J	
	DUP-1	0.88 J	-	57 J	-	-	-	270 B	270 B	2200	2100	160	150	-	-	52	50	1600	1500	-	-	1.1 J	1.2 J	
WP-586	WP-586-510-560-1	21	2.5	1500	52 J	0.49 J	-	490	500	8900	8700	790 B	770 B	2	0.91 J	43	41	2600	2200	0.30 J	-	-	-	
	WP-586-510-560-2	2.3	3	230	110	-	-	500	500	9000	8900	790 B	790 B	0.93 J	0.74 J	40	39	2200	2200	-	-	0.98 J	1.1 J	
WP-587	WP-587-305-335.54-1	32 B	1.1 J B	11000	170 F1	3.3 B	-	250	250 F1	11000	8000 F1	780	540 F1	15	0.69 J	29	29	7300	4800 F1	2.7	-	1.1 J	-	
	WP-587-305-335.54-2	3.6 B	0.58 J	1300	460	0.37 J B	-	230	240	7200	7100	500	490	1.6 J	-	25	25	4400	4300	026 J	-	-	-	
	WP-587-1428-1738.3-1	110	70	1700 F1	350	3.9	0.97 J	2000 ^5-	1900 ^5-	230000	220000	15000	15000	12	14	24	25	44000	42000	0.56	0.51	2.2 J	3.3	
WP-588	WP-588-150-165-1	6.5	-	1500	580	0.25 J	-	99	110	1600	1600	170	160	1.1 J	-	18	20	1300	1300	0.13 J	-	-	1.1 J	
	WP-588-150-165-2	3.4	-	980	580	-	-	100	110	1600	1500	160	160	0.70 J	-	18	19	1300	1200	-	-	-	1.2 J	
	WP-588-340-355-1	8.4	0.50 J	2200	630	0.42 J	-	260	330	9100	11000	780	960	1.9 J	1.0 J	47	52	5000	5600	-	-	-	2.1 J	
	WP-588-340-355-2	3.4	0.51 J	1400	850	-	-	330	360	13000	15000	1200	1300	1.4 J	1.0 J	48	50	5100	5500	-	-	1.5 J	2.6	
WP-594	WP-594-329-379-1	31	4.6	4600	-	0.61	-	180	170	16000	16000	1200	1100	4.2	0.73 J	29	28	14000	14000	0.15 J	-	-	-	
	WP-594-329-379-2	12	1.7 J	1200	600	-	-	230	220	31000	30000	2200	2200	1.5 J	1.0 J	37	38	19000	19000	-	-	-	-	
WP-598	WP-598-485-535.4-1	1.2 J	2.9	590	150	-	17	420	400	14000	13000	880	900	-	1.5 J	24	22	4000	3900	-	-	-	-	
	WP-598-485-535.4-2	0.68 J	5.6	590	-	-	1.2	420	410	14000	14000	940	940	-	0.68 J	25	25	4100	4100	-	-	-	1.0 J	

Table 5-1 (continued)

Borehole ID	Sample ID		Detected Analysis																					
			Sodium Total (µg/L)	Sodium Dissolved (µg/L)	Strontium Total (µg/L)	Strontium Dissolved (µg/L)	Tin Total (µg/L)	Tin Dissolved (µg/L)	Vanadium Total (µg/L)	Zinc Total (µg/L)	Zinc Dissolved (µg/L)	Hardness as Calcium Carbonate (mg/L)	Bromide Total (mg/L)	Chloride Total (mg/L)	Fluoride Total (mg/L)	Sulfate Total (mg/L)	Ammonia Total (mg/L)	Phosphorus as P (mg/L)	Alkalinity Total (mg/L)	Bicarbonate Alkalitiy as CaCO3 (mg/L)	Salinity Total (psu)	Total Dissolved Solids (mg/L)	Total Suspended Solids (mg/L)	
			RL	200		4		5		5	20		0.91	1	100	1	1	0.2	0.05	5	5	0.33	25	5
			MDL	77		0.64		1.3		2.2	6.9		0.46	0.18	12	0.19	0.21	0.1	0.024	3.7	3.7	0.33	11	1.9
Results																								
WP-583	WP-583-233-284.4-1	900000	930000	10000	11000	-	-	-	330	210	910	28	1900	-	4	0.17 J	-	88 B	88 B	4.4	3700	12		
	WP-583-233-284.4-2	970000	970000	10000	10000	-	-	-	220	94	960	22	1800	0.59 J	3.9	-	-	93 B	93 B	4.1	3600	9		
WP-584	WP-584-82-132-1	310000	290000	8900	8700	-	-	-	200	290	820	8.5	540	0.23 J	2.5	0.29	-	520	520	1.7	1700	3.6 J		
	WP-584-82-132-2	290000	290000	8400	8500	-	-	-	130	230	780	8.2	520	0.23 J	2.3	-	-	520	520	1.7	1700	3.2 J		
WP-585	WP-585-440-470-1	930000 B	930000 B	6600 B	6700 B	-	-	-	49	13 J	650	21	1800	1.8	20	0.17 J*-	0.024 JB	23 B	23 B	3.8	3200	-		
	WP-585-440-470-2	930000 B	910000 B	6600 B	6500 B	-	-	-	40	-	660	21	1800	1.9	20	-	-	23 B	23 B	3.7	3100	-		
	DUP-1	930000 B	920000 B	6600 B	6600 B	-	-	-	39	-	680	21	1800	1.9	20	-	-	22 B	22 B	3.8	3100	-		
WP-586	WP-586-510-560-1	1900000	1900000	29000	31000	-	-	-	920 B	920 B	2900	51	4600 B	-	8.9	-	0.045 J	14 B	14 B	11	8700	31		
	WP-586-510-560-2	1900000	1900000	31000	31000	-	-	-	390 B	370 B	3000	53	4800 B	-	8.3	-	-	24 B	24 B	11	8900	3.6 J		
WP-587	WP-587-305-335.54-1	1100000	1100000	7800	7600	2.1 J	1.5 J	20	190 B	310 B	1200	26	2300	0.42 J	15	-	0.30 ^1*-^*-	33	33	5.3	4500	310		
	WP-587-305-335.54-2	1100000	1100000	6600	6800	2.4 J	-	-	600 B	150 B	980	27	2100	0.44 J	15	-	-	38	38	4.8	4200	33		
	WP-587-1428-1738.3-1	8500000	7400000	410000	420000	2.0 J F1	-	-	21000	23000	60000	830 J	61000	-	3.1	-	-	18	18	110	90000	130		
WP-588	WP-588-150-165-1	420000	410000	1500	1700	-	-	-	83	76	200	6.2	540	0.53 J	13	-	-	130 B	130 B	1.2	1300	17		
	WP-588-150-165-2	410000	400000	1600	1600	-	-	-	96	77	210	6.1	630	0.53 J	13	-	-	130	130	1.2	1300	7.4		
	WP-588-340-355-1	1200000	1400000	20000	25000	-	-	2.2 J	400	220	2400	40	3800	1.1	11	0.11 J	-	53	53	7.5	6700	24		
	WP-588-340-355-2	1500000	1700000	30000	35000	-	-	-	280	260	3700	50	4700	1.2	10	-	-	56	56	9	7700	12		
WP-594	WP-594-329-379-1	950000	950000	21000	21000	1.9 J B	1.9 J B	-	3100	1100	2800	53	3500	1.9	5.3	0.82 *-	-	26 B	26 B	7.9	6600	37		
	WP-594-329-379-2	1300000	1300000	38000	39000	2.3 J B	2.0 J B	-	1300	1000	5100	76	5300	2.6	4.2 F1	1.7 *-	-	22 B	22 B	12	10000	9.2		
WP-598	WP-598-485-535.4-1	2200000	2000000	43000	37000	2.6 J	-	-	96	110	4500	66	5600 B	-	2.8	-	-	6.9	6.9	13	12000	11		
	WP-598-485-535.4-2	2100000	2100000	44000	39000	-	-	-	120	91	4600	67	5800 B	-	3.5	-	-	6.4	6.4	14	12000	10		

Table 5-1 (continued)

Borehole ID	Sample ID		Detected Analysis						
			Chromium, hexavalent Total (mg/L)	Cr (III) Total (mg/L)	Chromium, hexavalent Dissolved (mg/L)	Sulfide Total (mg/L)	Total Organic Carbon (mg/L)	Dissolved Organic Carbon (mg/L)	
			RL	0.01	0.01	0.01	1	1	1
			MDL	0.0032	0.01	0.0032	0.23	0.47	0.47
Results									
WP-583	WP-583-233-284.4-1	-	-	-	-	-	0.47 J		
	WP-583-233-284.4-2	-	-	-	3.6	-	0.49 J		
WP-584	WP-584-82-132-1	-	-	-	-	4.3	4.4		
	WP-584-82-132-2	-	-	-	-	3.9	4		
WP-585	WP-585-440-470-1	-	-	-	-	-	-		
	WP-585-440-470-2	-	-	-	-	-	-		
	DUP-1	-	-	-	-	-	-		
WP-586	WP-586-510-560-1	-	-	-	-	-	-		
	WP-586-510-560-2	-	-	-	2.3	-	-		
WP-587	WP-587-305-335.54-1	0.0047 J H3 B	0.022	0.0051 J H3 B	-	-	-		
	WP-587-305-335.54-2	0.0061 J H3 B	-	0.0064 J H3 B	-	-	-		
	WP-587-1428-1738.3-1	-	-	0.0066 J H3 B	-	-	-		
WP-588	WP-588-150-165-1	-	-	-	-	0.53 J	0.63 J		
	WP-588-150-165-2	-	-	-	-	0.64 J	0.63 J		
	WP-588-340-355-1	-	-	-	-	-	-		
	WP-588-340-355-2	-	-	-	-	-	-		
WP-594	WP-594-329-379-1	-	-	-	-	1.7	1.7		
	WP-594-329-379-2	-	-	-	-	1.6	1.7		
WP-598	WP-598-485-535.4-1	-	-	-	-	-	-		
	WP-598-485-535.4-2	-	-	-	-	-	-		

Notes:

mg/L = milligram per liter

ng/L = nanogram per liter

µg/L = microgram per liter

- = Not detected, below MDL.

RL = Reporting Limit or Requested Limit (Radiochemistry).

MDL = Method Detection Limit.

J = result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

B = Compound was found in the blank and sample.

F1 = MS and/or MSD recovery exceeds control limit.

H3 = Sample was received and analyzed past holding time. This does not meet regulatory requirements.

*- = LCS and/or LCSD is outside acceptance limits, low biased.

^+ = Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.

^5- = Linear Range Check (LRC) is outside acceptance limits, low biased.

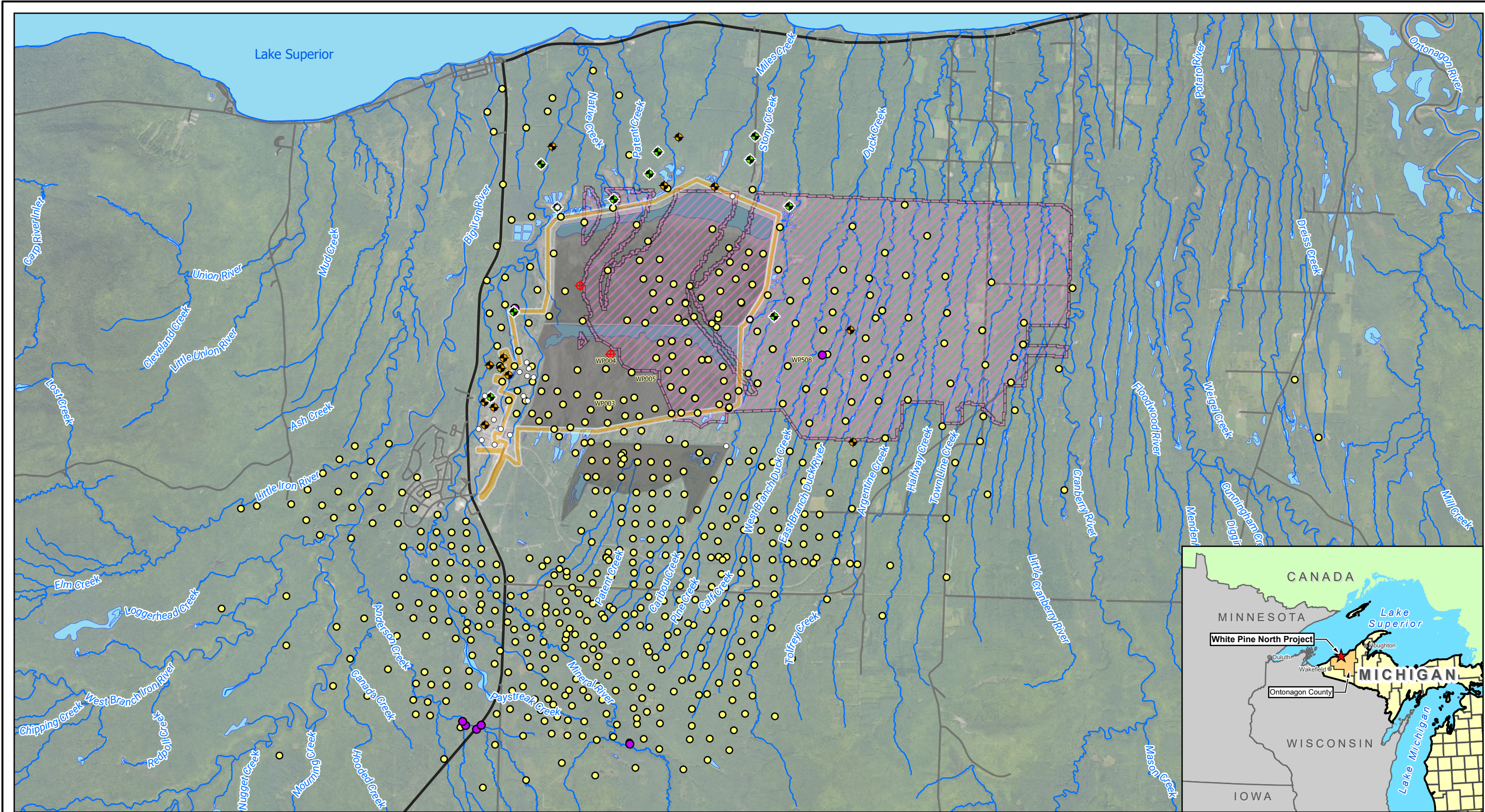
^1- = Initial Calibration Verification (ICV) is outside acceptance limits, low biased.

^* = Continuing Calibration Verification (CCV) is outside acceptance limits, low biased.

Prepared by: MIW4

Checked by: SES

Figures

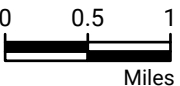


- NOTES:**
1. Base air photo from the USDA.
 2. Horizontal coordinate system is NAD1983 UTM Zone, 16N, units in meters.
 3. Hydrographic data from the USGS.
 4. Road and boundary data from Michigan GIS Open Data and the USFS.
 4. Identification of exploration boreholes and monitoring wells is provided in the Baseline Groundwater and Surface Water Report (Foth, 2026).

- LEGEND**
- Exploration Borehole
 - Monitoring Wells
 - Bedrock / Other
 - ◆ Overburden
 - ◆ Tailings
 - ◆ Shallow Bedrock
 - Inactive, Removed, or Unknown

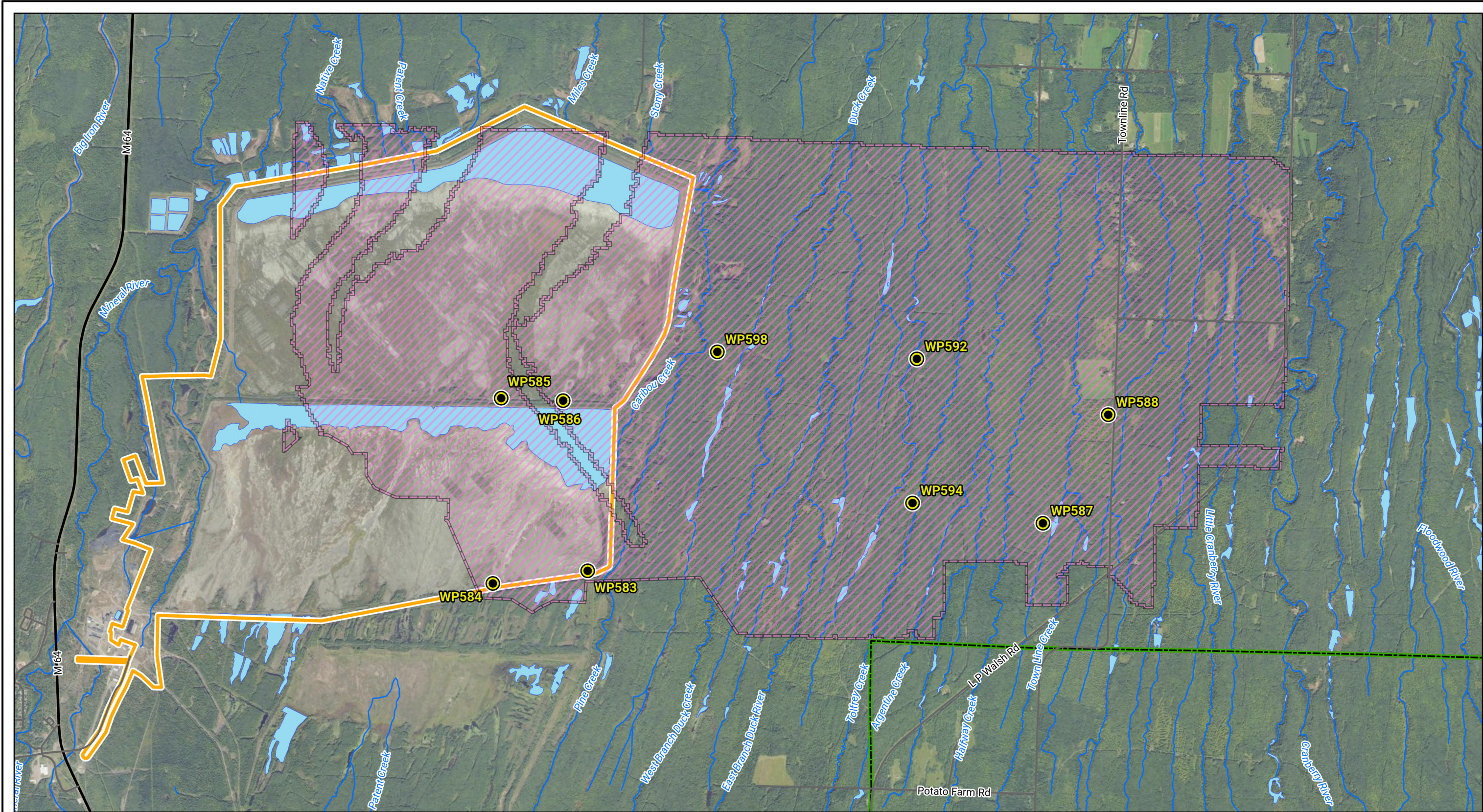
- Major Road
- Minor Road
- River/Stream
- Lake/Pond

- Proposed Project Surface Extent
- Proposed White Pine North Underground Mine Area



This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

WHITE PINE COPPER LLC		
FIGURE 1-1		
PROJECT LOCATION OF PROPOSED MINING AND AFFECTED AREAS DEEP BEDROCK REPORT WHITE PINE NORTH, ONTONAGON COUNTY, MI		
Date: MAY 2026	Revision Date:	
Drawn By: MJG4	Checked By: GMB	Project: 25W006

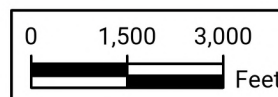


NOTES:

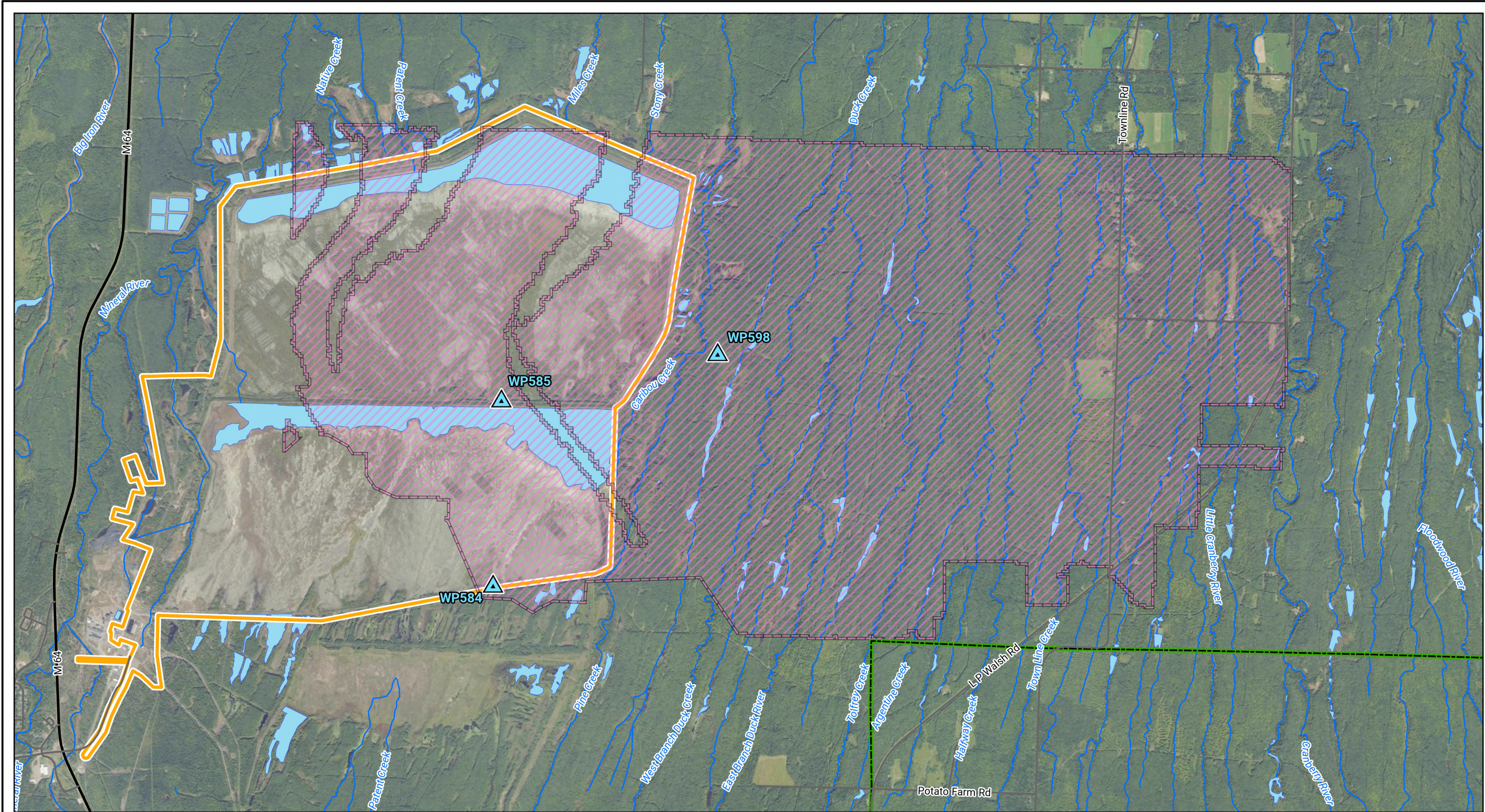
1. Base air photo from the USDA.
2. Horizontal coordinate system is NAD1983 UTM Zone, 16N, units in meters.
3. Hydrographic data from the USGS.
4. Road and boundary data from Michigan GIS Open Data and the USFS.
5. Site layout and infrastructure is based on 2019 White Pine North Copper Project PEA.

LEGEND

- Open Bore Hole HpL and Packer Tested
- Major Road
- Minor Road
- River/Stream
- Lake/Pond
- Proposed Project Surface Extent
- Proposed White Pine North Underground Mine Area
- Ottawa National Forest Boundary



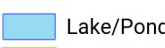
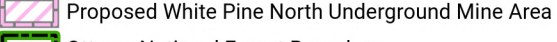
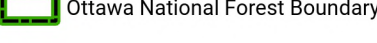
WHITE PINE COPPER LLC		
FIGURE 2-1		
HpL AND PACKER TESTED OPEN BORE HOLES DEEP BEDROCK REPORT WHITE PINE NORTH, ONTONAGON COUNTY, MI		
Date: MAY 2026	Revision Date:	
Drawn By: MJG4	Checked By: GMB	Project: 25W006

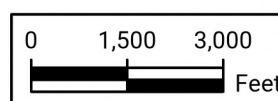


NOTES:

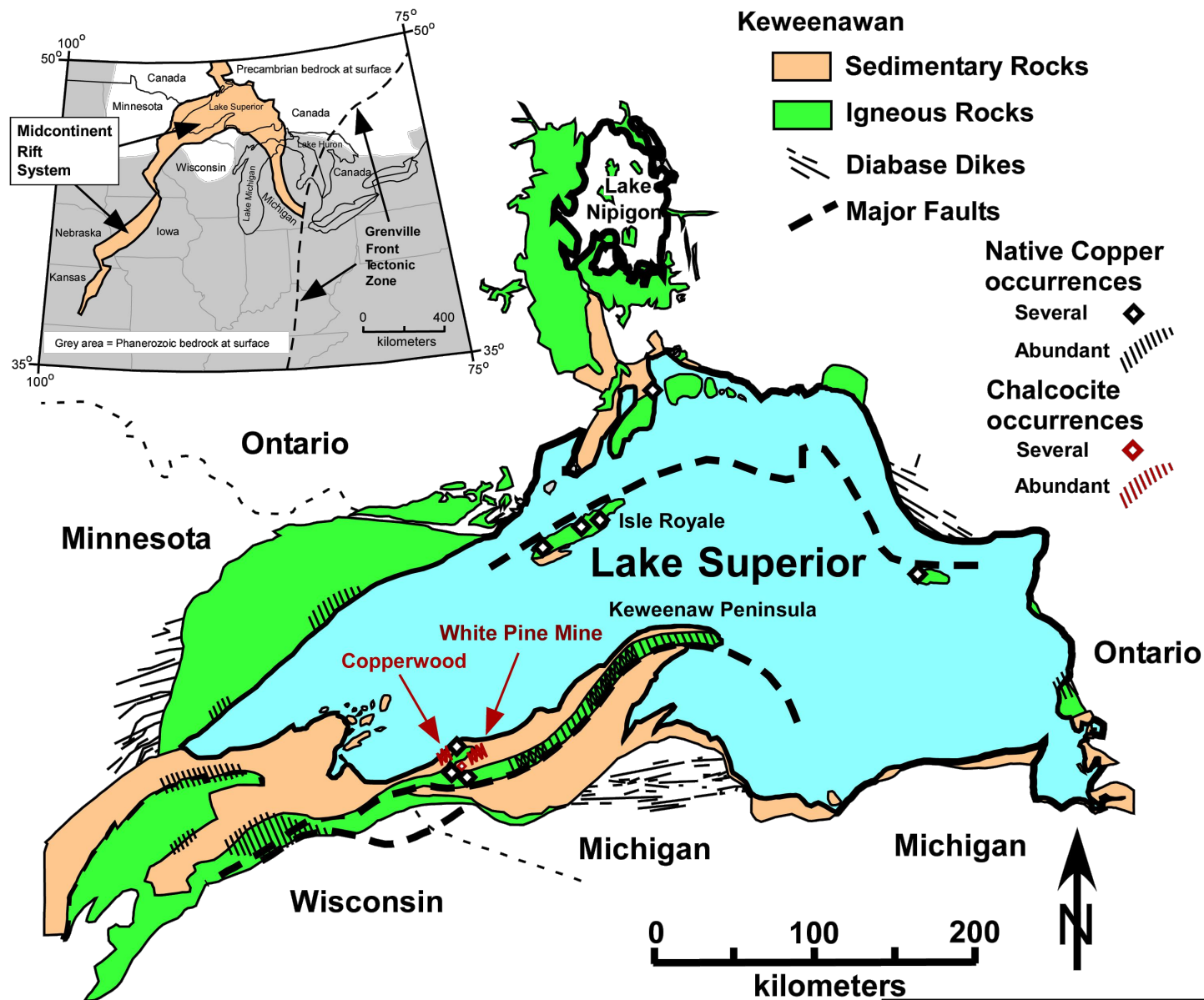
1. Base air photo from the USDA.
2. Horizontal coordinate system is NAD1983 UTM Zone, 16N, units in meters.
3. Hydrographic data from the USGS.
4. Road and boundary data from Michigan GIS Open Data and the USFS.
5. Site layout and infrastructure is based on 2019 White Pine North Copper Project PEA.

LEGEND

- | | |
|--|---|
|  Vibrating Wire Piezometer Location |  Lake/Pond |
|  Major Road |  Proposed Project Surface Extent |
|  Minor Road |  Proposed White Pine North Underground Mine Area |
|  River/Stream |  Ottawa National Forest Boundary |



WHITE PINE COPPER LLC		
FIGURE 2-2		
VIBRATING WIRE PIEZOMETER LOCATIONS DEEP BEDROCK REPORT WHITE PINE NORTH, ONTONAGON COUNTY, MI		
Date: MAY 2026	Revision Date:	
Drawn By: MJG4	Checked By: GMB	Project: 25W006



SOURCE:

WILLIAMS, W. C., & BORNHORST, T.J. (2023). CONTROLS ON THE STRATIFORM COPPER MINERALIZATION IN THE WESTERN SYNCLINE, UPPER PENINSULA, MICHIGAN. MINERALS, 13(7), 927. <https://doi.org/10.3390/min130170927>



SCALE: AS SHOWN

WHITE PINE COPPER

FIGURE 3-1

REGIONAL GEOLOGIC SETTING AND
DISTRIBUTION OF KEWEENAWAN COPPER DEPOSITS
DEEP BEDROCK REPORT

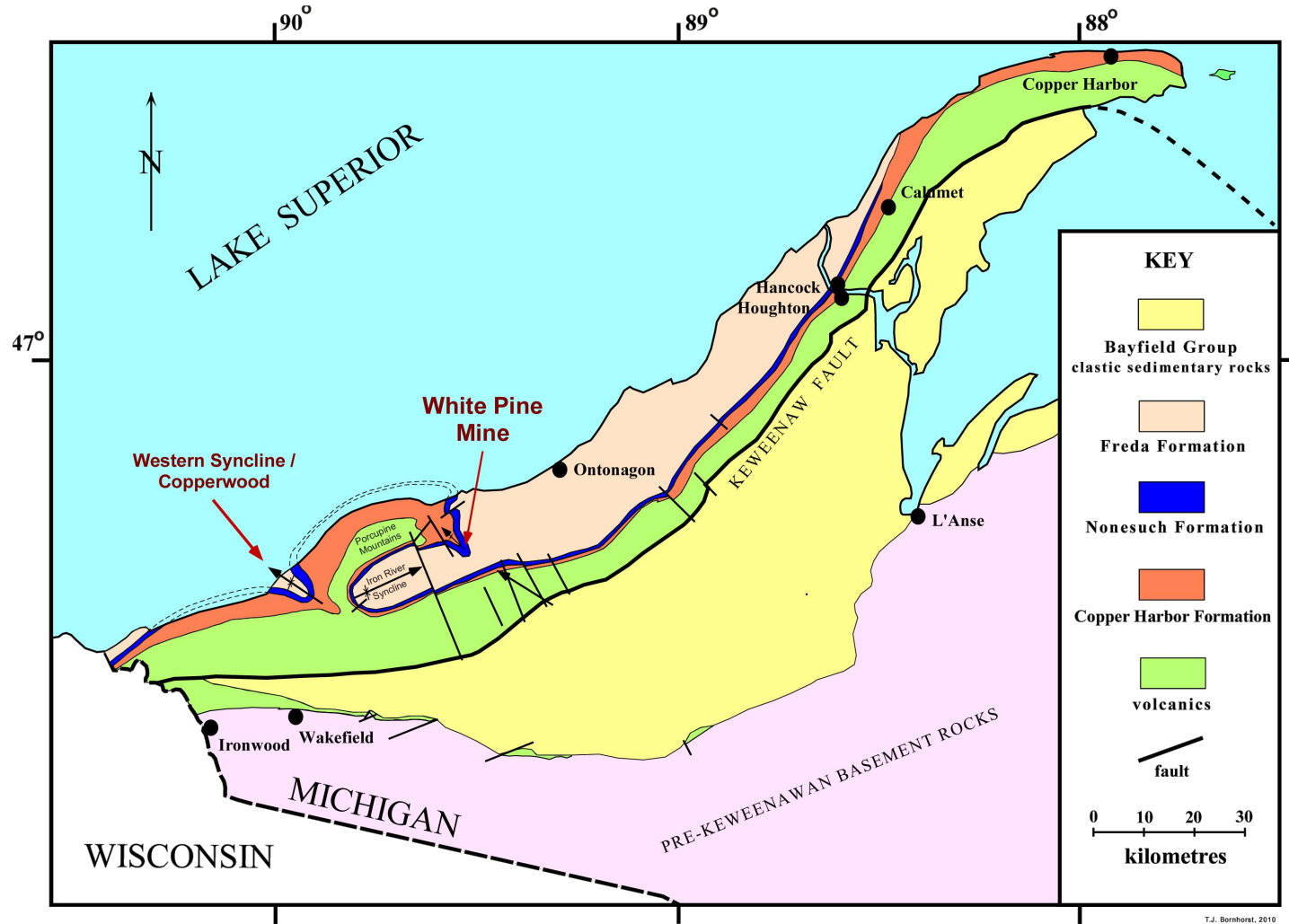
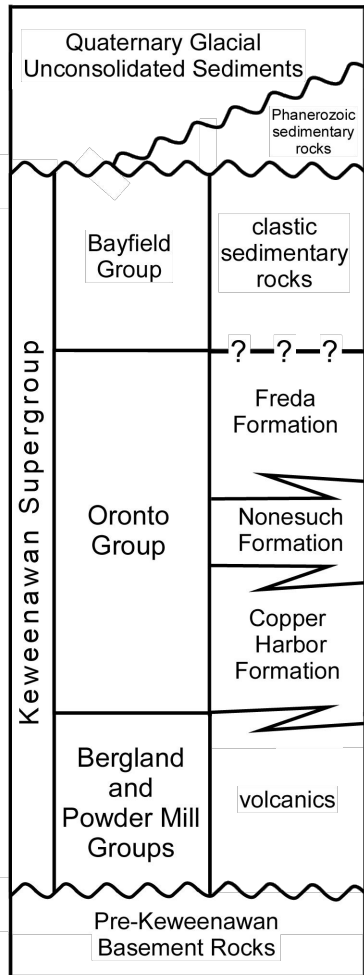
Date Completed: FEB. 2026

Revision Date:

Drawn By: JRB2

Checked By: GMB

Project No: 025W006



T.J. Bornhorst, 2010

SOURCE:

WILLIAMS, W. C., & BORNHORST, T.J. (2023). CONTROLS ON THE STRATIFORM COPPER MINERALIZATION IN THE WESTERN SYNCLINE, UPPER PENINSULA, MICHIGAN. MINERALS, 13(7), 927. <https://doi.org/10.3390/min130170927>



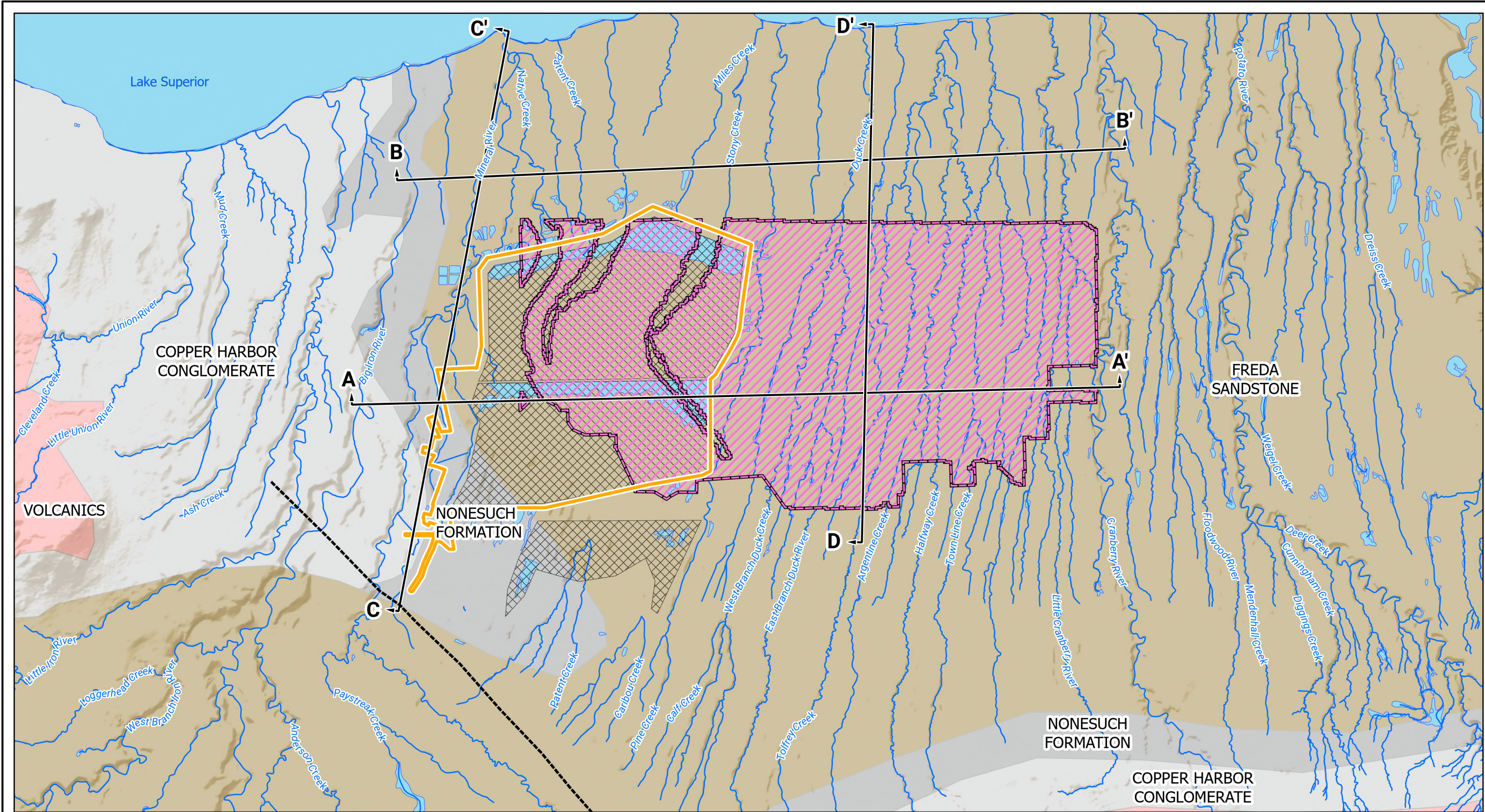
SCALE: AS SHOWN

WHITE PINE COPPER

FIGURE 3-2

GENERAL BEDROCK GEOLOGY AND LITHOSTRATIGRAPHY OF THE WESTERN UPPER PENINSULA, MI
DEEP BEDROCK REPORT

Date Completed: FEB. 2026	Revision Date:		
Drawn By: JRB2	Checked By: GMB	Project No: 025W006	



- NOTES:**
- 1. Geology Basemap from Michigan Dept. of EGLE
 - 2. Horizontal coordinate system is NAD1983 UTM Zone, 16N, units in meters.
 - 3. Hydrographic data from the USGS.
 - 4. Geology basemap derived from EGLE Bedrock Geology Map.
 - 5. Bedrock elevation calculated from WPC Geologic Model and borehole data.

LEGEND

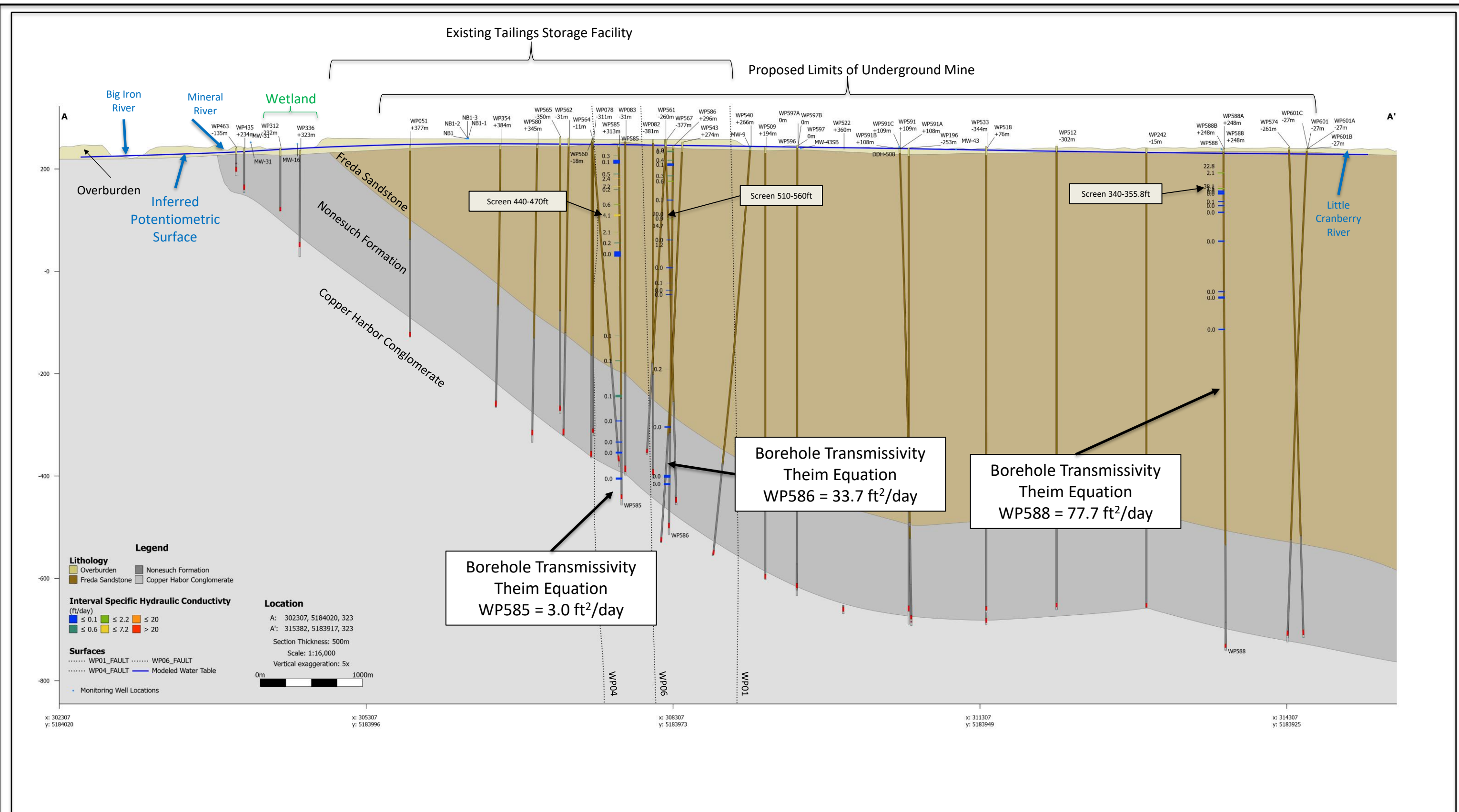
----- White Pine Fault	Existing Tailing Storage Facilities
---> Cross Section Locations	Bedrock Surface Formation
— River/Stream	FREDA SANDSTONE
— Lake/Pond	NONESUCH FORMATION
— Proposed Project Surface Extent	COPPER HARBOR CONGLOMERATE
— Proposed White Pine North Underground Mine Area	VOLCANICS

Foth

0 0.5 1 1.5 Miles

WHITE PINE COPPER LLC		
FIGURE 3-3		
BEDROCK GEOLOGY AND CROSS SECTION LOCATION DEEP BEDROCK REPORT WHITE PINE NORTH, ONTONAGON COUNTY, MICHIGAN		
Date: MAY 2026	Revision Date:	
Drawn By: MJG4	Checked By: GMB	Project: 25W006

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.



NOTES:

1. All Units in Meters and Vertical Exaggeration of 5x
2. Inferred Potentiometric surface generated from WPC GW water depths on latest date measured, where it exists
3. Wetlands located using Barr Engineering- 2024 Wetland Delineation and Characterization Report
4. Hydraulic Conductivity data sourced from Table 3-2 of R- Open Borehole Logging and VWP Installation.

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WHITE PINE COPPER LLC

FIGURE 3-4

HYDROGEOLOGIC CROSS SECTION A-A'
DEEP BEDROCK REPORT
WHITE PINE NORTH, ONTONAGON COUNTY, MI

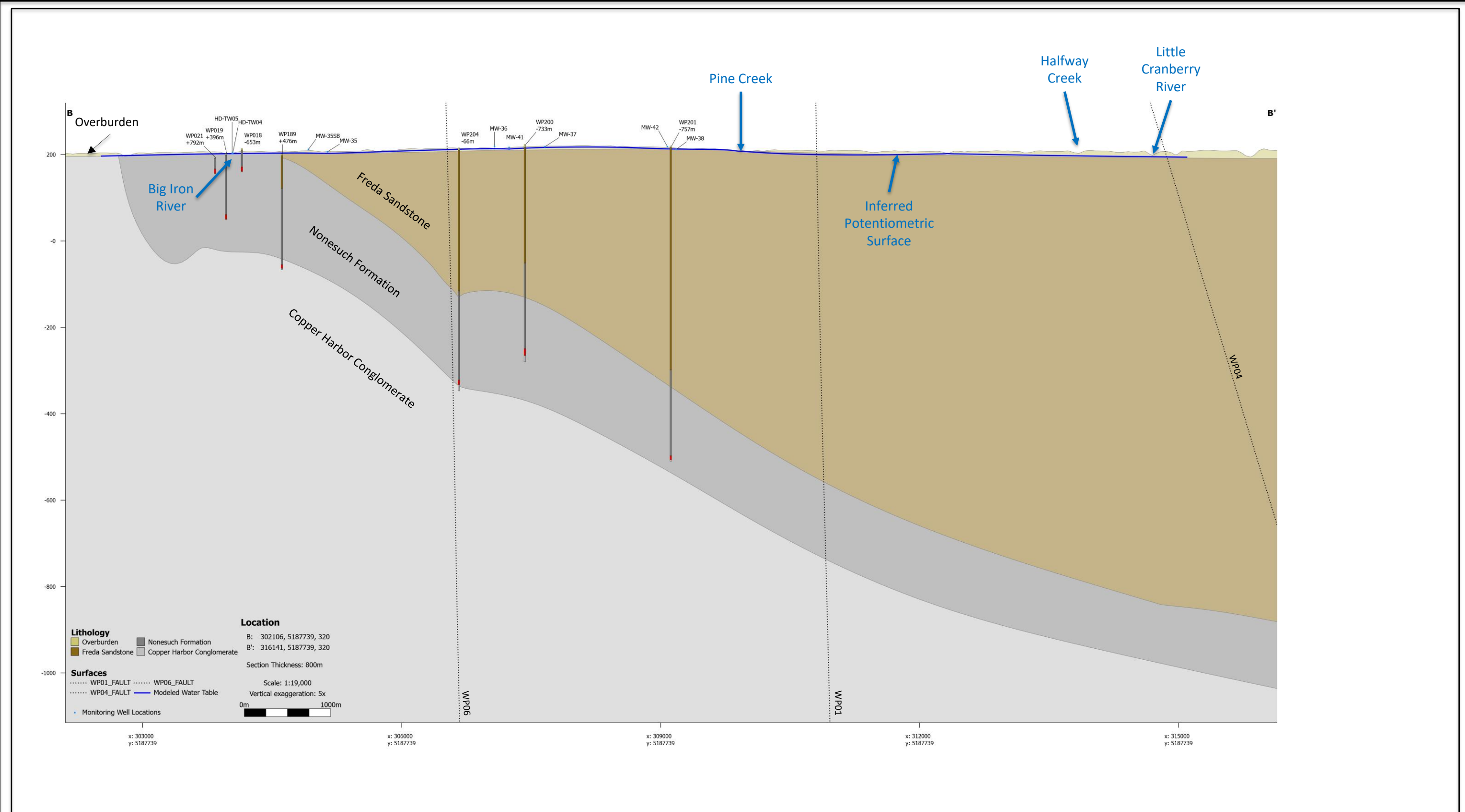
Date: MAY 2026

Revision Date: :

DRAWN BY: MJG4

CHECKED BY: GMB

PROJECT: 25W006



NOTES:

1. All Units in Meters and Vertical Exaggeration of 5x
2. Inferred Potentiometric surface generated from WPC GW water depths on latest date measured, where it exists
3. Wetlands located using Barr Engineering- 2024 Wetland Delineation and Characterization Report
4. Hydraulic Conductivity data sourced from Table 3-2 of R- Open Borehole Logging and VWP Installation.

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WHITE PINE COPPER LLC

FIGURE 3-5

HYDROGEOLOGIC CROSS SECTION B-B'

DEEP BEDROCK REPORT

WHITE PINE NORTH, ONTONAGON COUNTY, MI

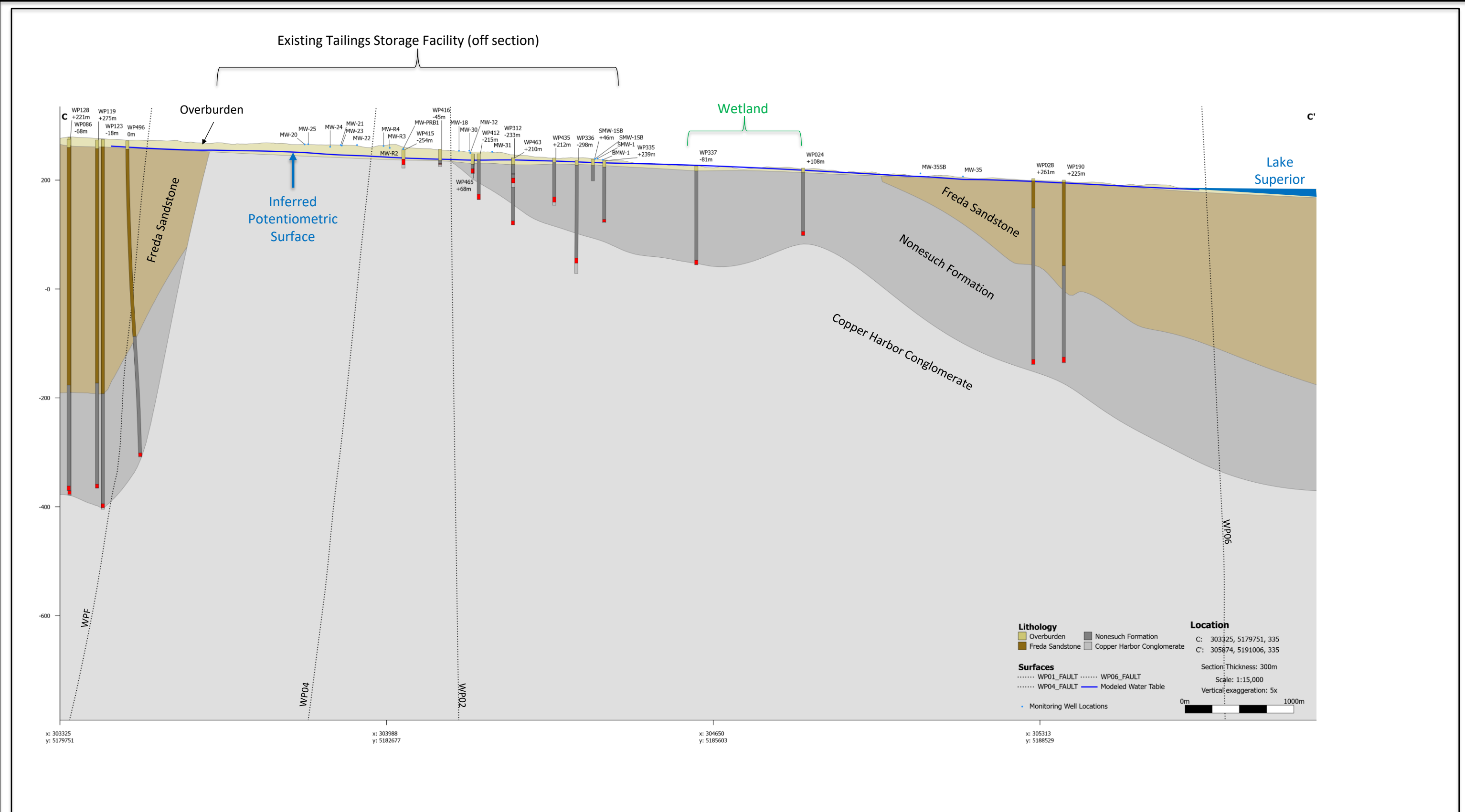
Date: MAY 2026

Revision Date: :

DRAWN BY: MJG4

CHECKED BY: GMB

PROJECT: 25W006



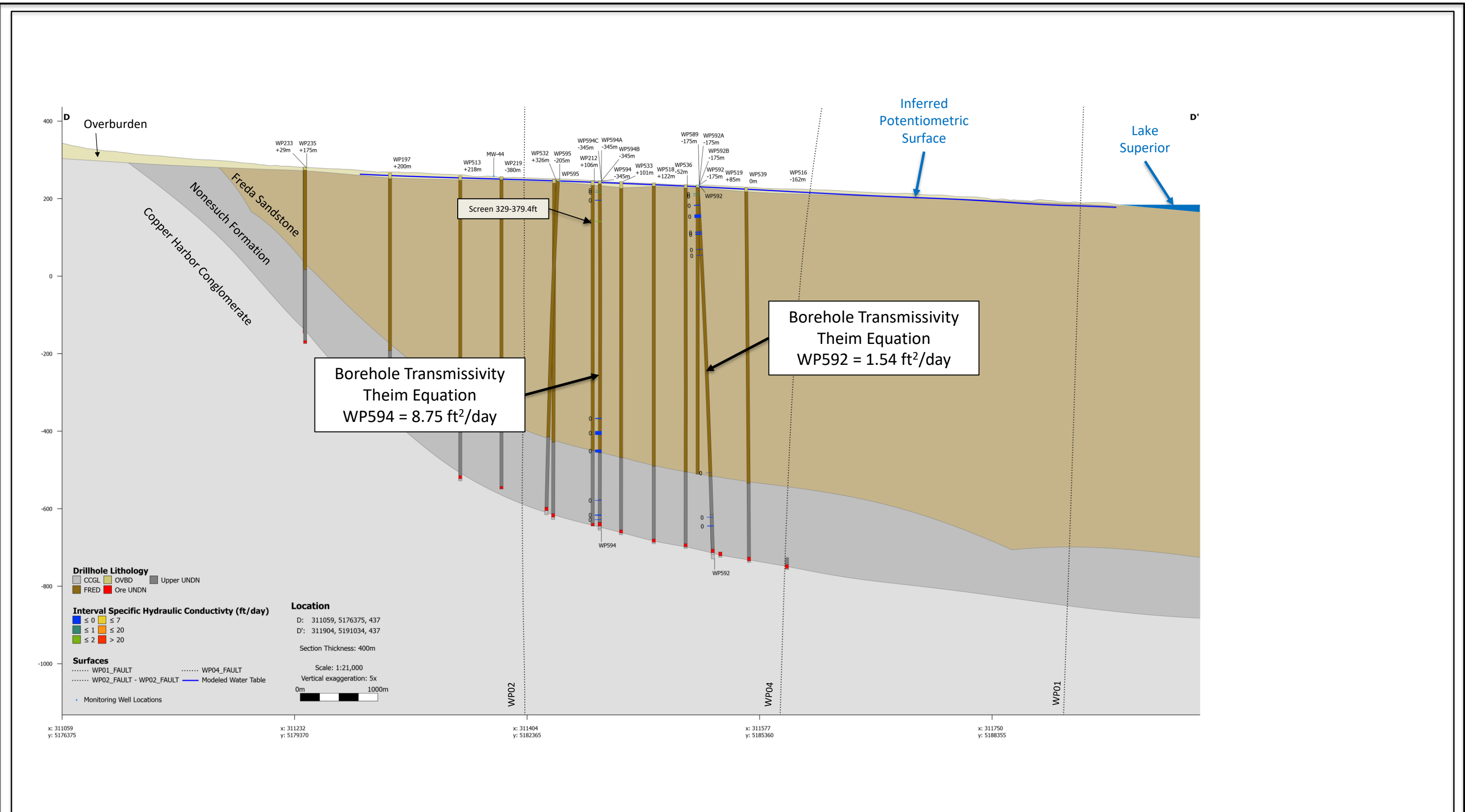
NOTES:

1. All Units in Meters and Vertical Exaggeration of 5x
2. Inferred Potentiometric surface generated from WPC GW water depths on latest date measured, where it exists
3. Wetlands located using Barr Engineering- 2024 Wetland Delineation and Characterization Report
4. Hydraulic Conductivity data sourced from Table 3-2 of R- Open Borehole Logging and VWP Installation.

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.



WHITE PINE COPPER LLC		
FIGURE 3-6		
HYDROGEOLOGIC CROSS SECTION C-C'		
DEEP BEDROCK REPORT		
WHITE PINE NORTH, ONTONAGON COUNTY, MI		
Date: MAY 2026	Revision Date: :	
DRAWN BY: MJG4	CHECKED BY: GMB	PROJECT: 25W006



NOTES:

1. All Units in Meters and Vertical Exaggeration of 5x
2. Inferred Potentiometric surface generated from WPC GW water depths on latest date measured, where it exists
3. Wetlands located using Barr Engineering- 2024 Wetland Delineation and Characterization Report
4. Hydraulic Conductivity data sourced from Table 3-2 of R- Open Borehole Logging and VWP Installation.

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

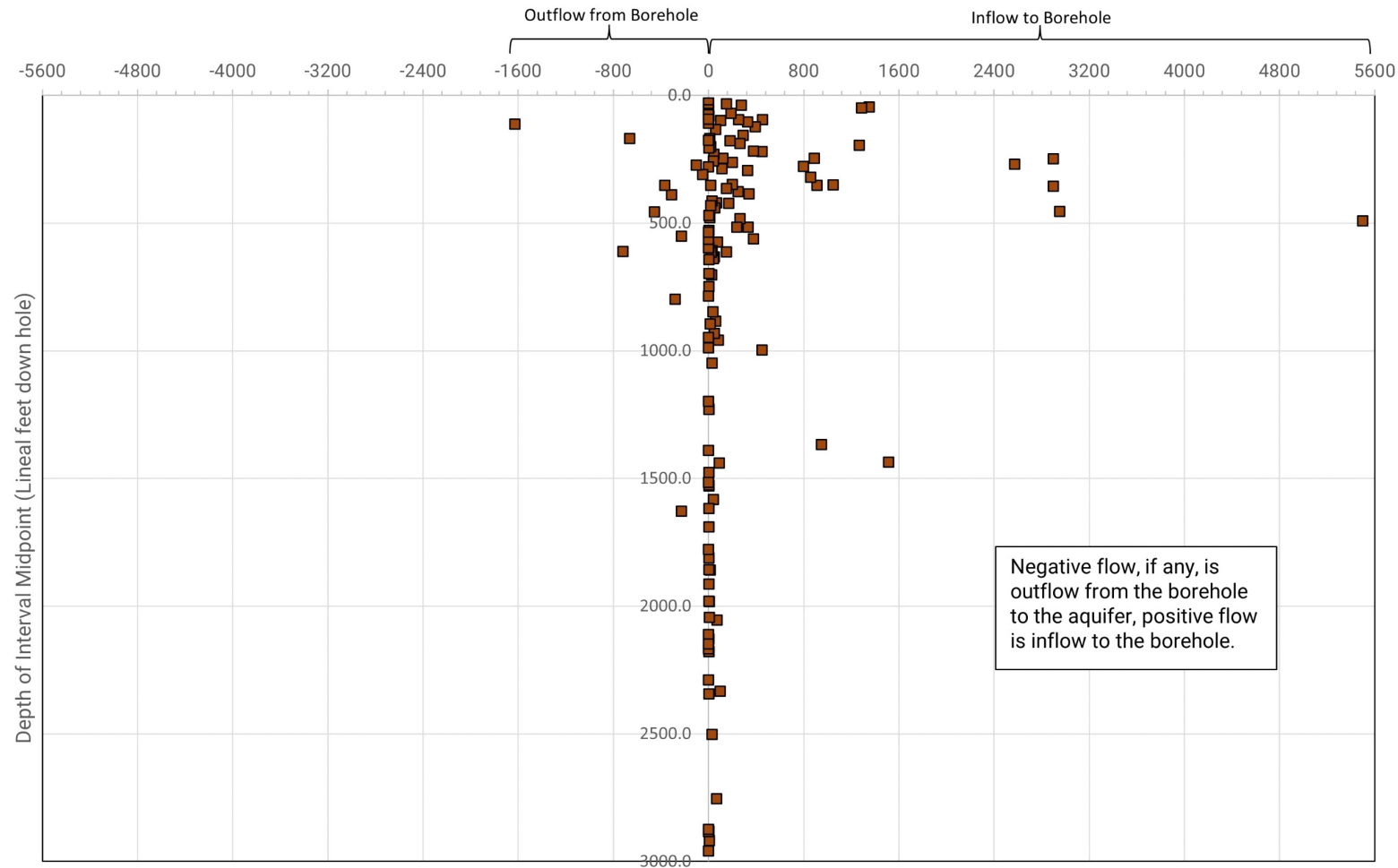


WHITE PINE COPPER LLC		
FIGURE 3-7		
HYDROGEOLOGIC CROSS SECTION D-D'		
DEEP BEDROCK REPORT		
WHITE PINE NORTH, ONTONAGON COUNTY, MI		
Date: MAY 2026	Revision Date: :	
DRAWN BY: MJG4	CHECKED BY: GMB	PROJECT: 25W006

Hydrophysical Logging Results - Ambient Flow Monitoring

White Pine Copper

Ambient Flow (mL/min)



WHITE PINE COPPER LLC

FIGURE 4-1

HYDROPHYSICAL LOGGING RESULTS - AMBIENT FLOW MONITORING

DEEP BEDROCK REPORT

WHITE PINE NORTH, ONTONAGON, MICHIGAN

Date: MARCH 2026

Revision Date:

Drawn By: GMB

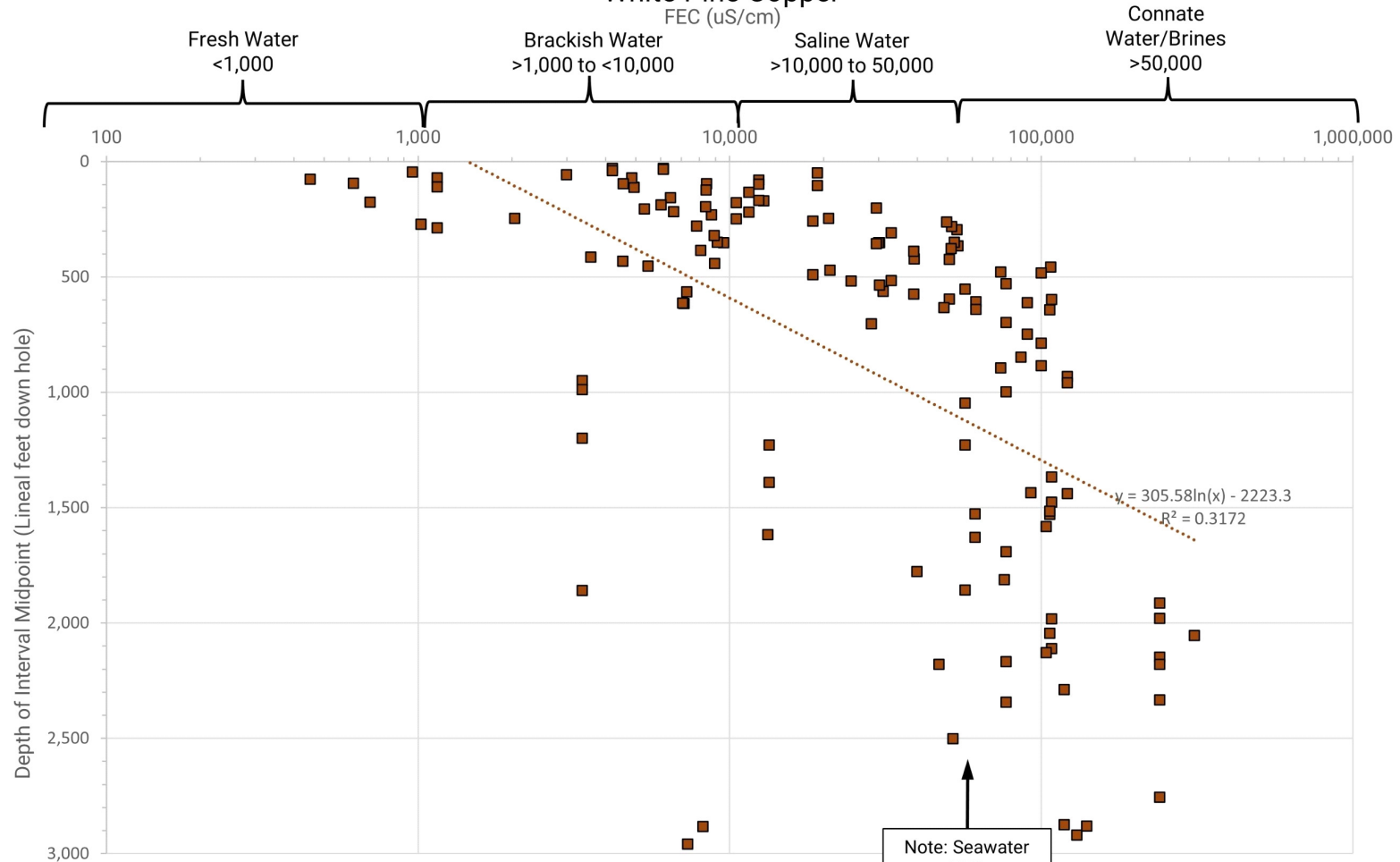
Checked By: VXT

Project: 25W006



Hydrophysical Logging Results - Fluid Electrical Conductivity (FEC) vs. Depth

White Pine Copper



References:

Tyler RH, Boyer TP, Minami T, Zweng MM, Reagan JR. Electrical conductivity of the global ocean. Earth Planets Space. 2017;69(1):156. doi: 10.1186/s40623-017-0739-7. Epub 2017 Nov 14.

WHITE PINE COPPER LLC

FIGURE 4-2

HYDROPHYSICAL LOGGING RESULTS - FEC vs. Depth

DEEP BEDROCK REPORT

WHITE PINE NORTH, ONTONAGON, MICHIGAN

Date: MARCH 2026

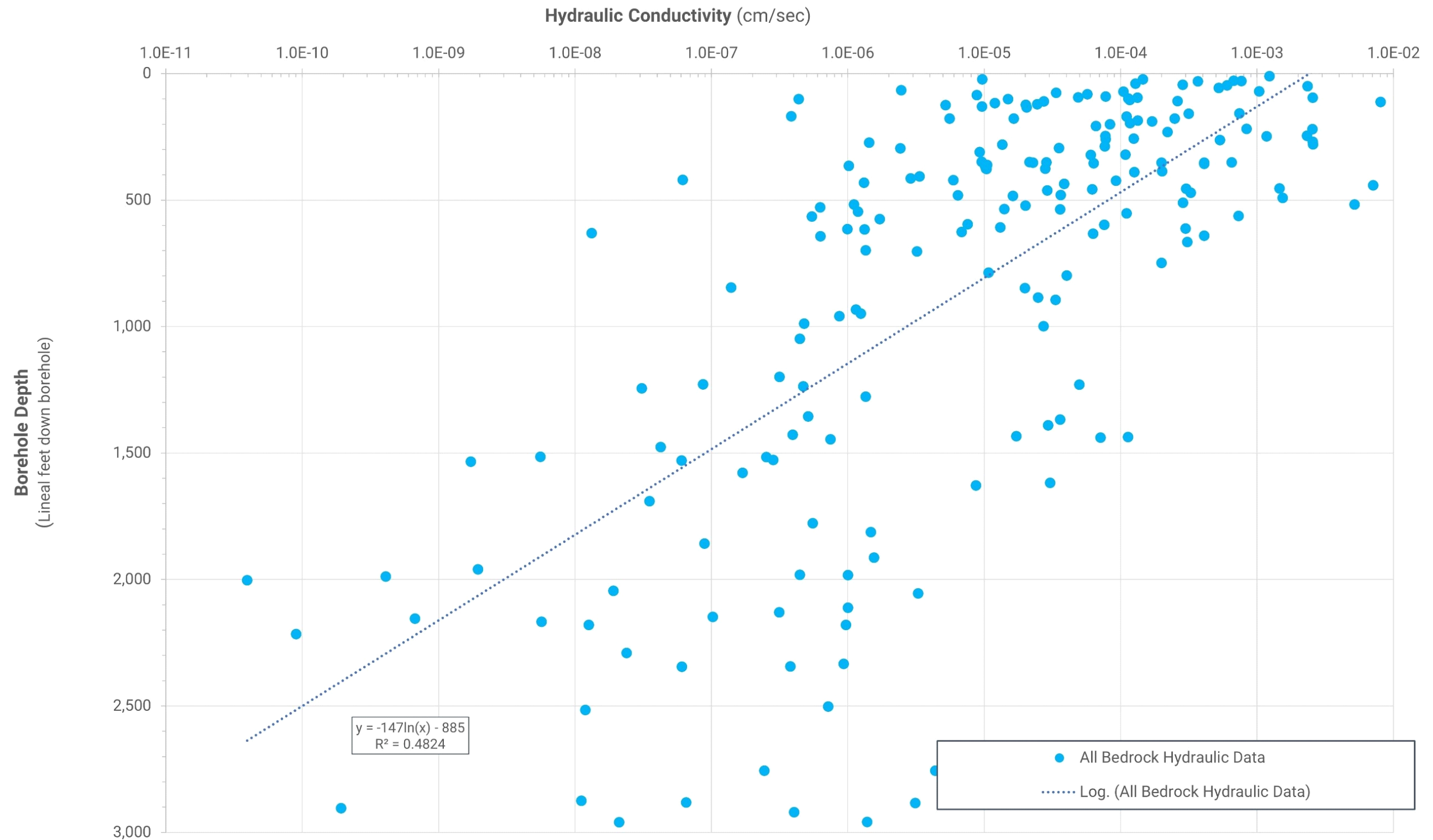
Revision Date:

Drawn By: GMB

Checked By: VXT

Project: 25W006



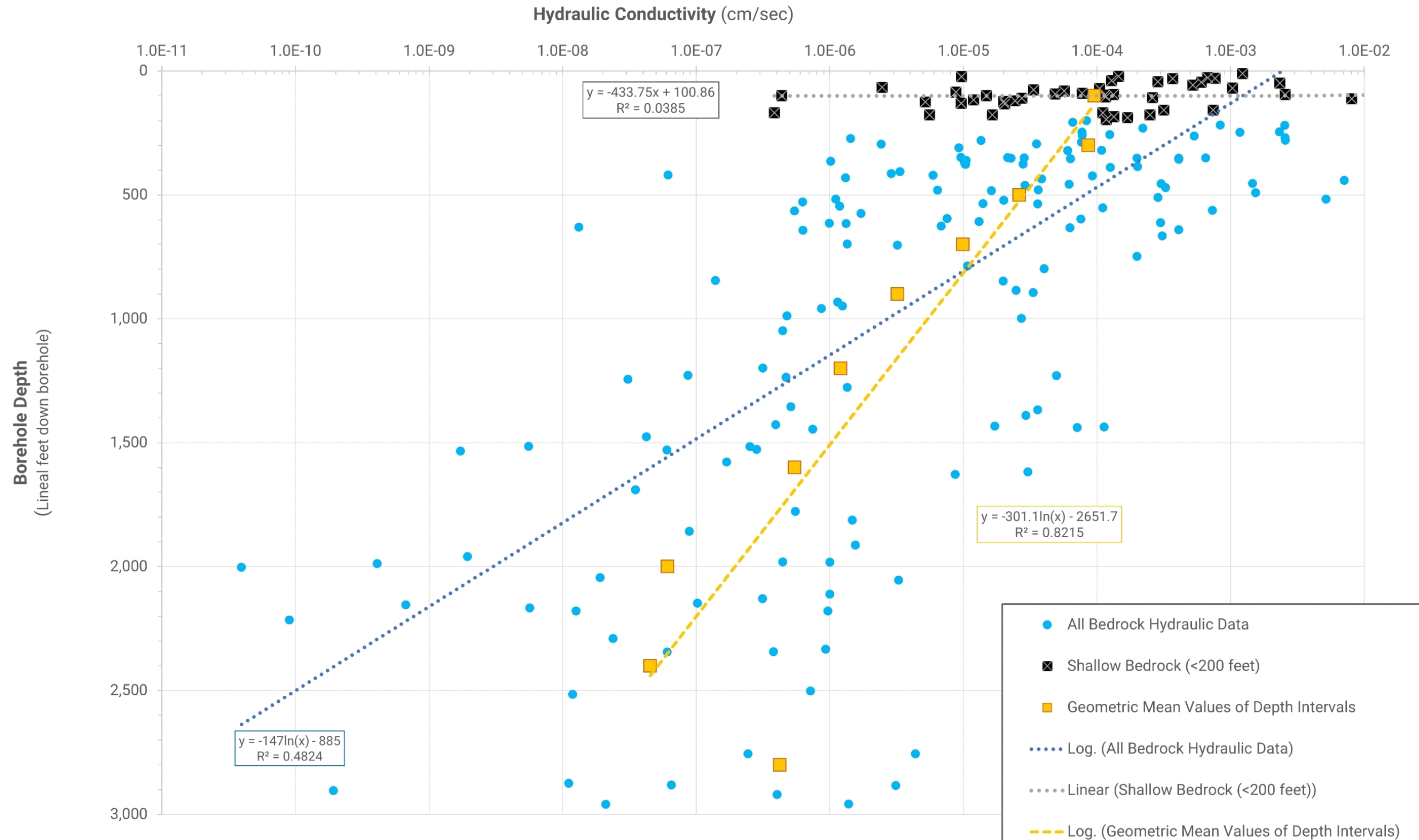


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FIGURE 4-3
HYDRAULIC CONDUCTIVITY VS. BOREHOLE DEPTH (ALL BEDROCK DATA)
DEEP BEDROCK REPORT
WHITE PINE NORTH, ONTONAGON, MICHIGAN

Date: MARCH 2026	Revision Date:
Drawn By: GMB	Checked By: VXT
	Project: 25W006





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FIGURE 4-4

HYDRAULIC CONDUCTIVITY VS. BOREHOLE DEPTH (TRENDS BY DEPTH INTERVALS)

DEEP BEDROCK REPORT

WHITE PINE NORTH, ONTONAGON, MICHIGAN

Date: MARCH 2026

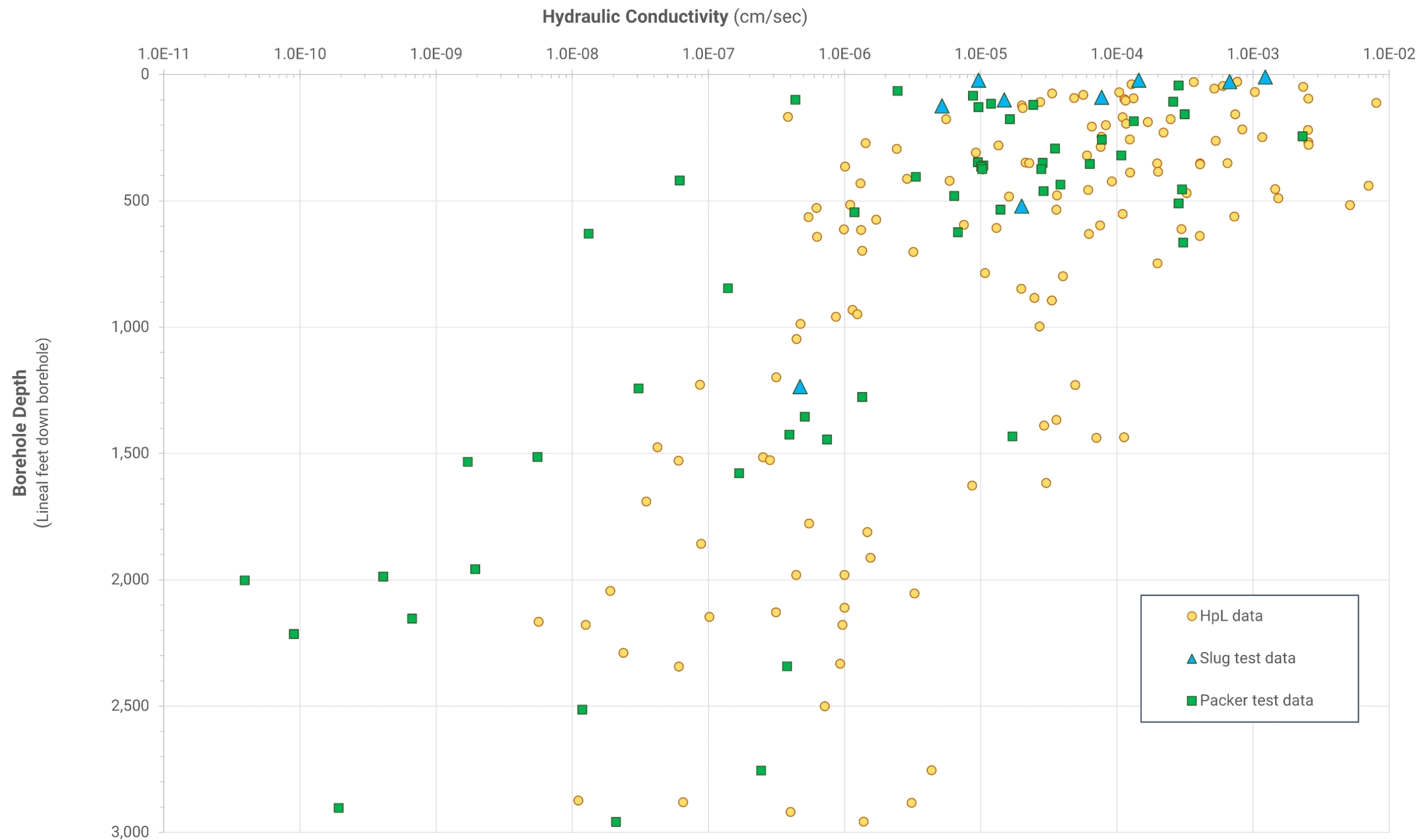
Revision Date:

Drawn By: GMB

Checked By: VXT

Project: 25W006





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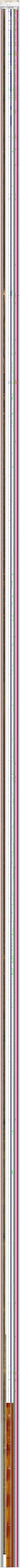
FIGURE 4-5
HYDRAULIC CONDUCTIVITY VS. BOREHOLE DEPTH (BY TEST METHOD)
DEEP BEDROCK REPORT
WHITE PINE NORTH, ONTONAGON, MICHIGAN

Date: MARCH 2026	Revision Date:
Drawn By: GMB	Checked By: VXT
Project: 25W006	



Appendix A

Geophysical Logging Results



ACOUSTIC AND OPTICAL TELEVIEWER PLOT

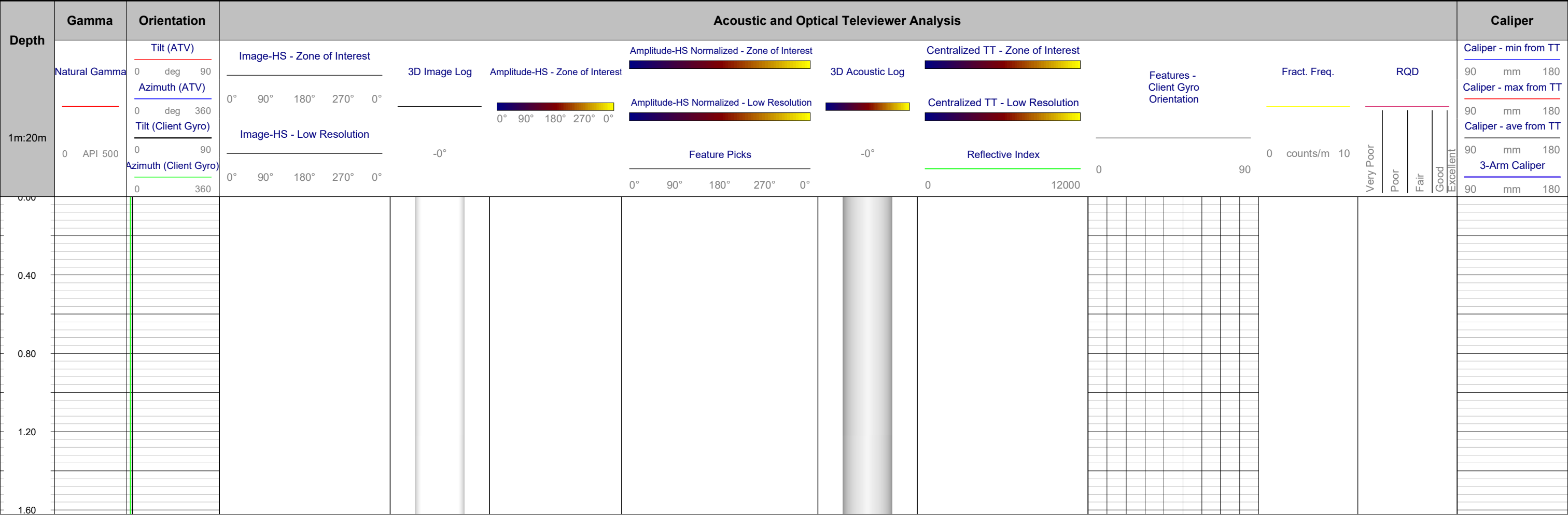


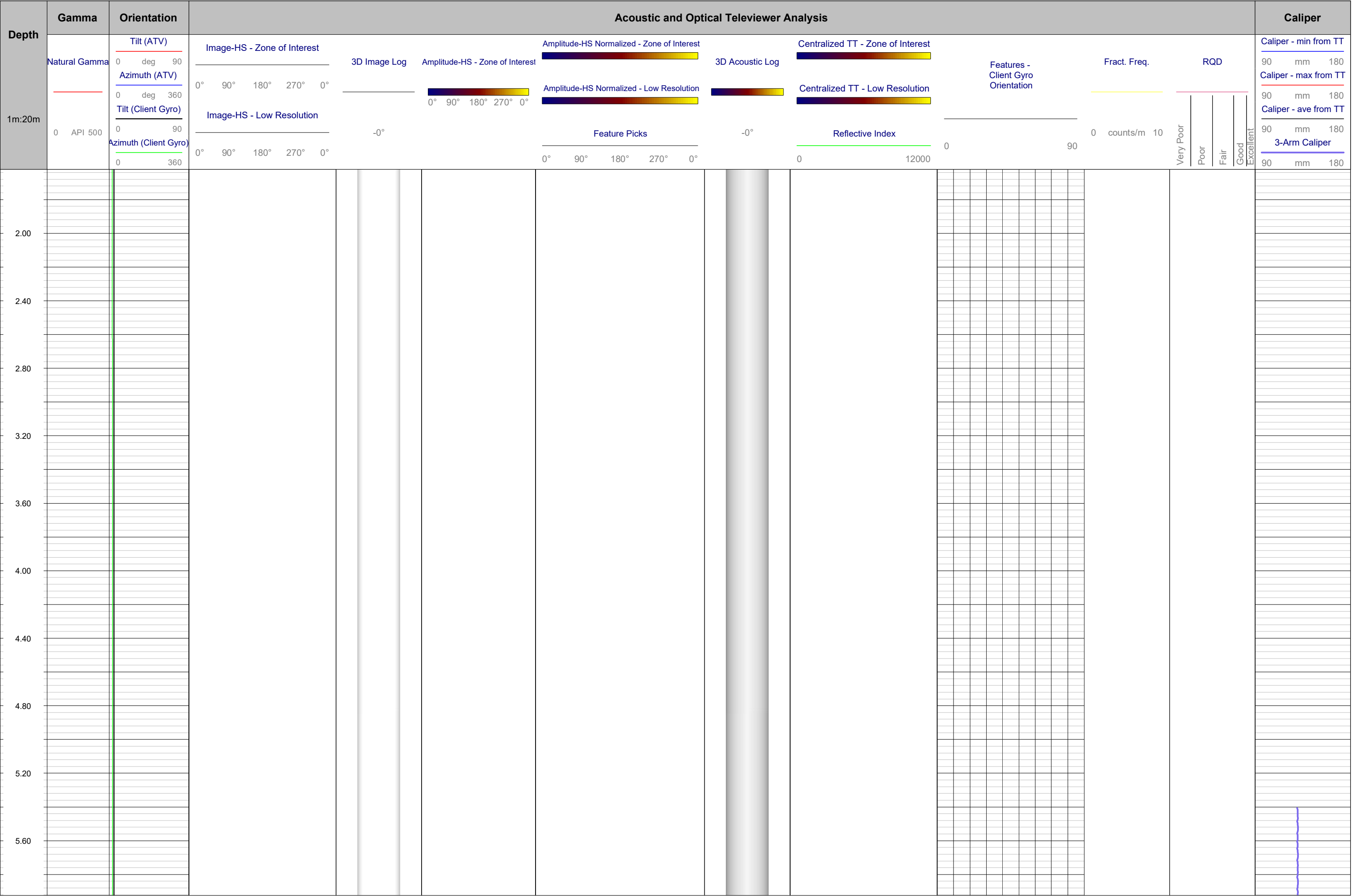
Company:	Kinterra	Total Depth:	512.00 m	UTM X (Easting):	---
Project:	White Pine	Surveyed Depth:	512.00 m	UTM Y (Northing):	---
Hole ID:	WP584	Hole Diameter:	120.00 mm	UTM Z (Elevation):	---
Acquisition date(s):	Mar 14, 2024; Mar 15, 2024	Bit Size:	PQ	Location:	White Pine, MI
Field Personnel:	Z. Roselle; R. Smith	Hole Type:	Diamond		
Data Analysts:	K. Smylie	Casing Depth:	---		
Survey Day(s):	2	Fluid Level:	---		

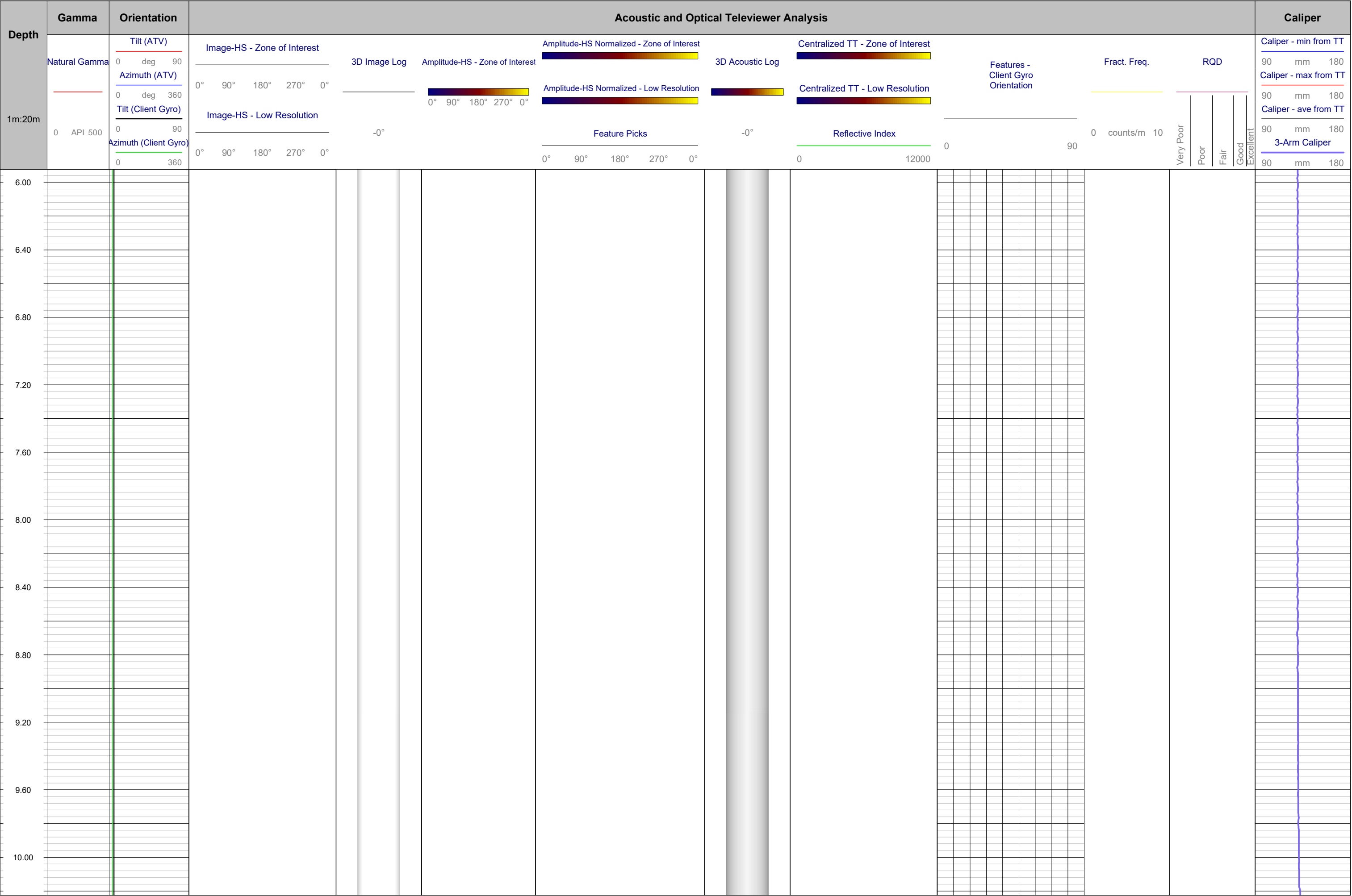
Probes:			Notes:
Manufacturer	Model	Serial	OTV higher resolution survey from 415 m - 510 m. ATV higher resolution survey from 442 m - 510 m. 3-Arm Caliper depth matched to ATV's synthetic caliper. UTM coordinates not provided. Client gyro extended to EOH.
ALT	QL OBI-2G Optical Televiewer	174009	
M. Sopris	2GDA Density	3813	
ALT	QL Spectral Gamma	213503	
QSA Global	Source Cesium 137	4098CO	
ALT	QLABI40GR	201705	
M. Sopris	2CAA 3-Arm Caliper	4262	

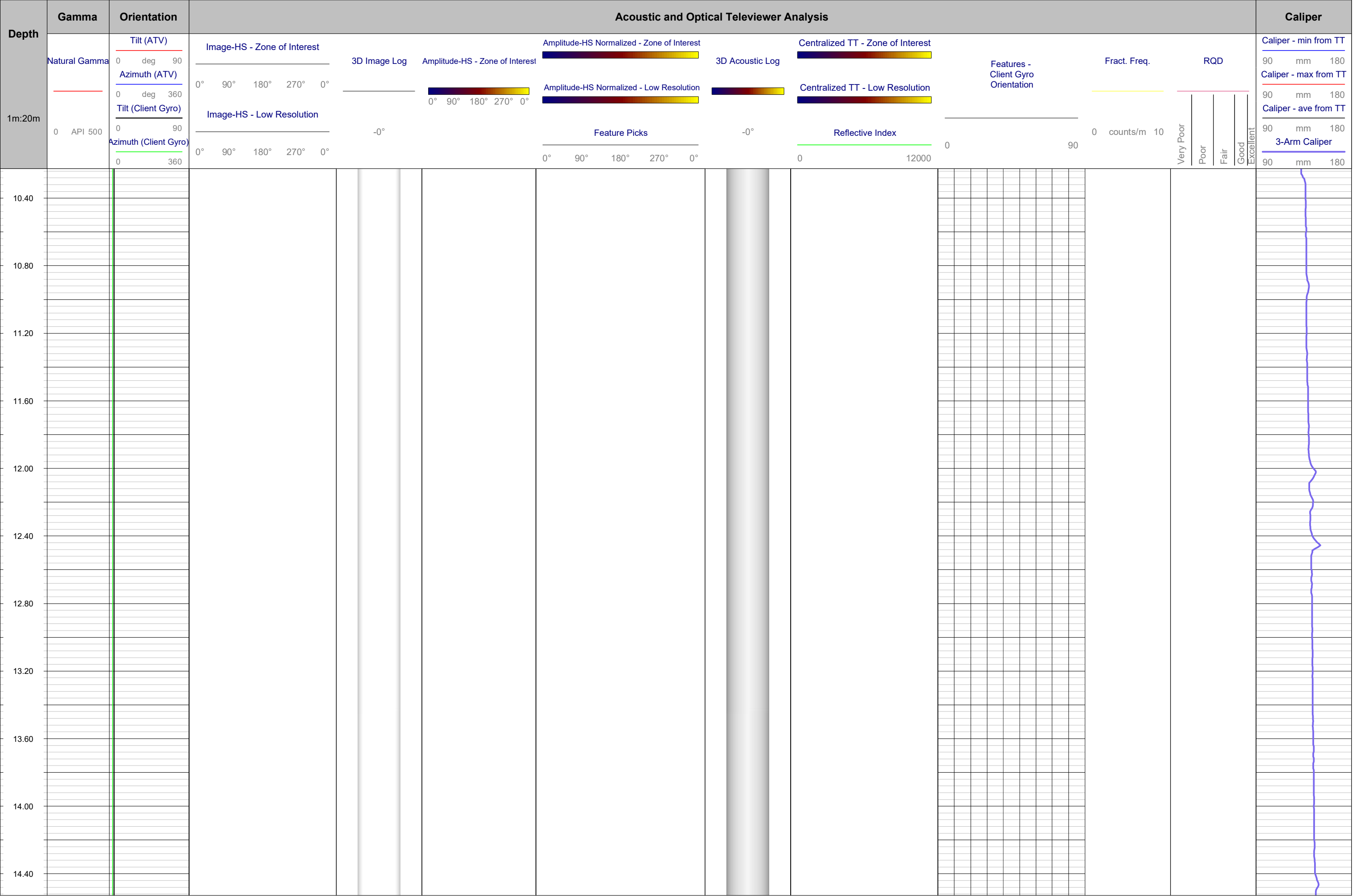
LEGEND - STRUCTURE TYPE

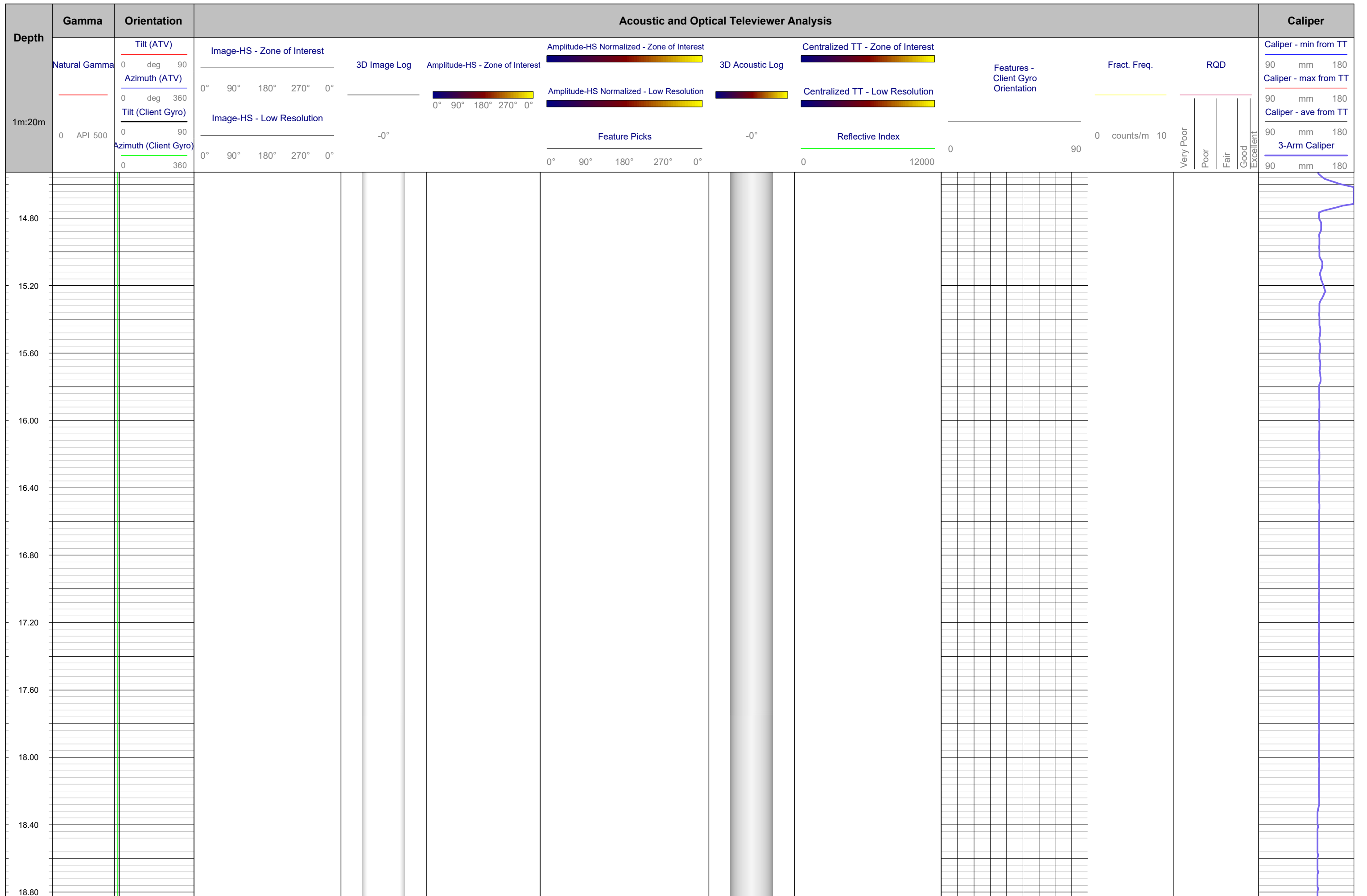
- Fault Contact - Upper and lower fault planar contacts for larger fault structures or fault zones
- Joint/Fracture - Wide Open (30mm+)
- Joint/Fracture - Open (1-10mm)
- Joint/Fracture - Tight (0-1mm)
- Joint/Fracture - Filled
- Bedding/ Banding/ Foliation
- Vein
- Contact

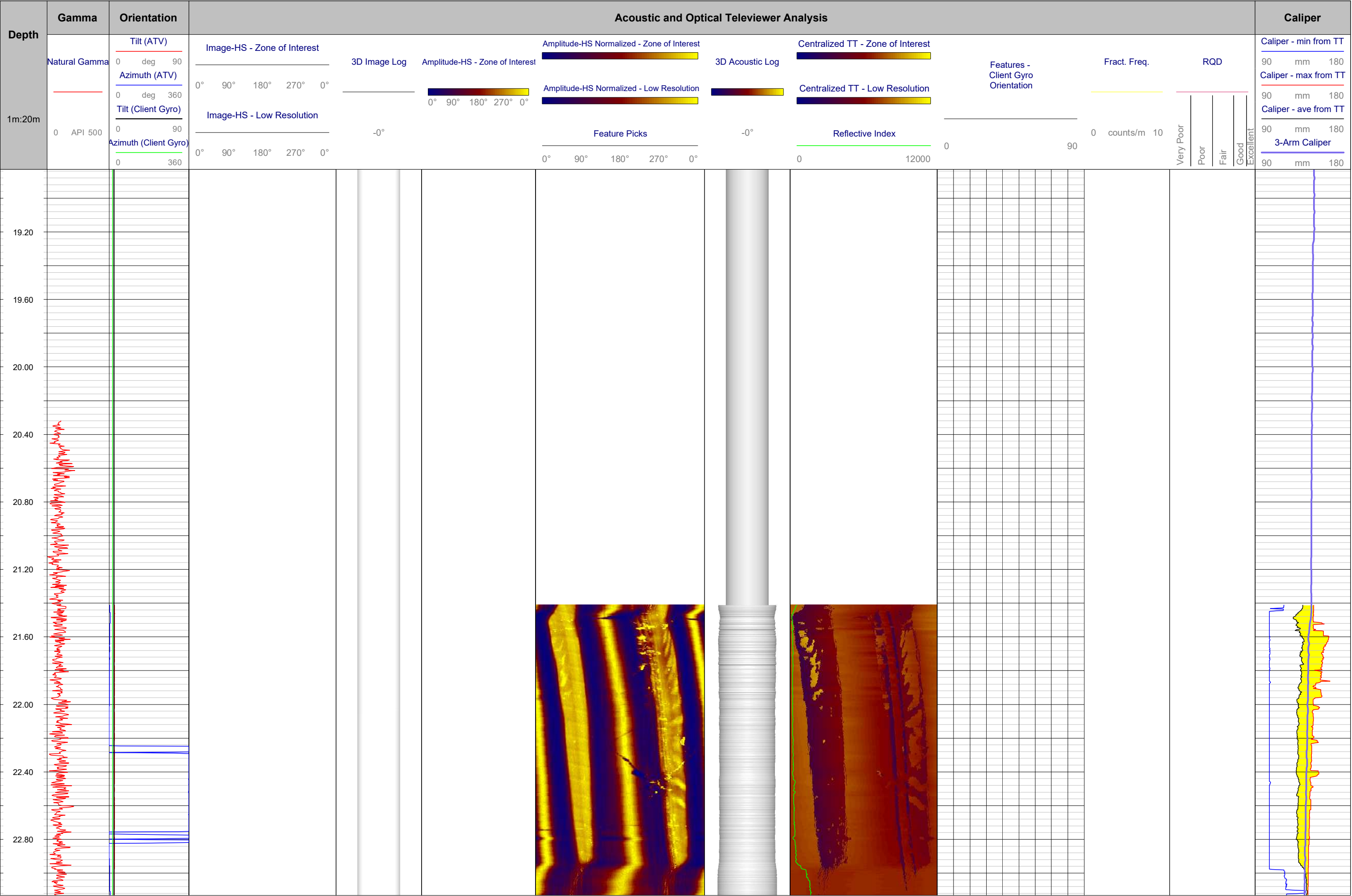


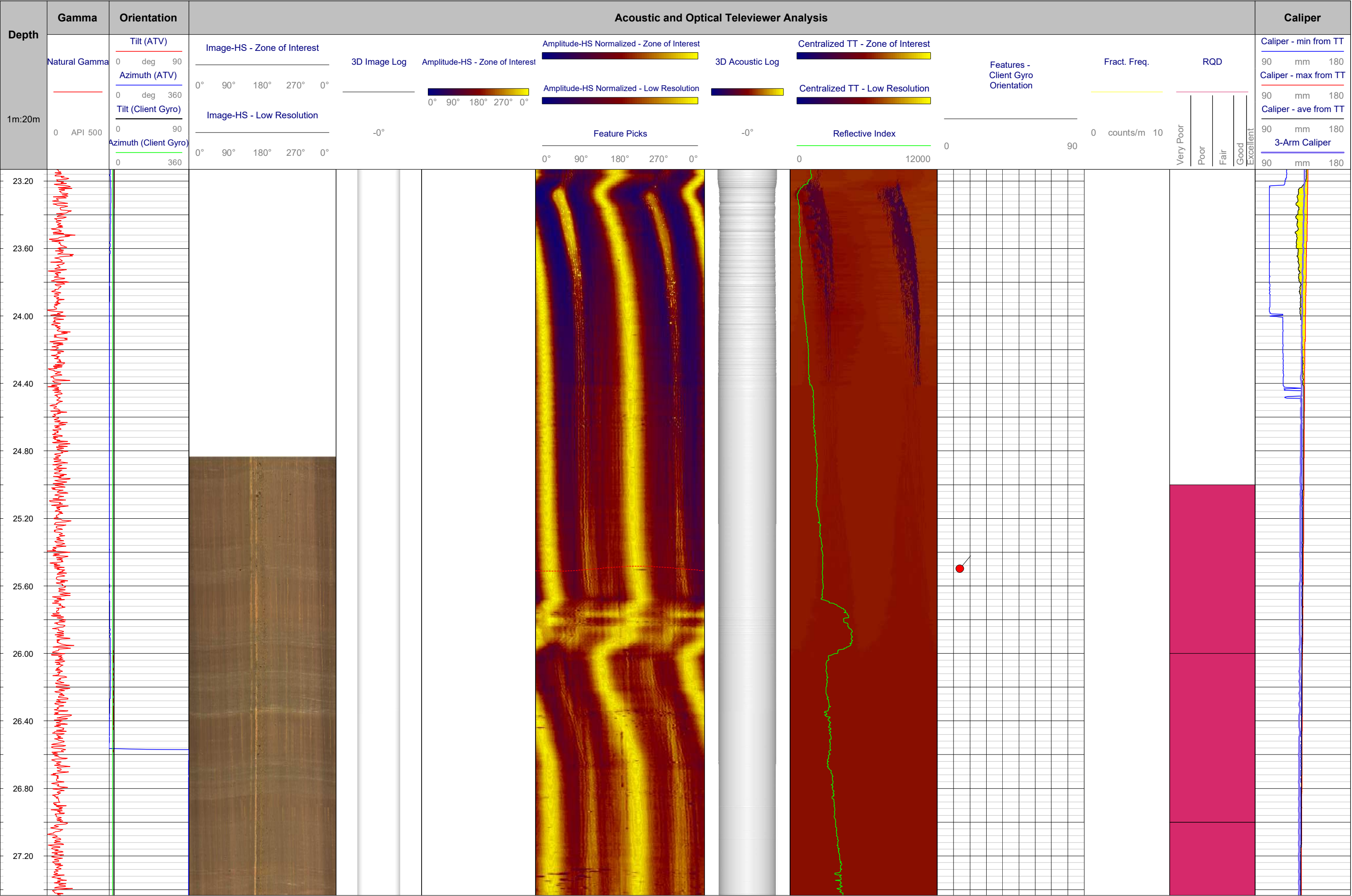


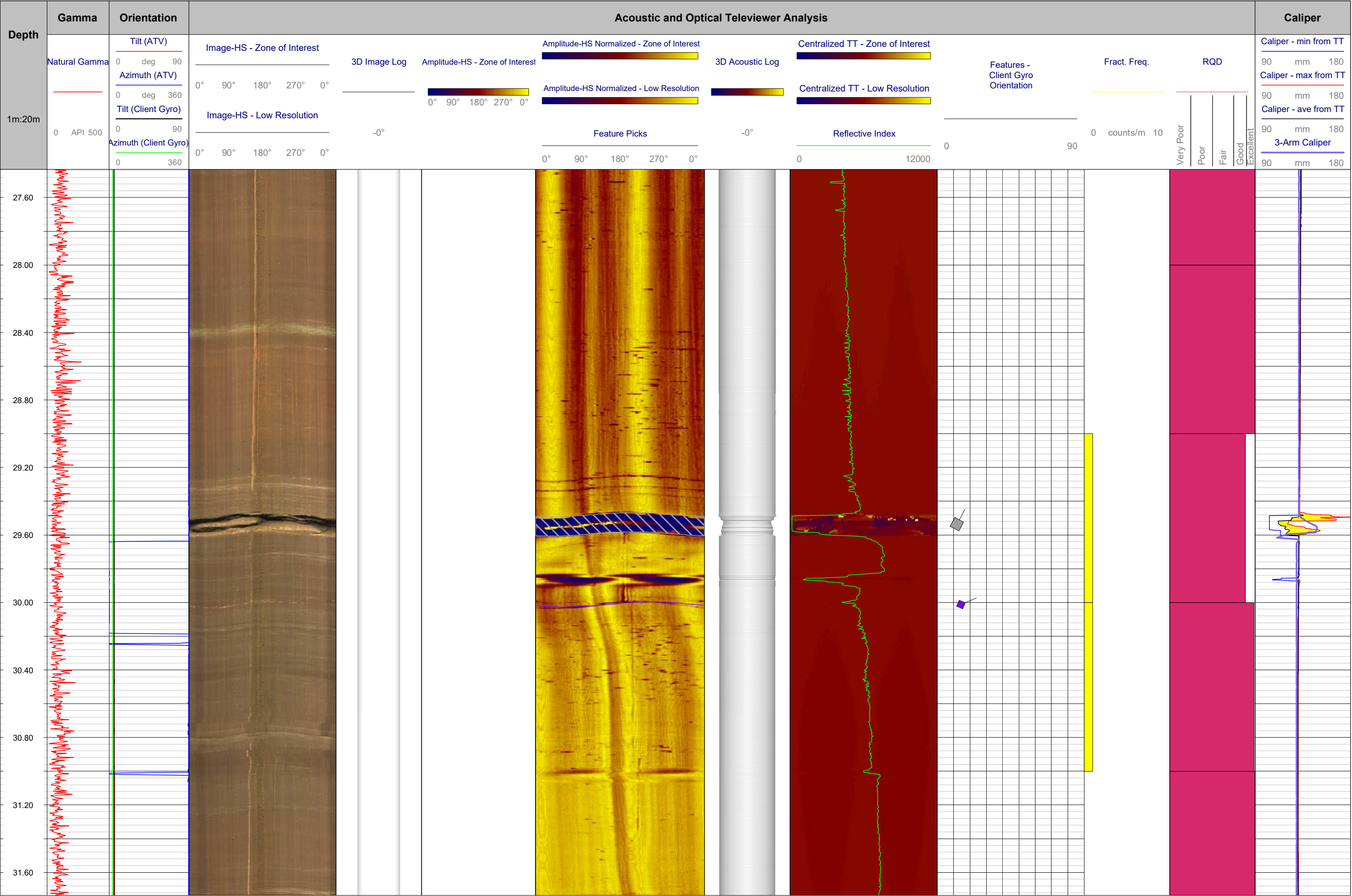


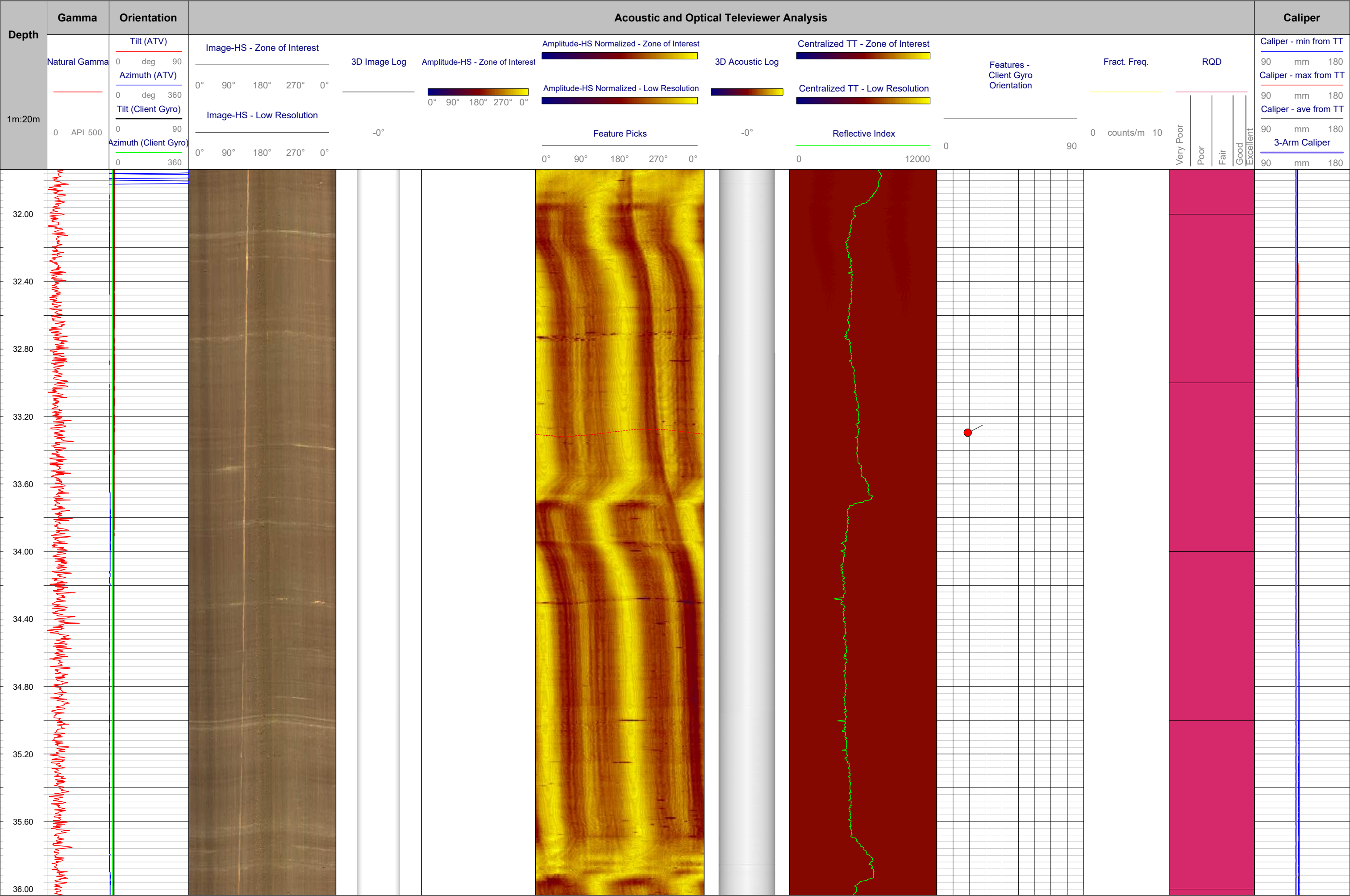


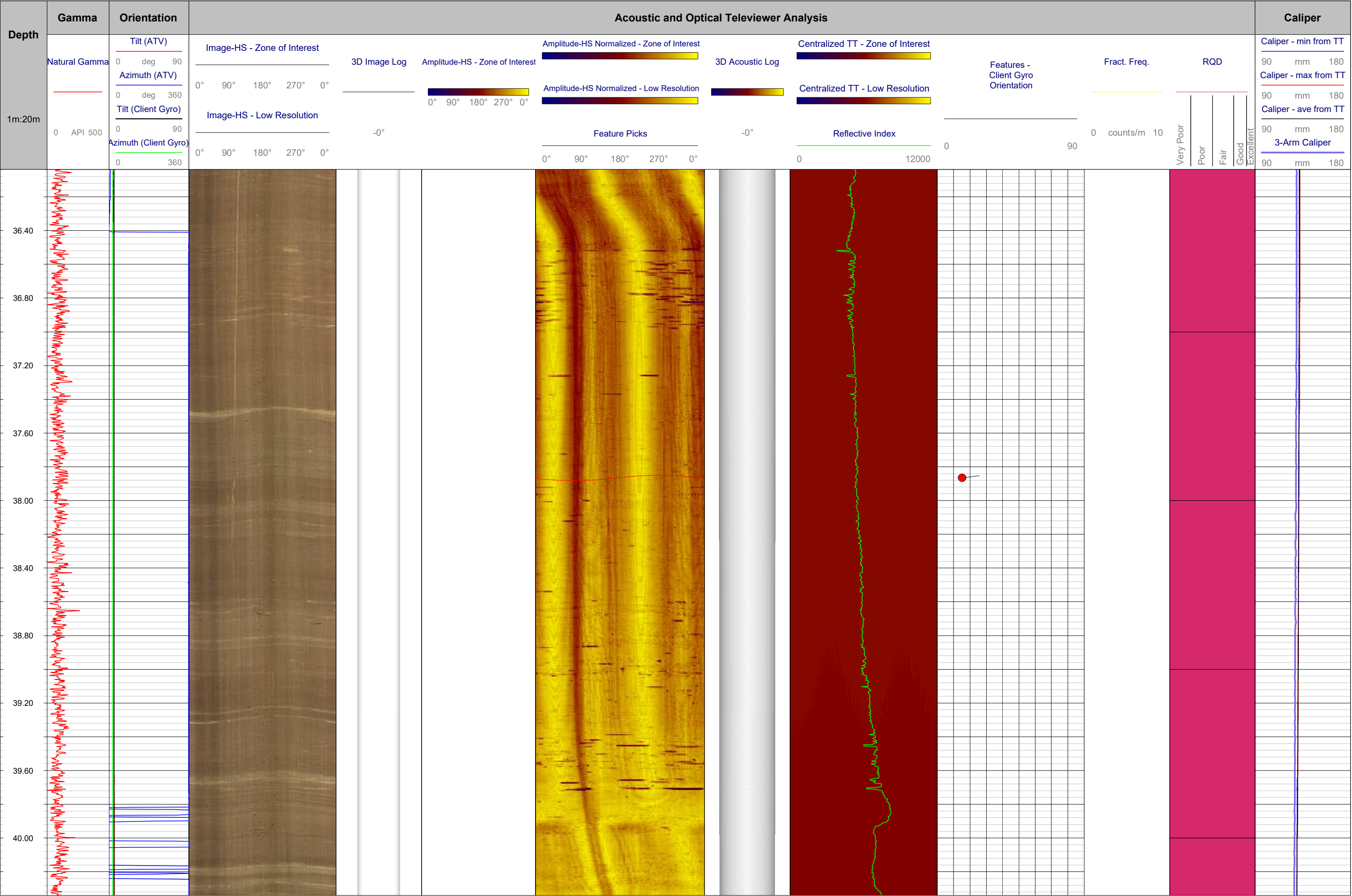


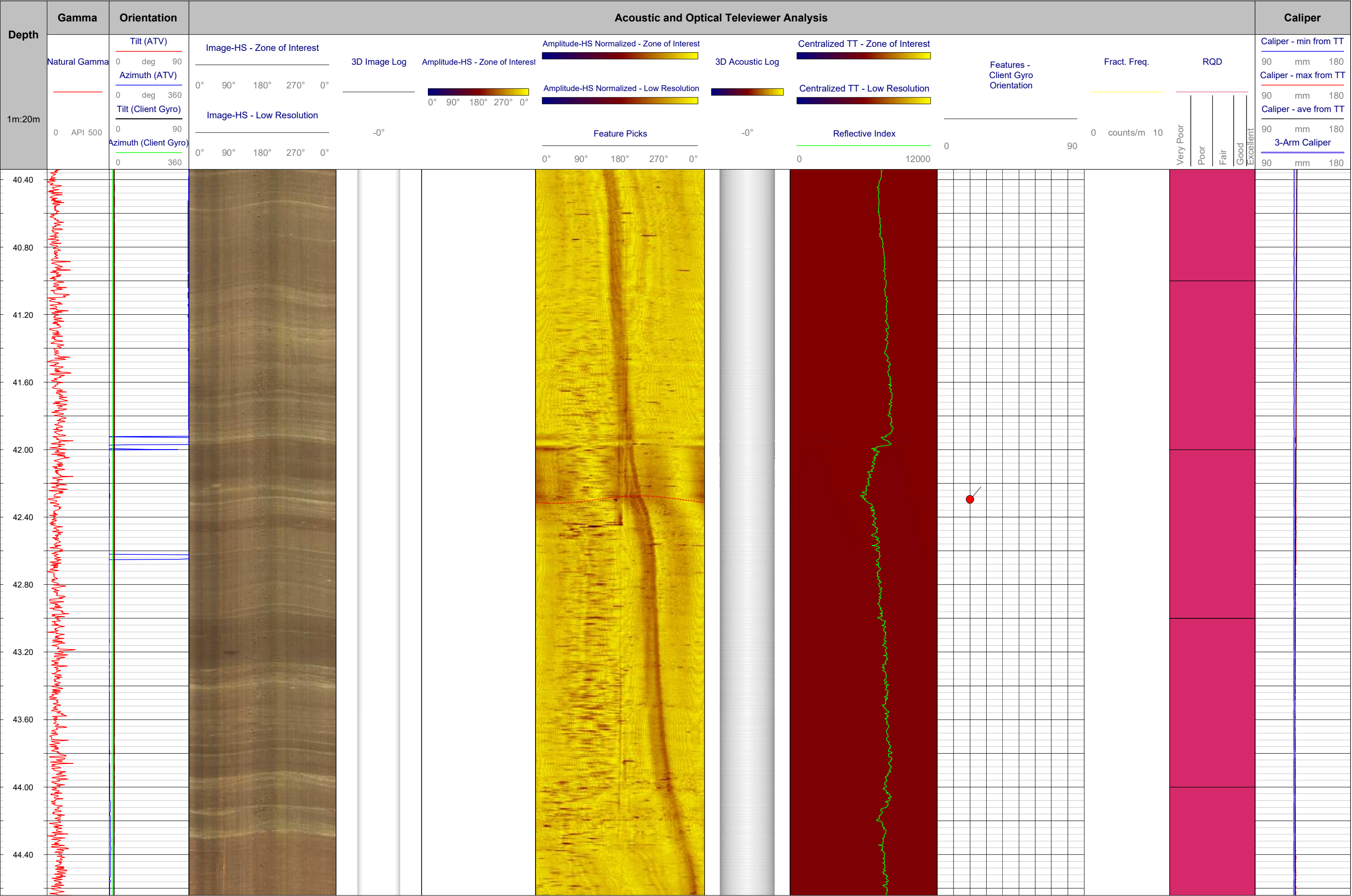


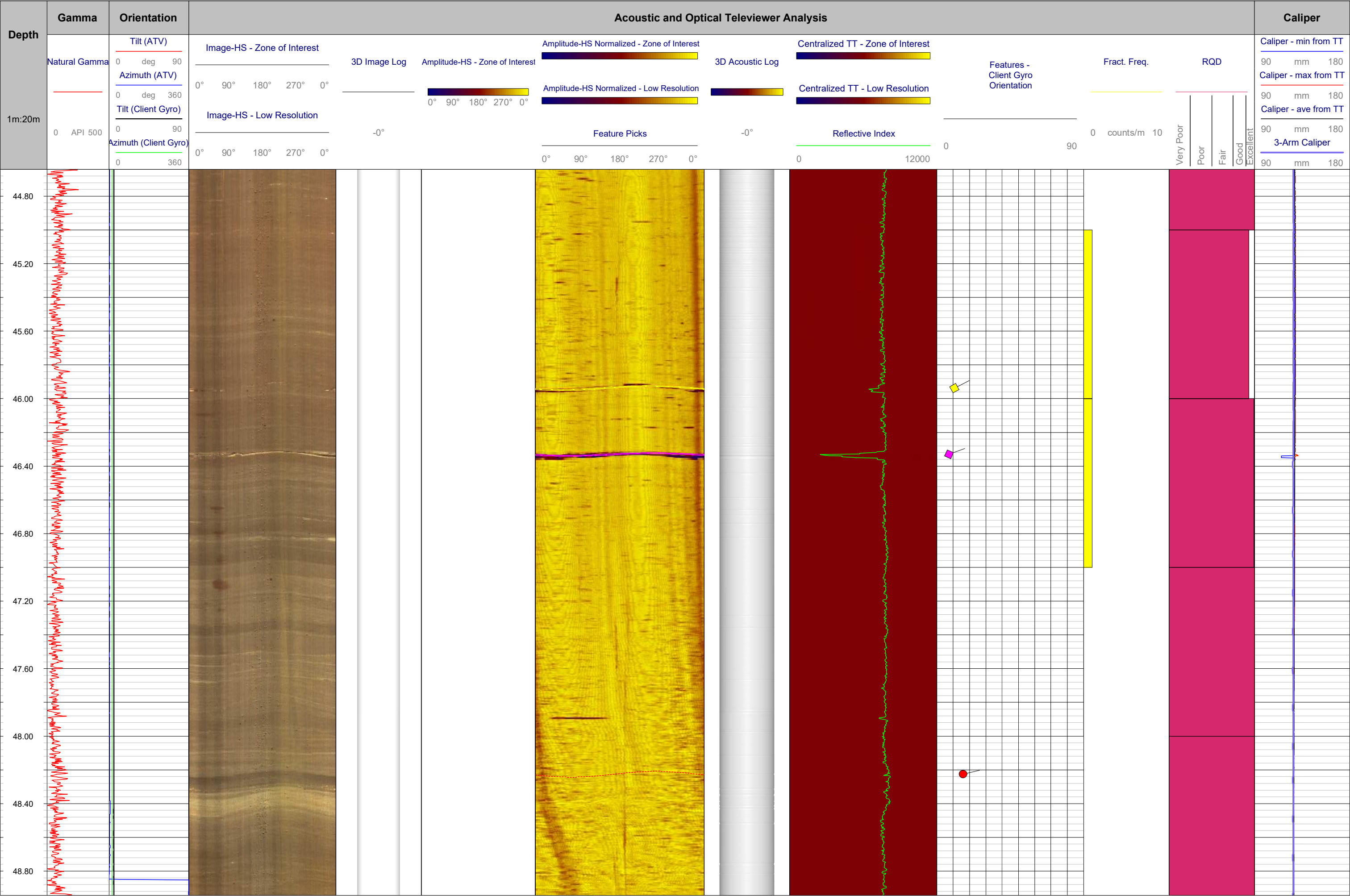


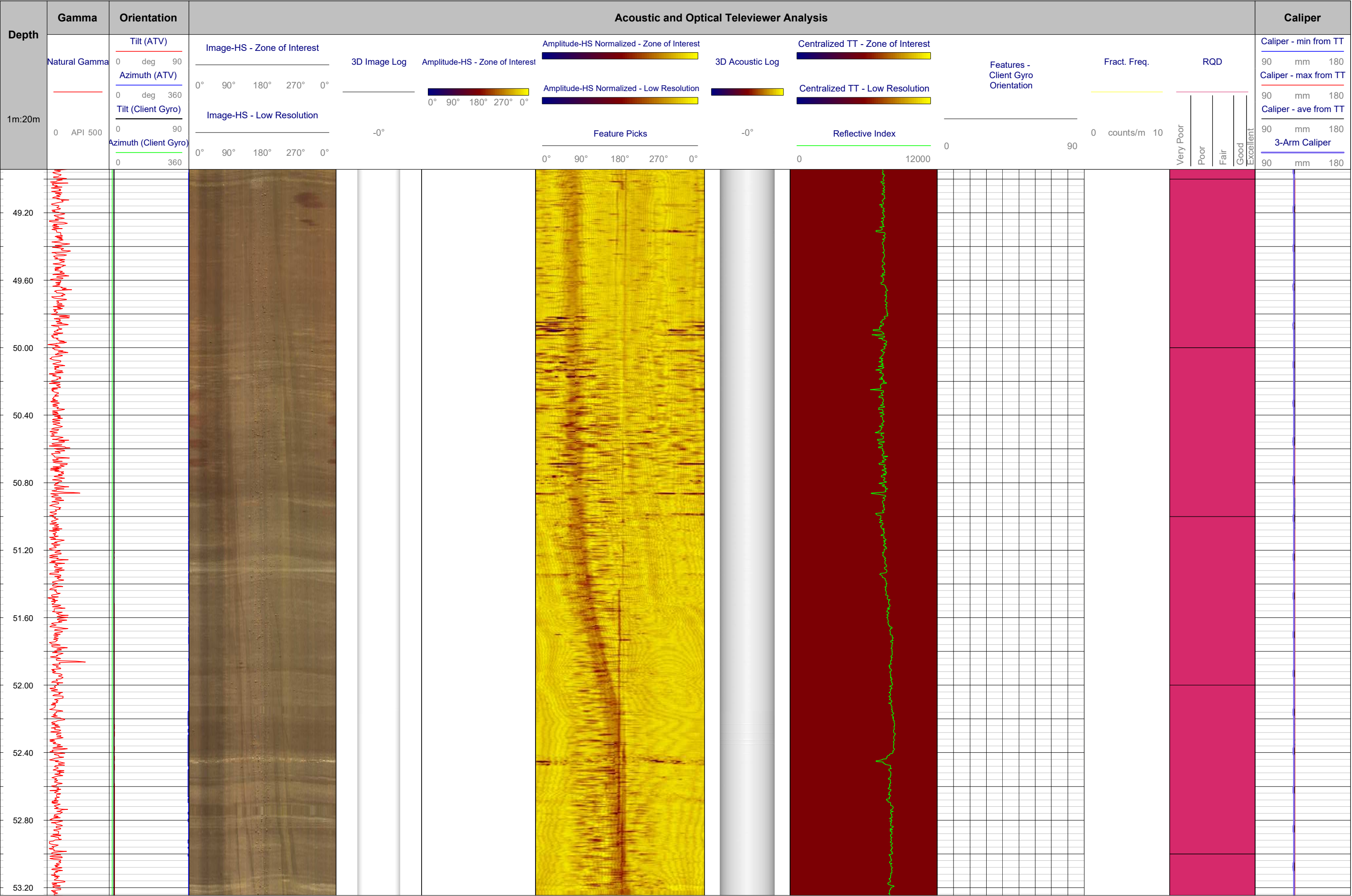


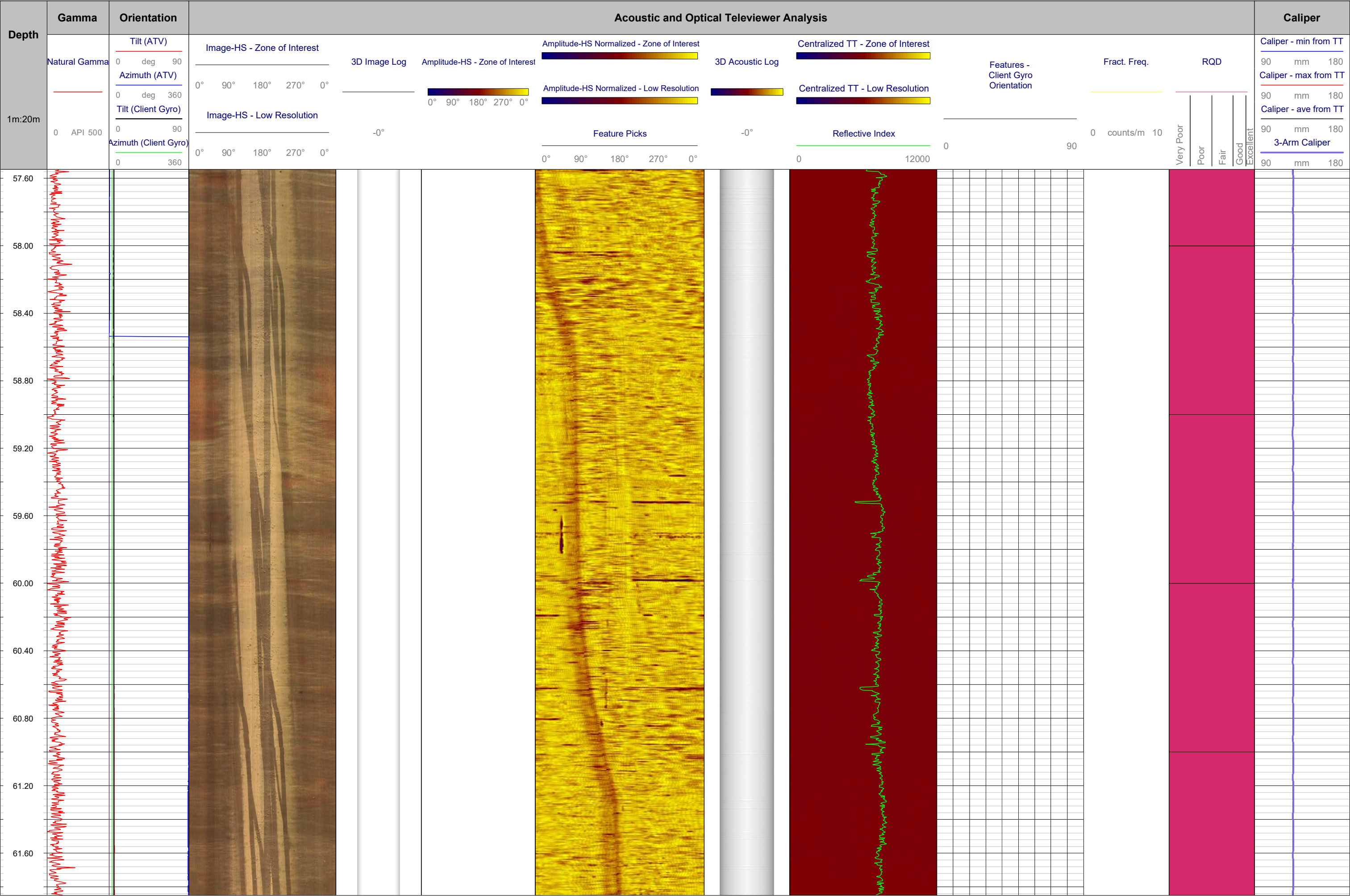


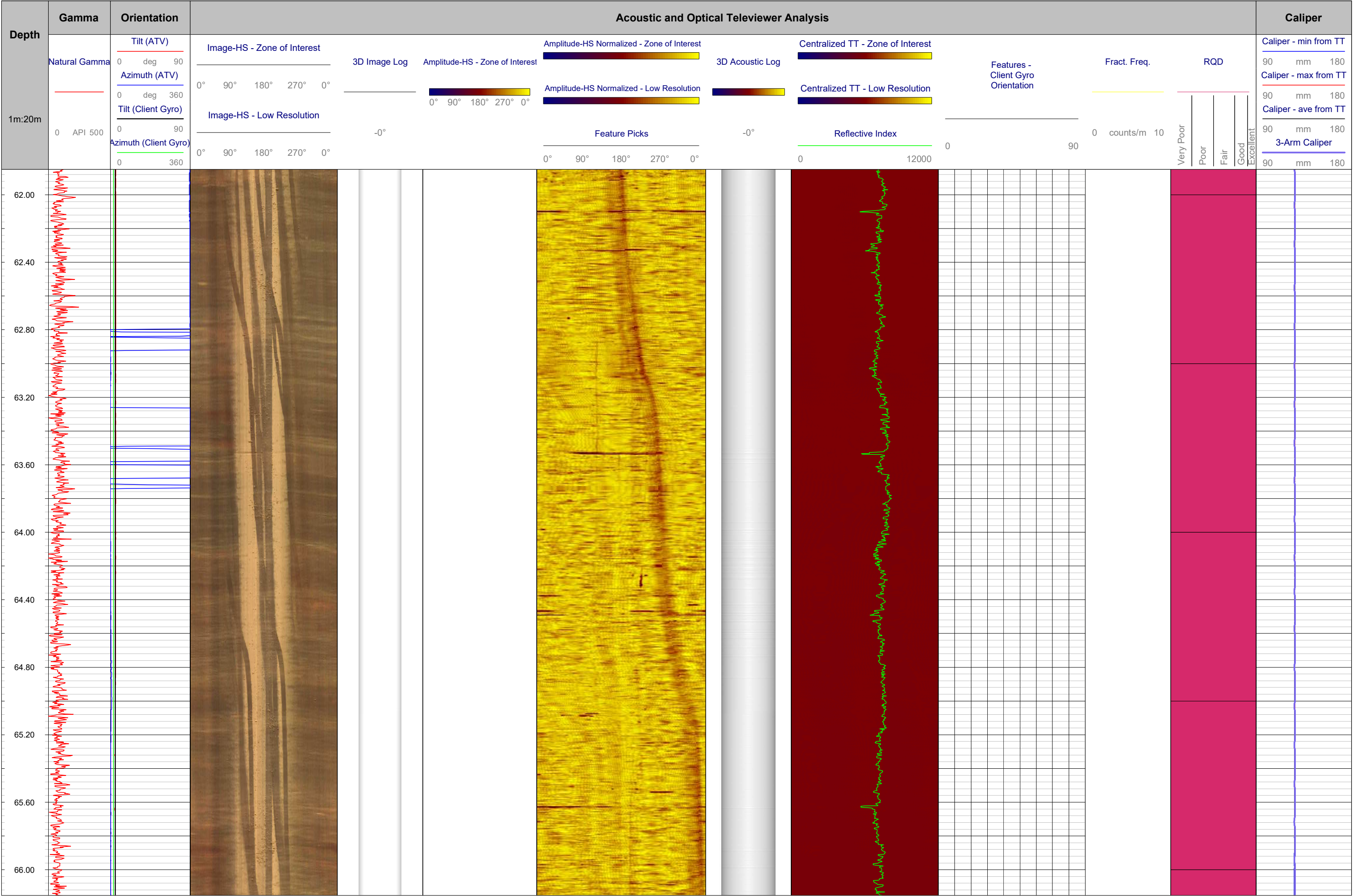


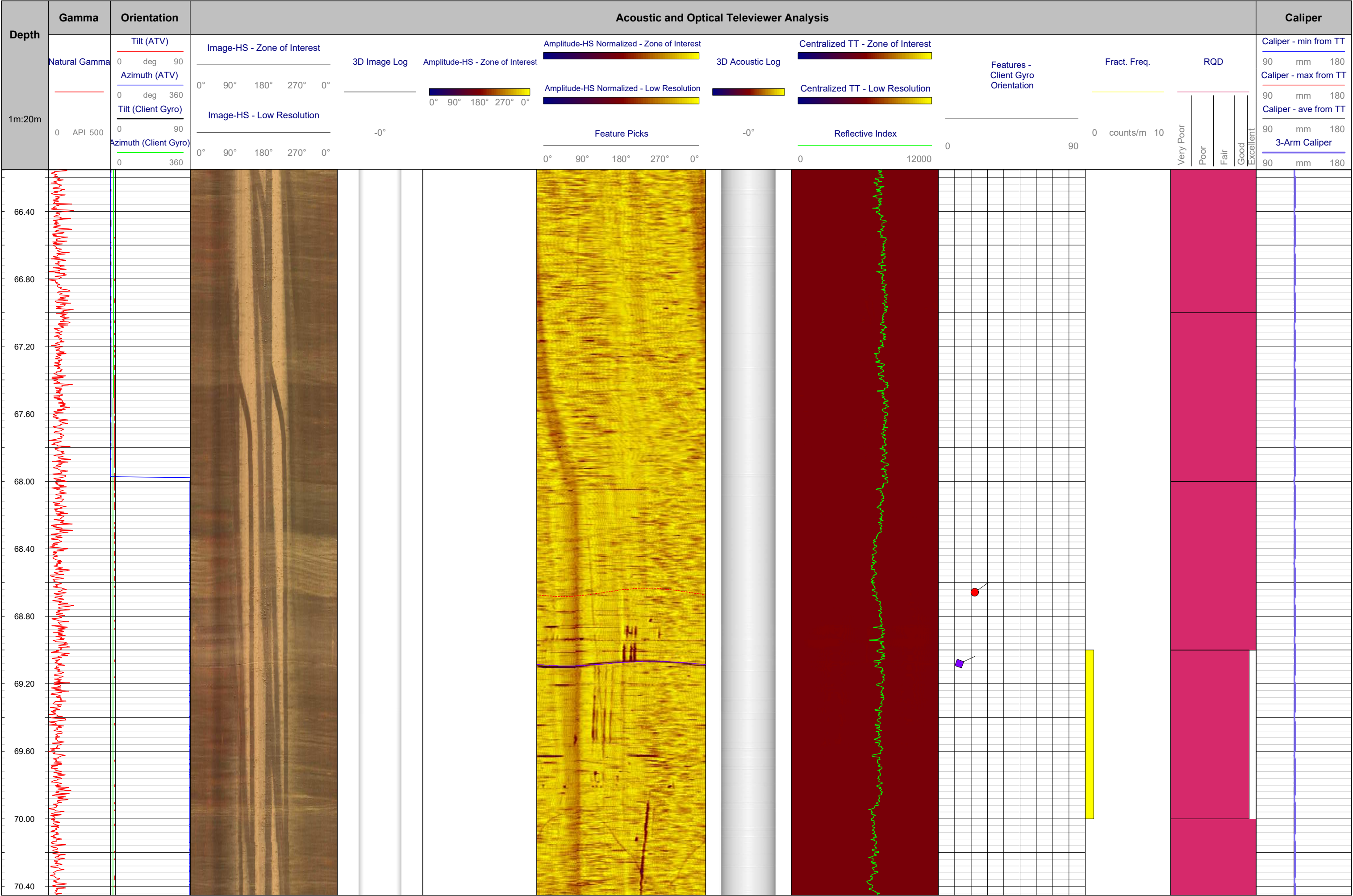


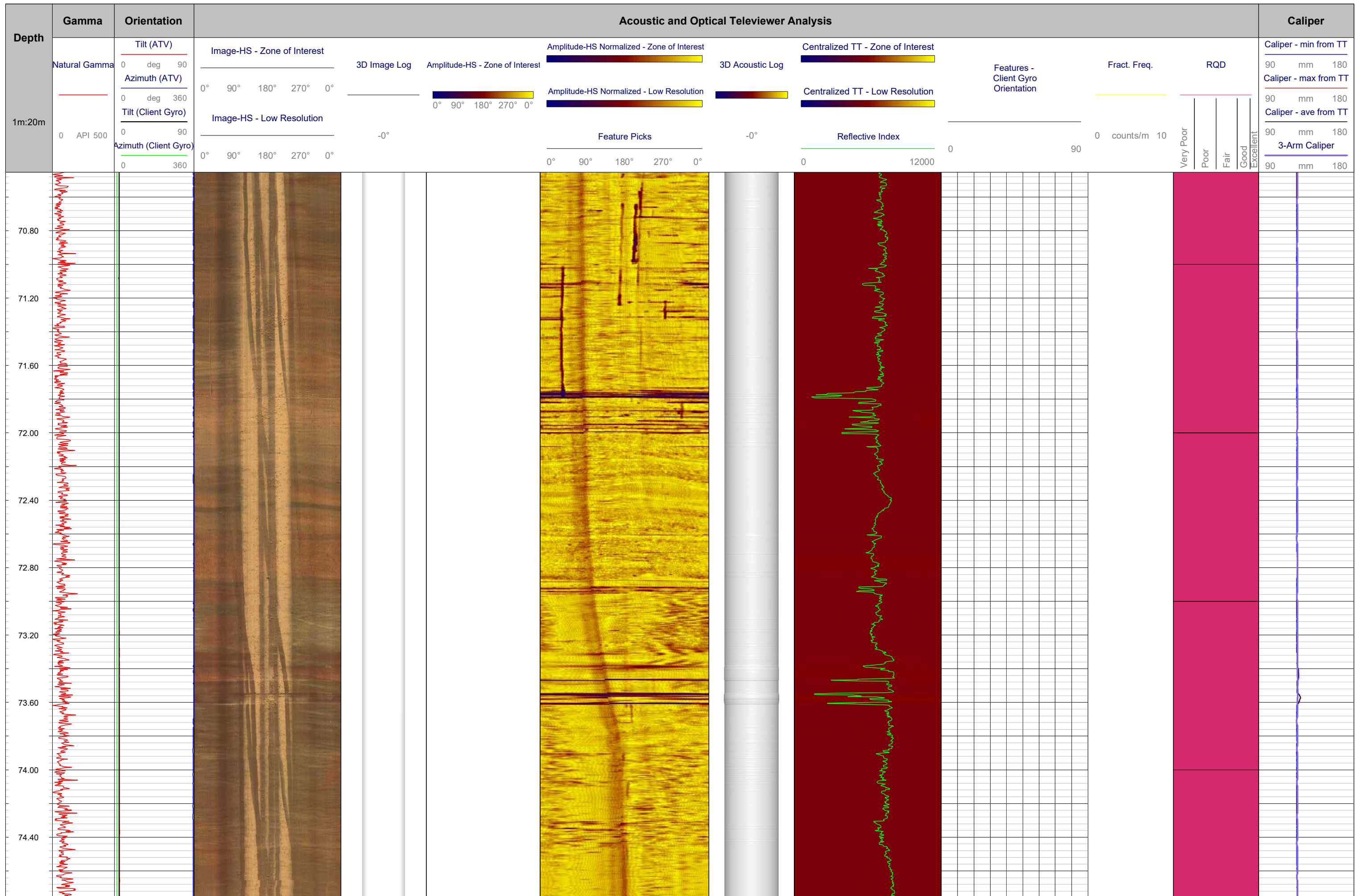


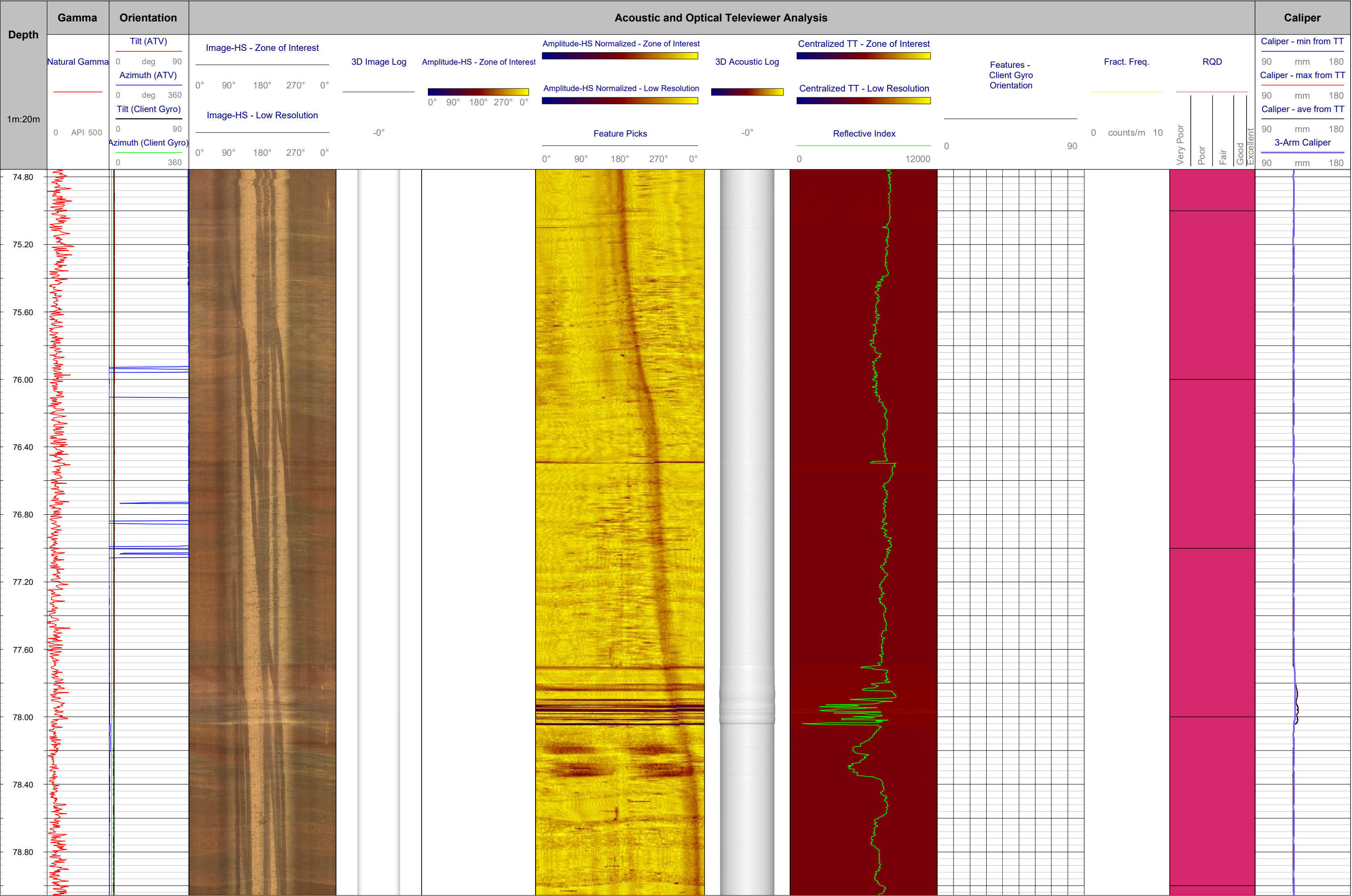


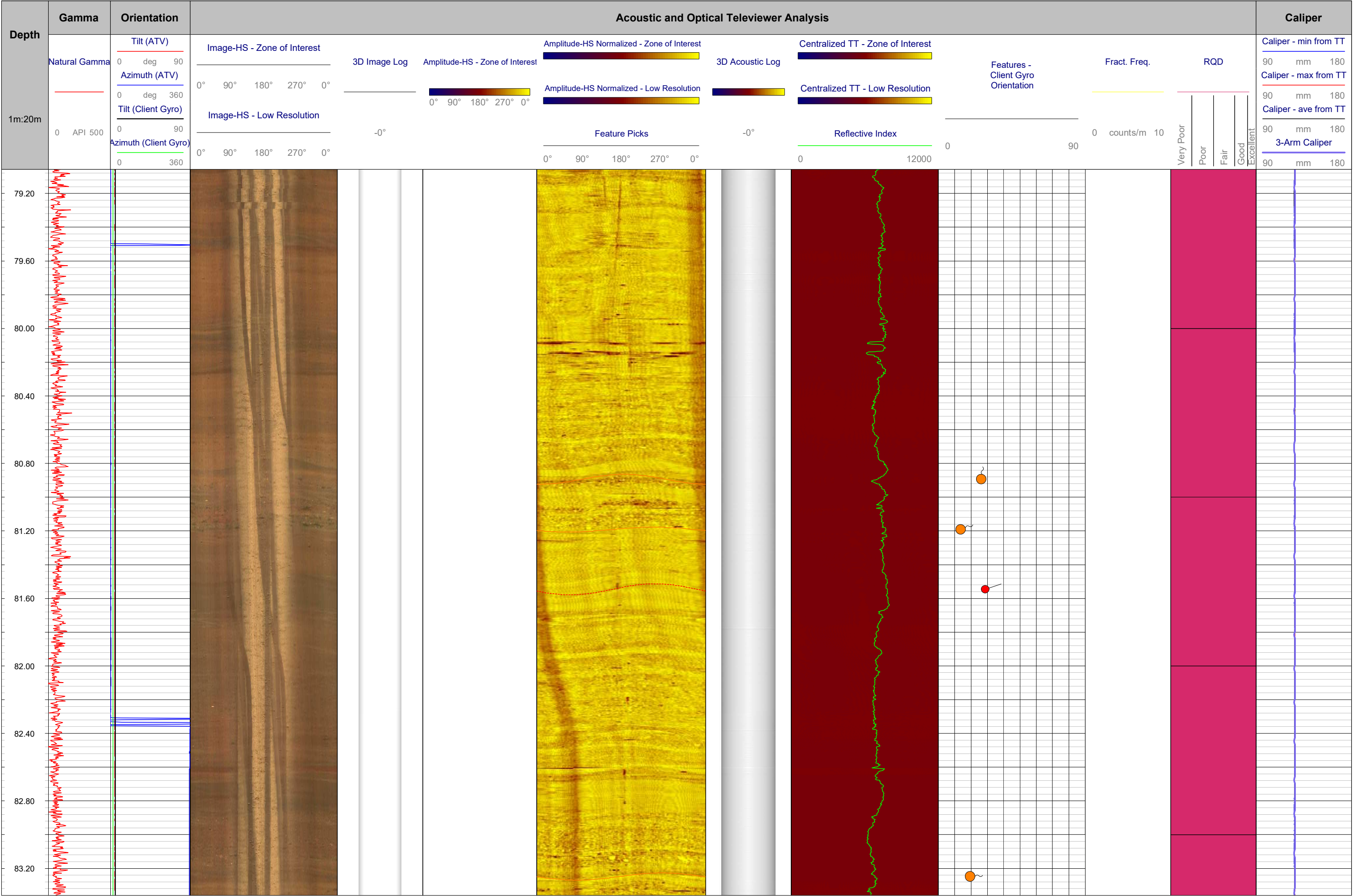


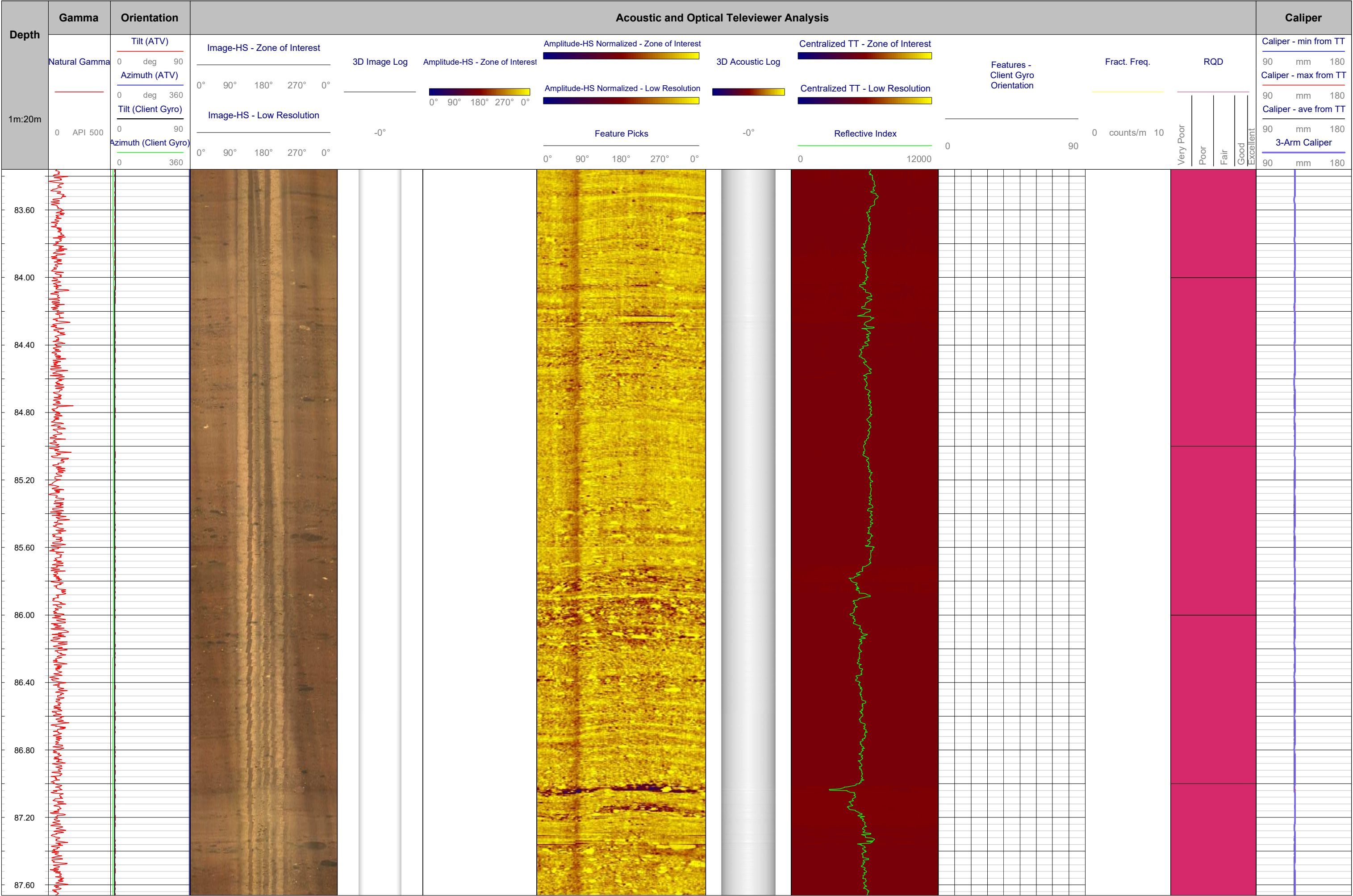


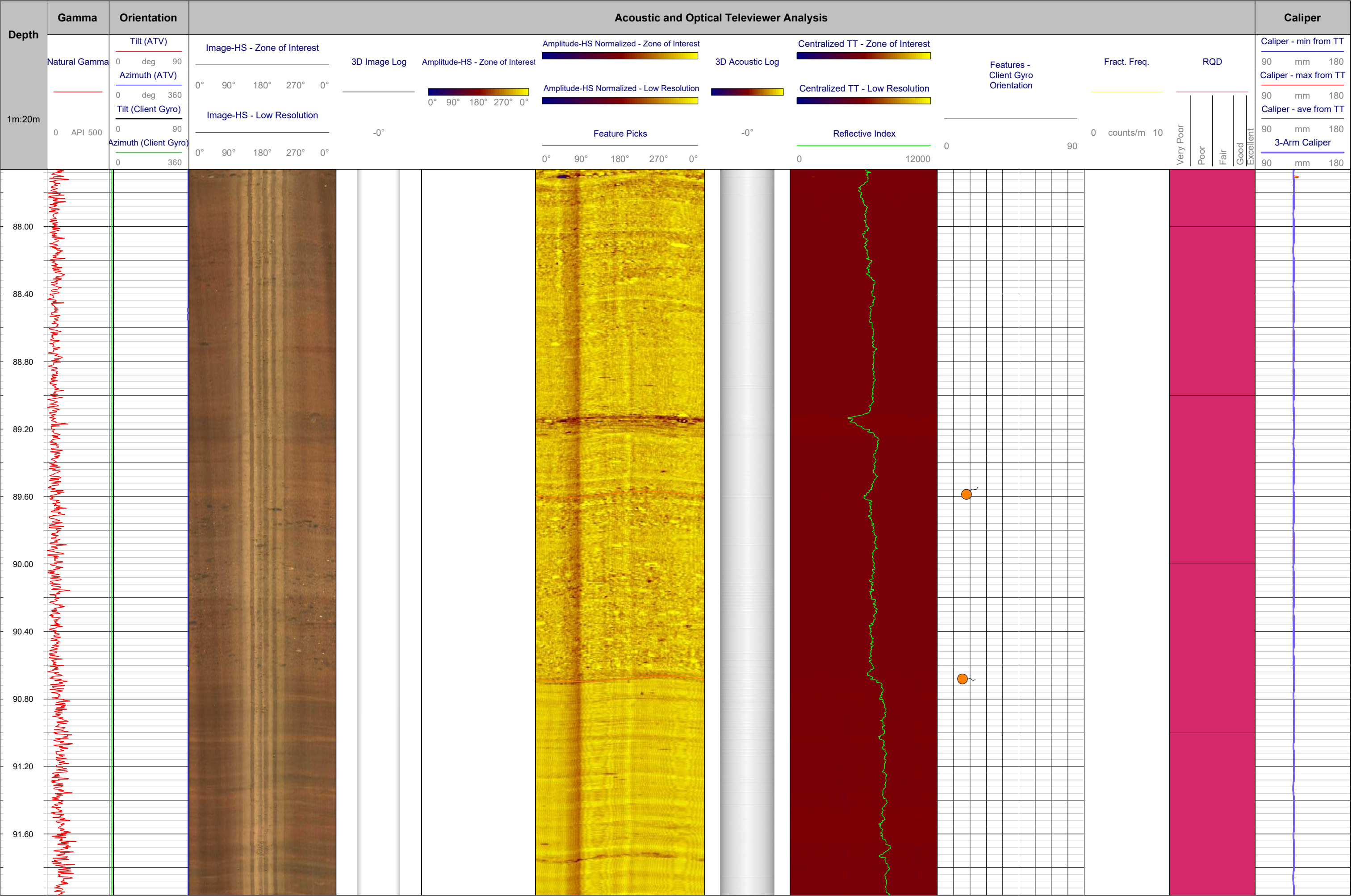


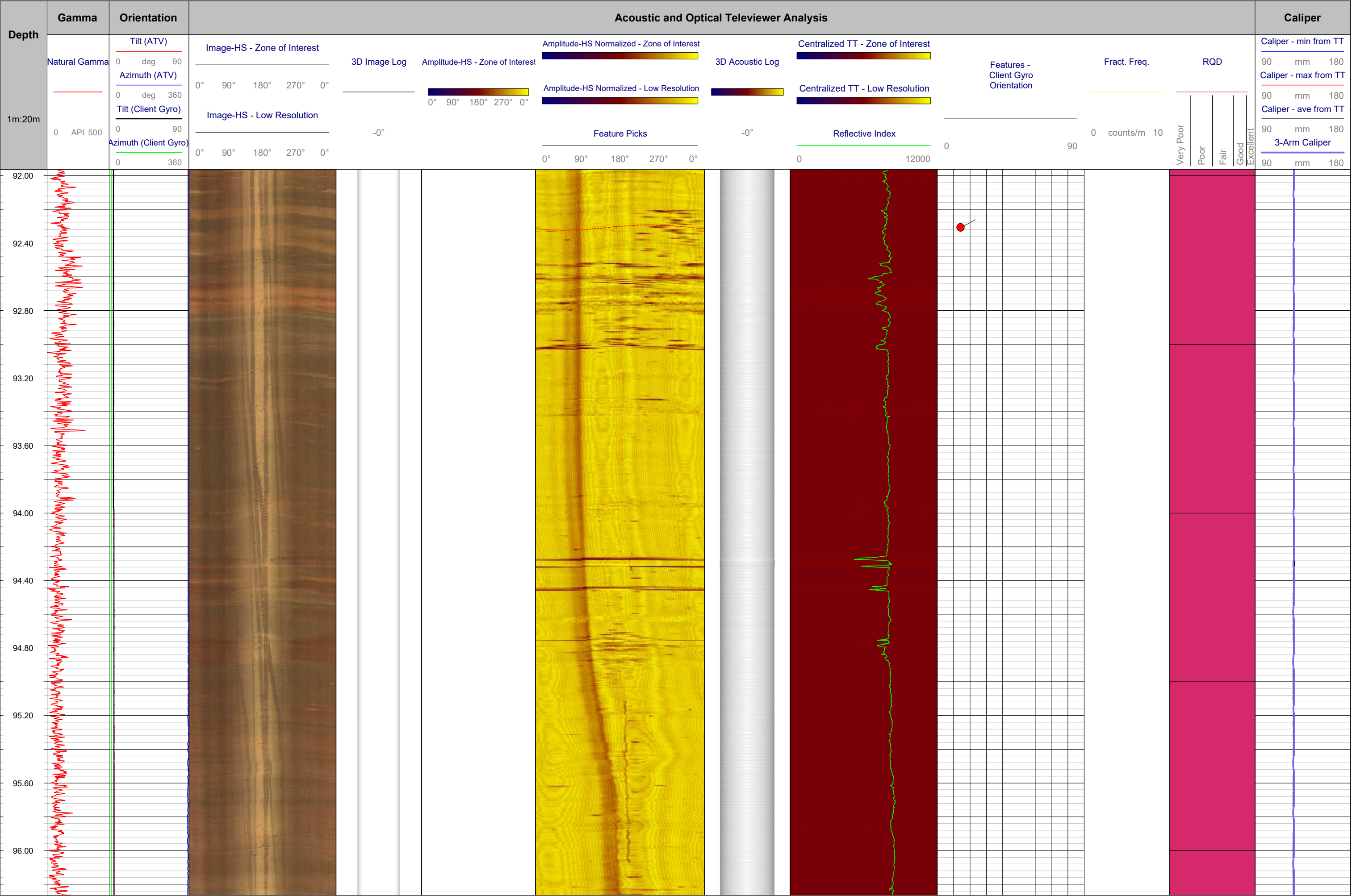


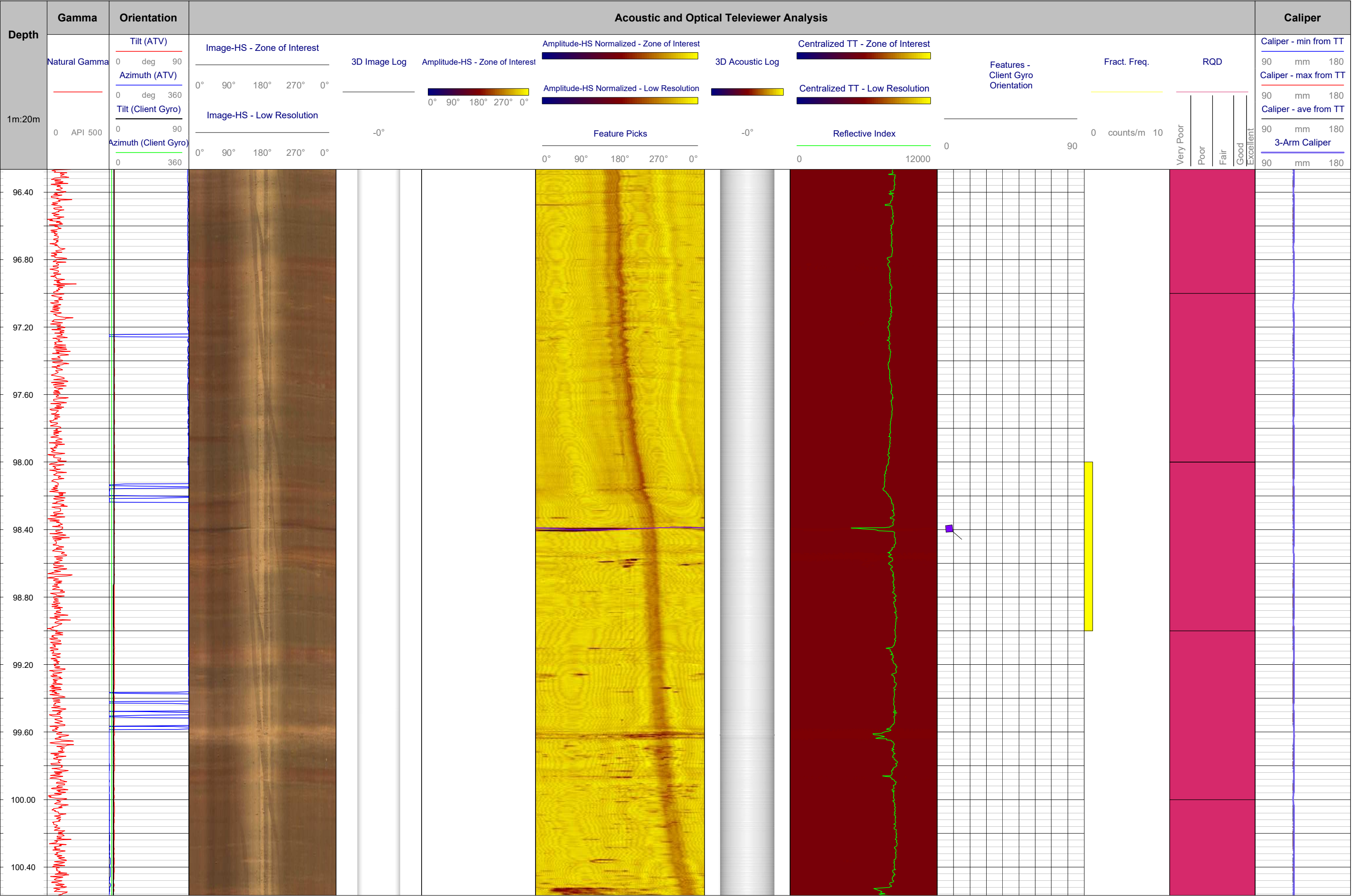


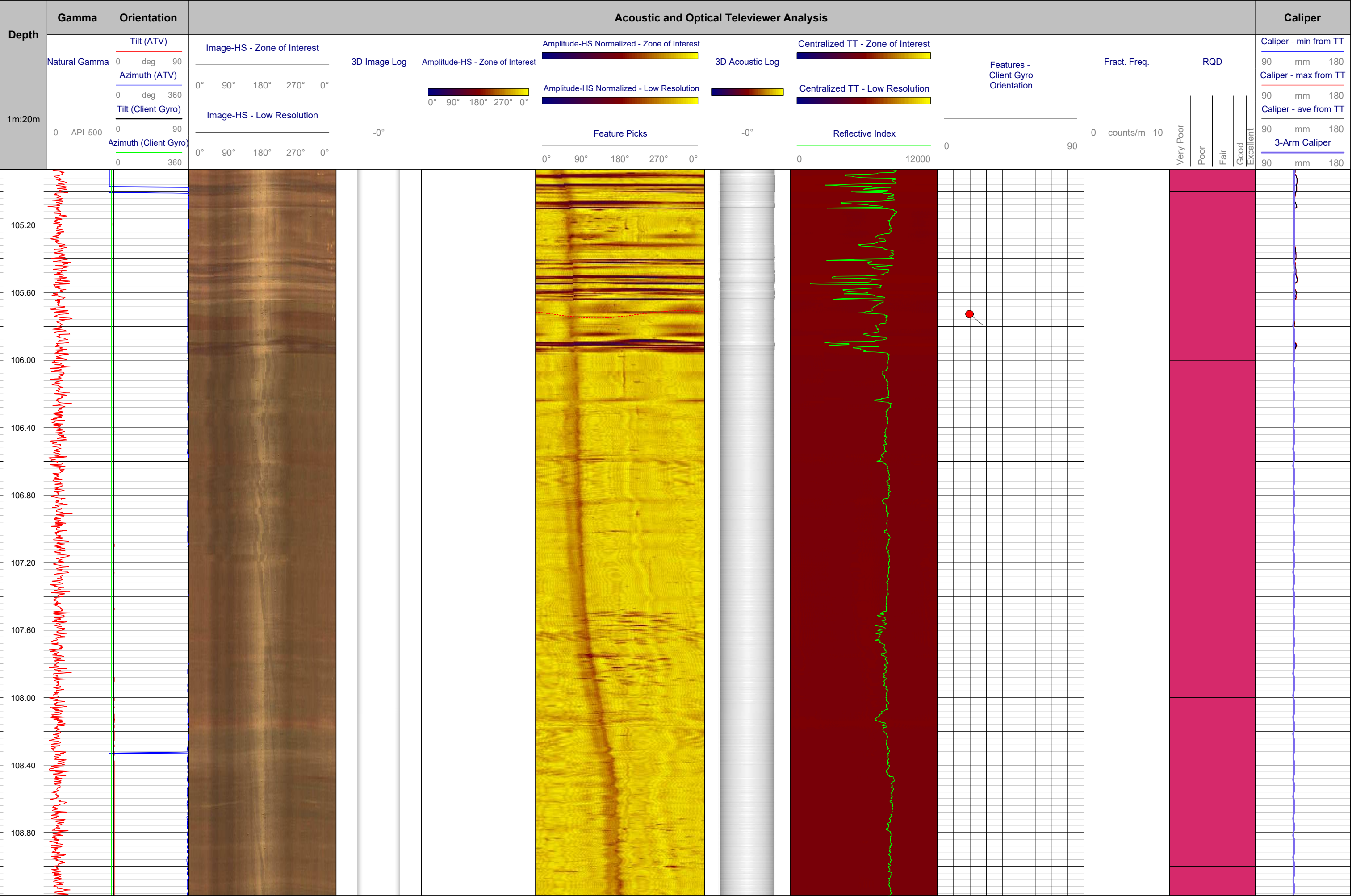


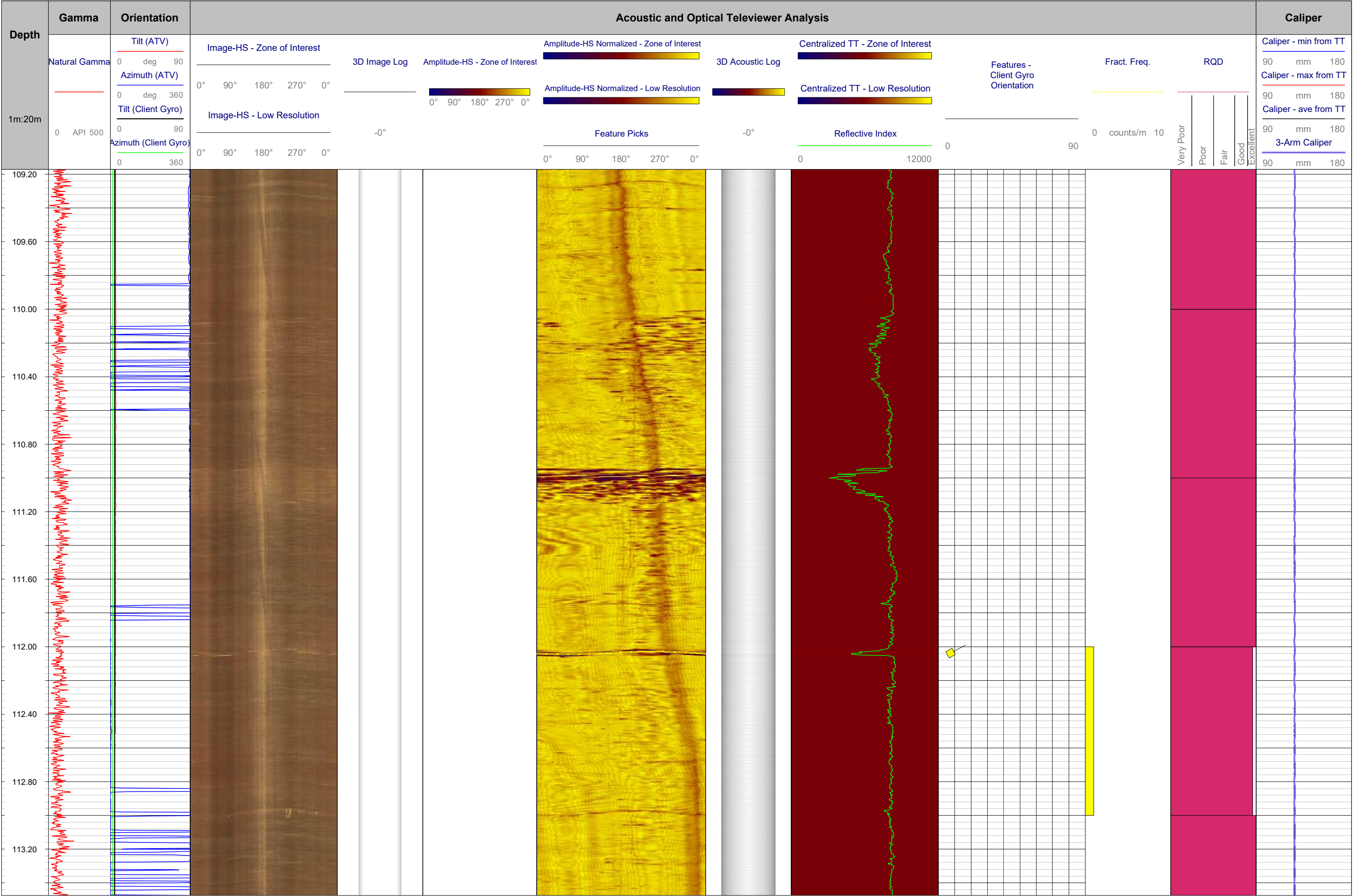


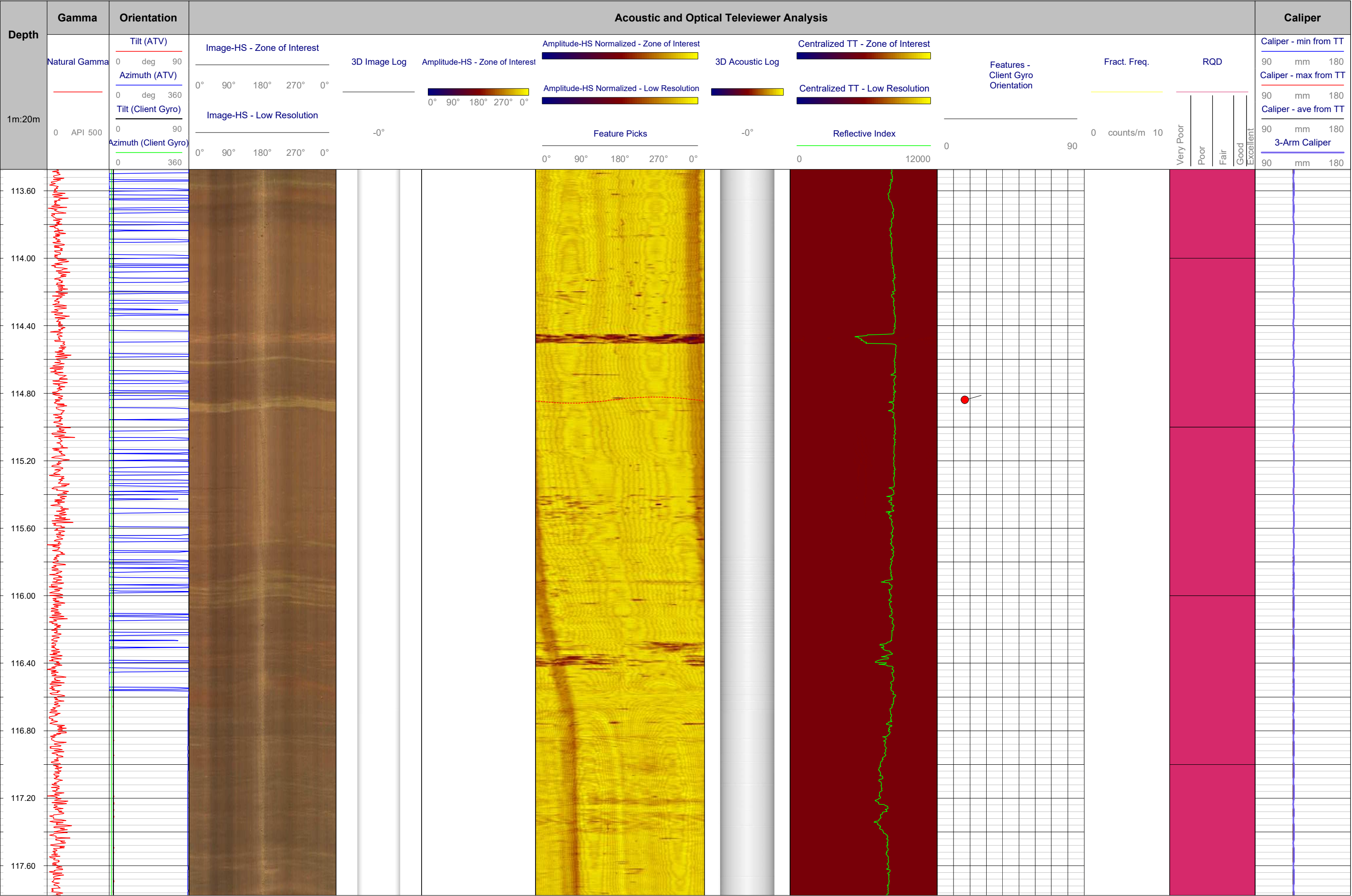


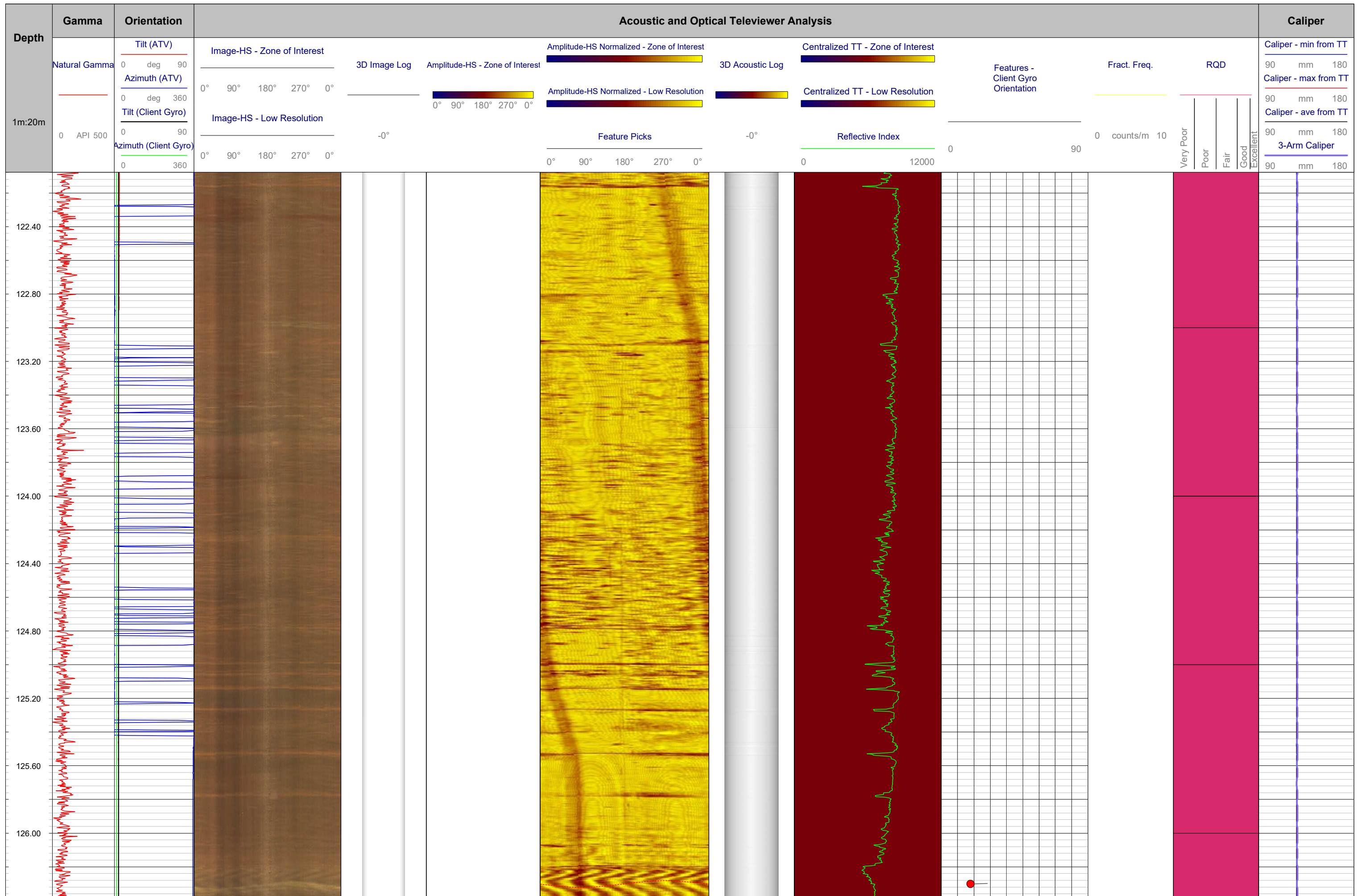


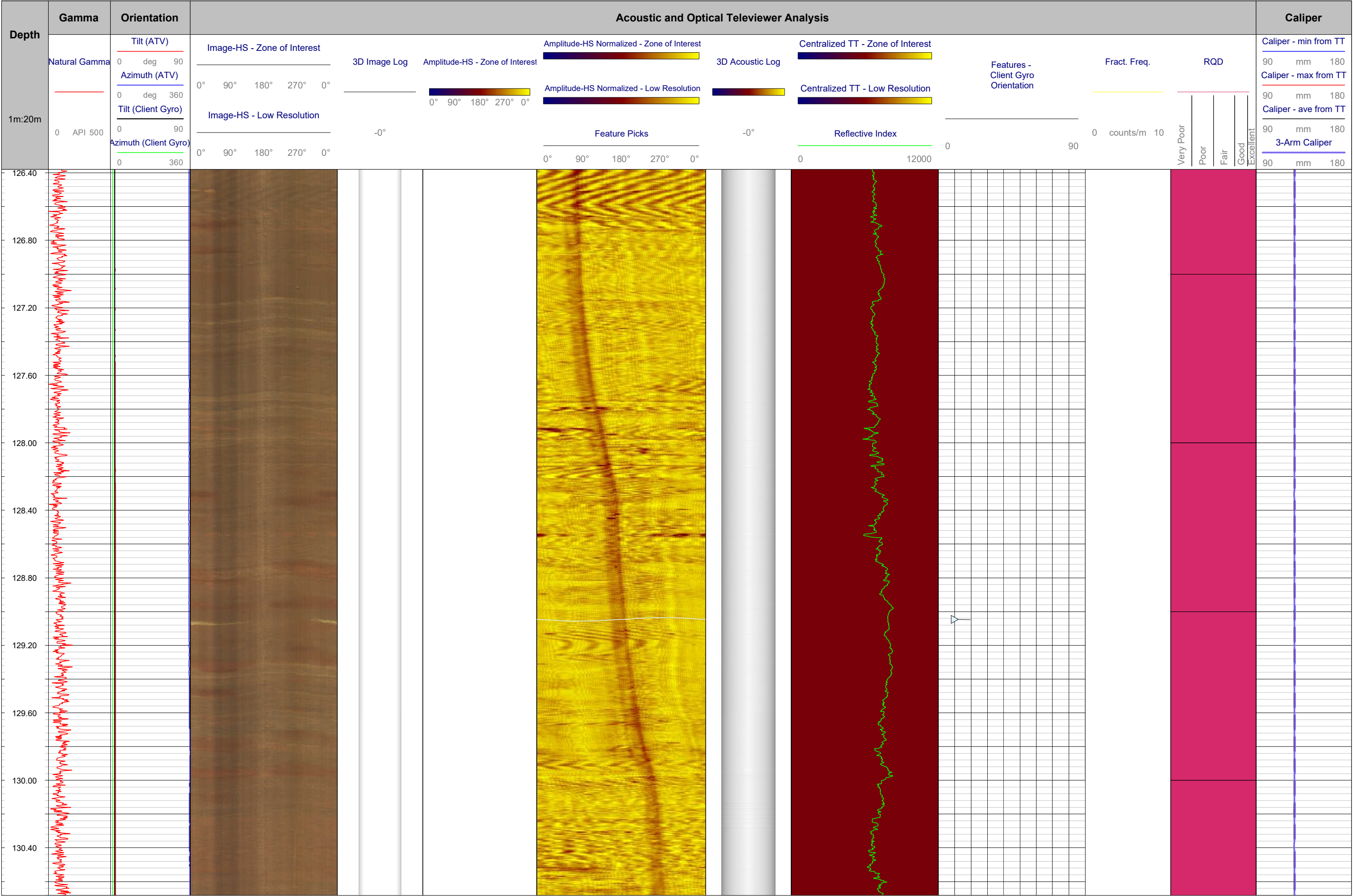


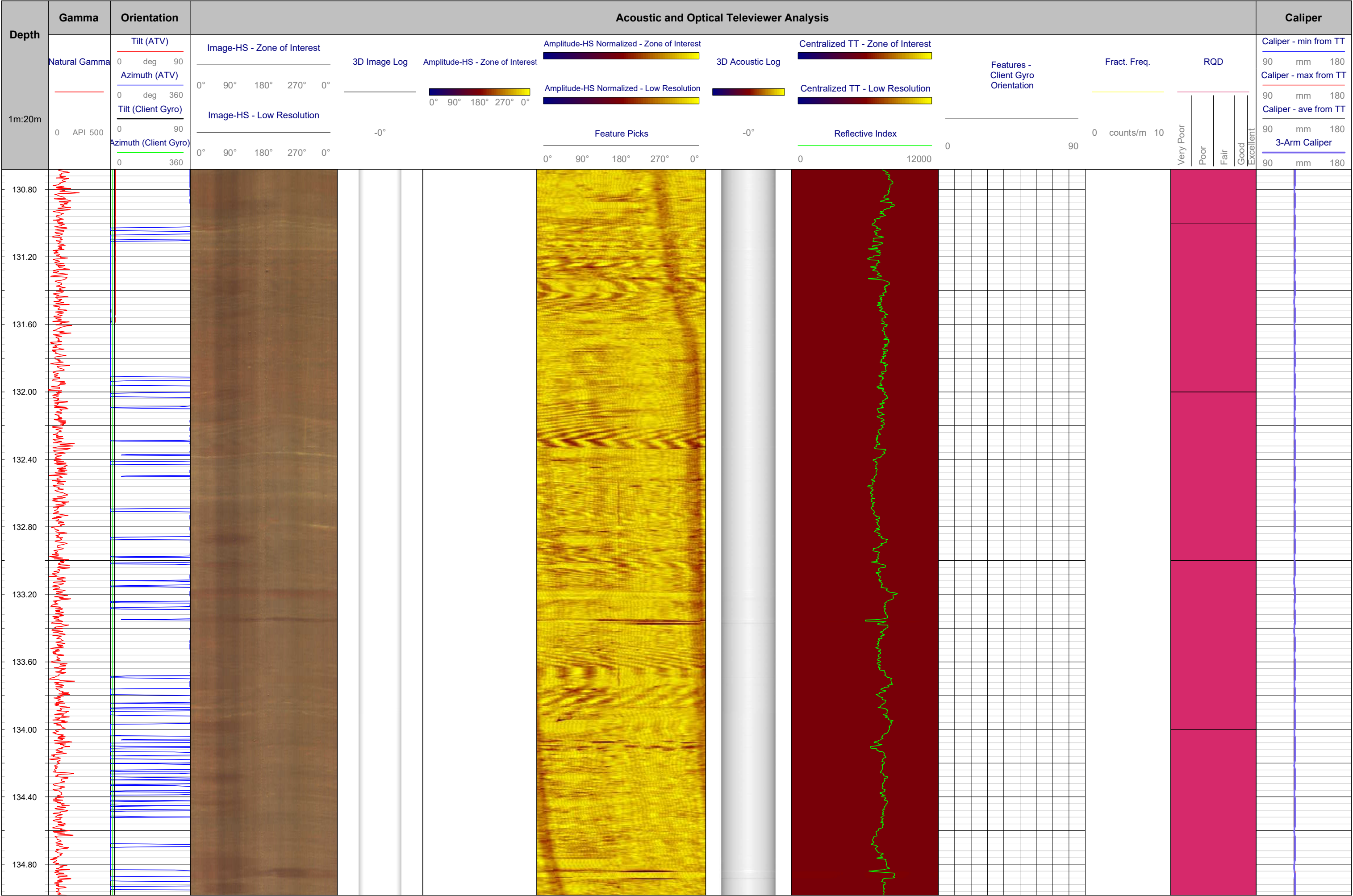


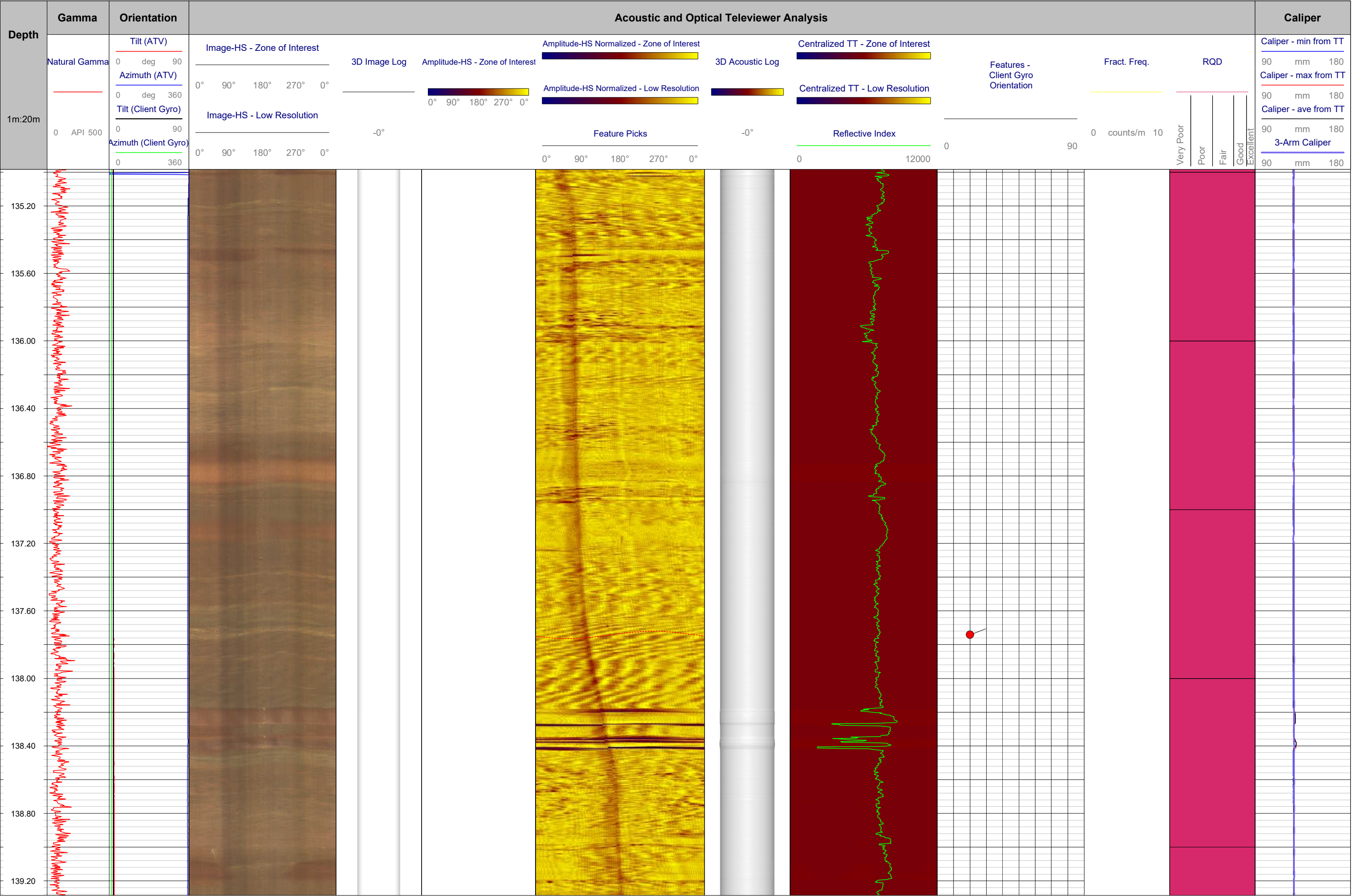


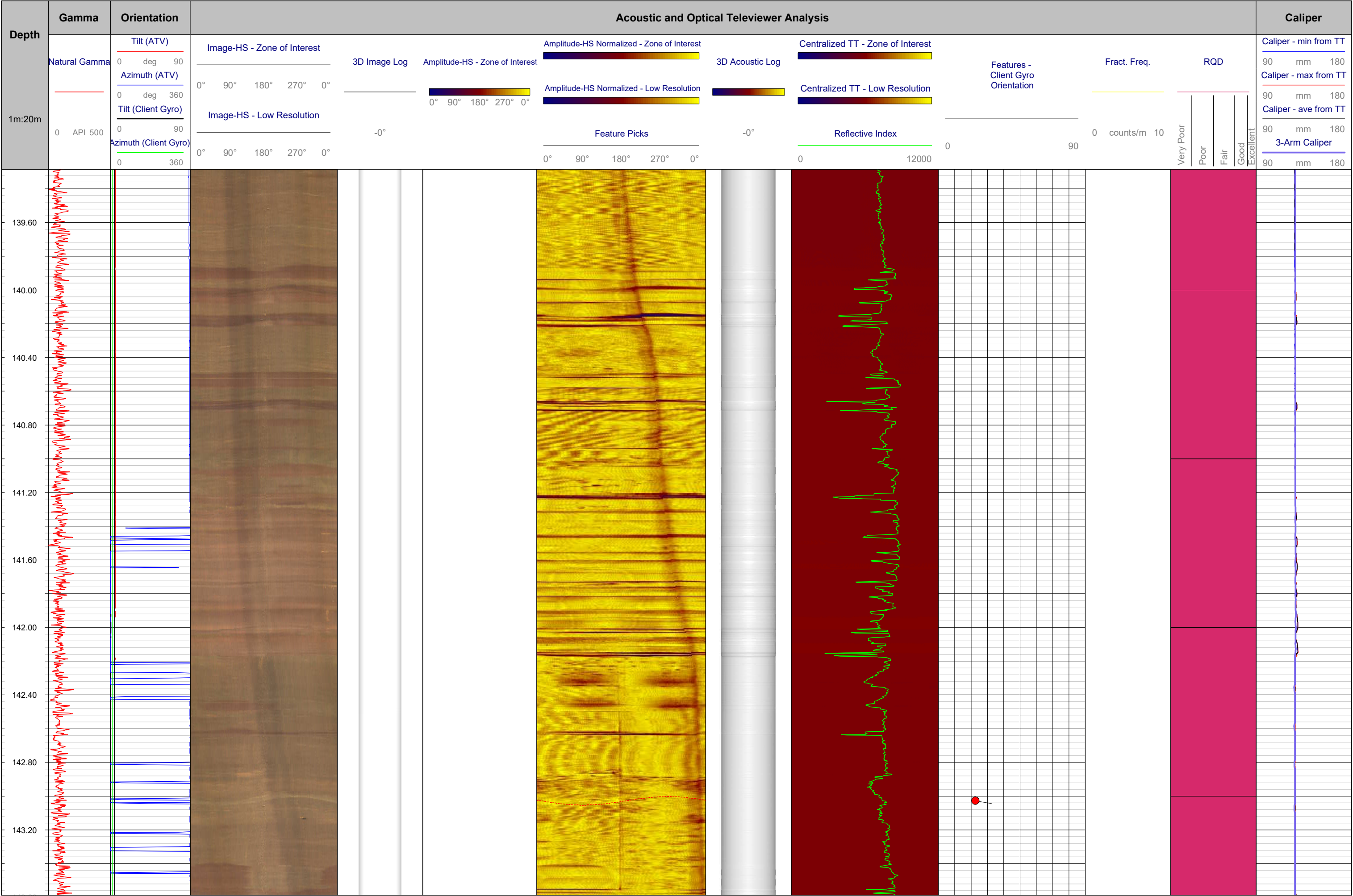


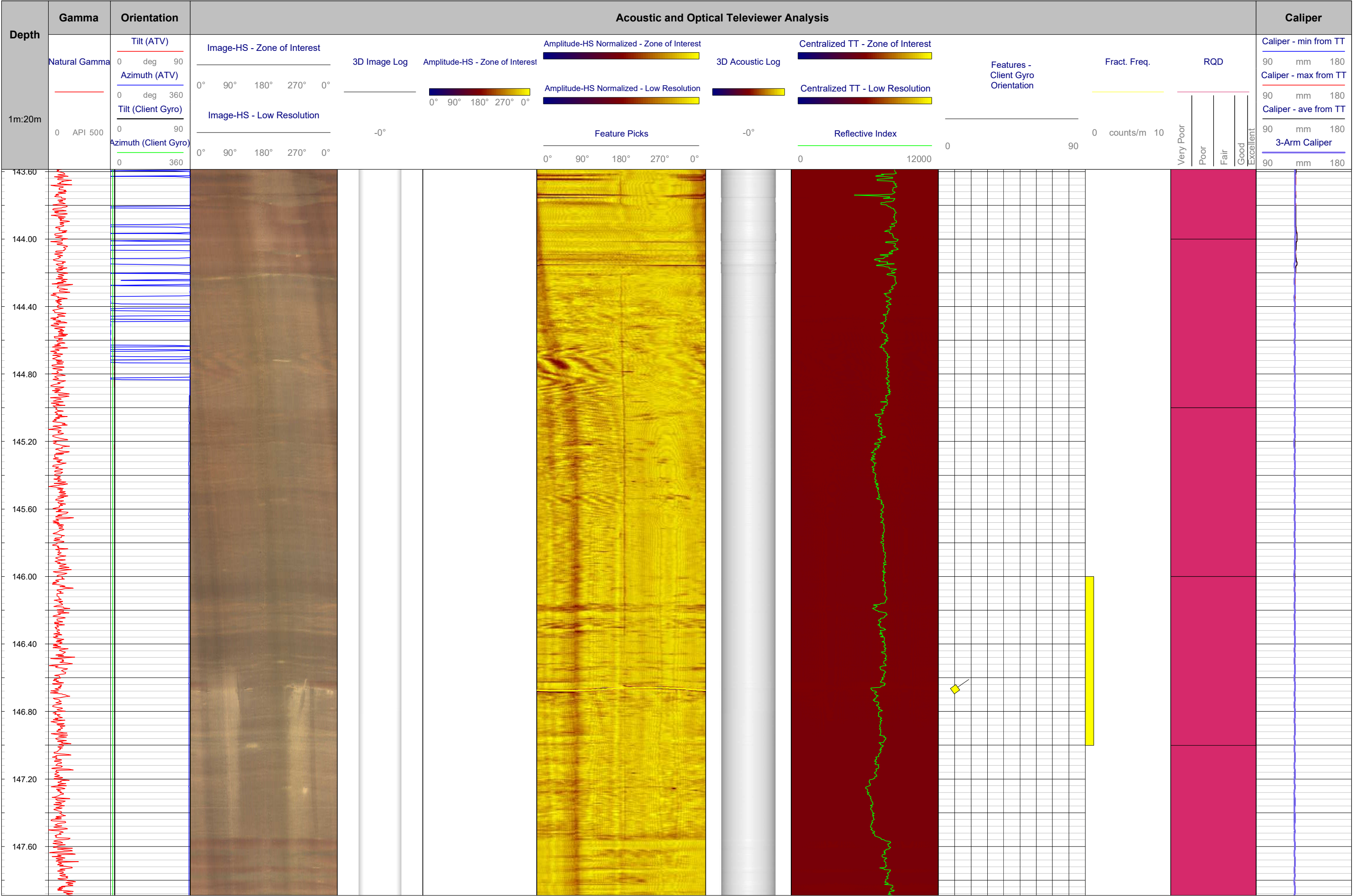


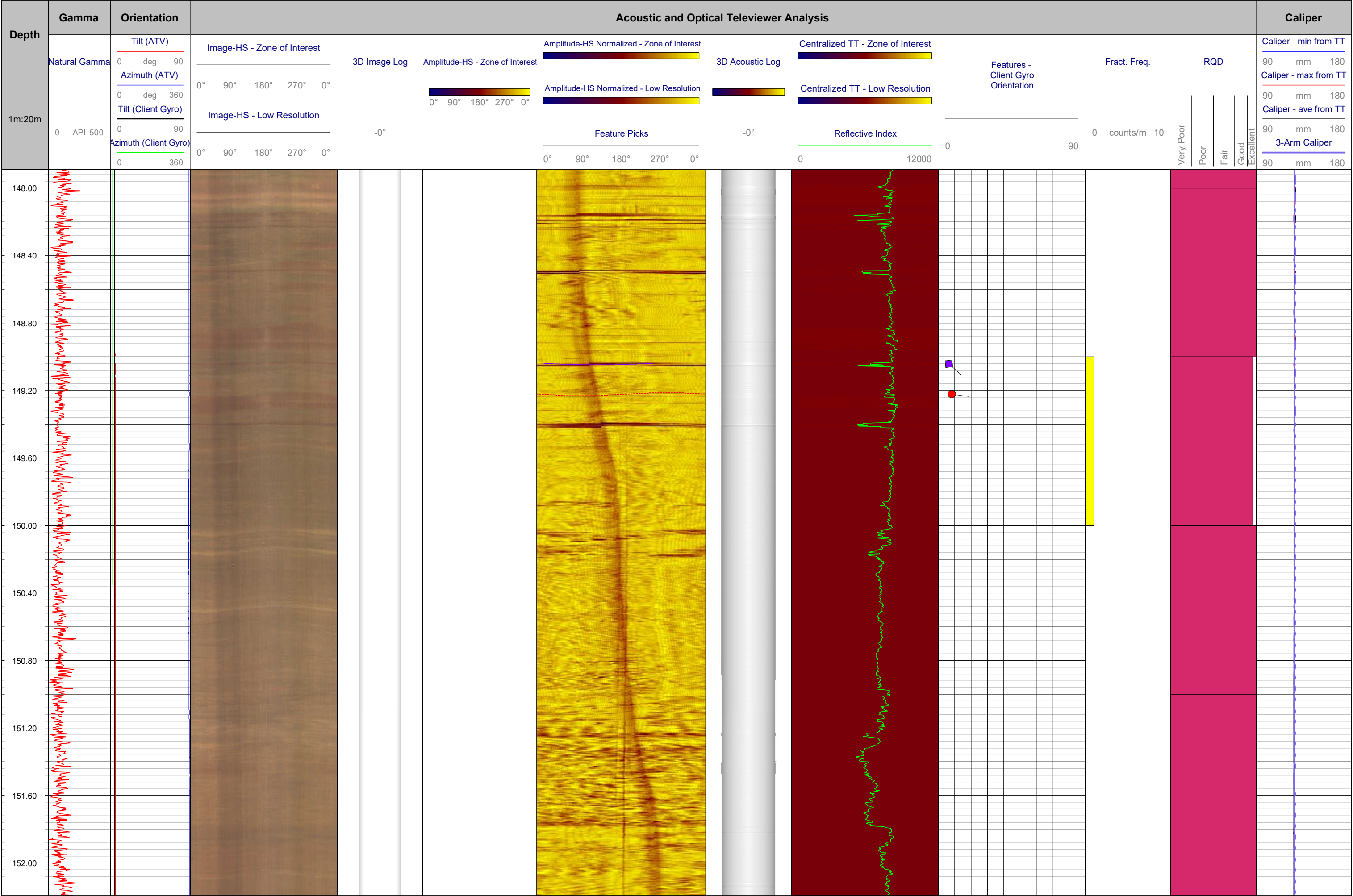


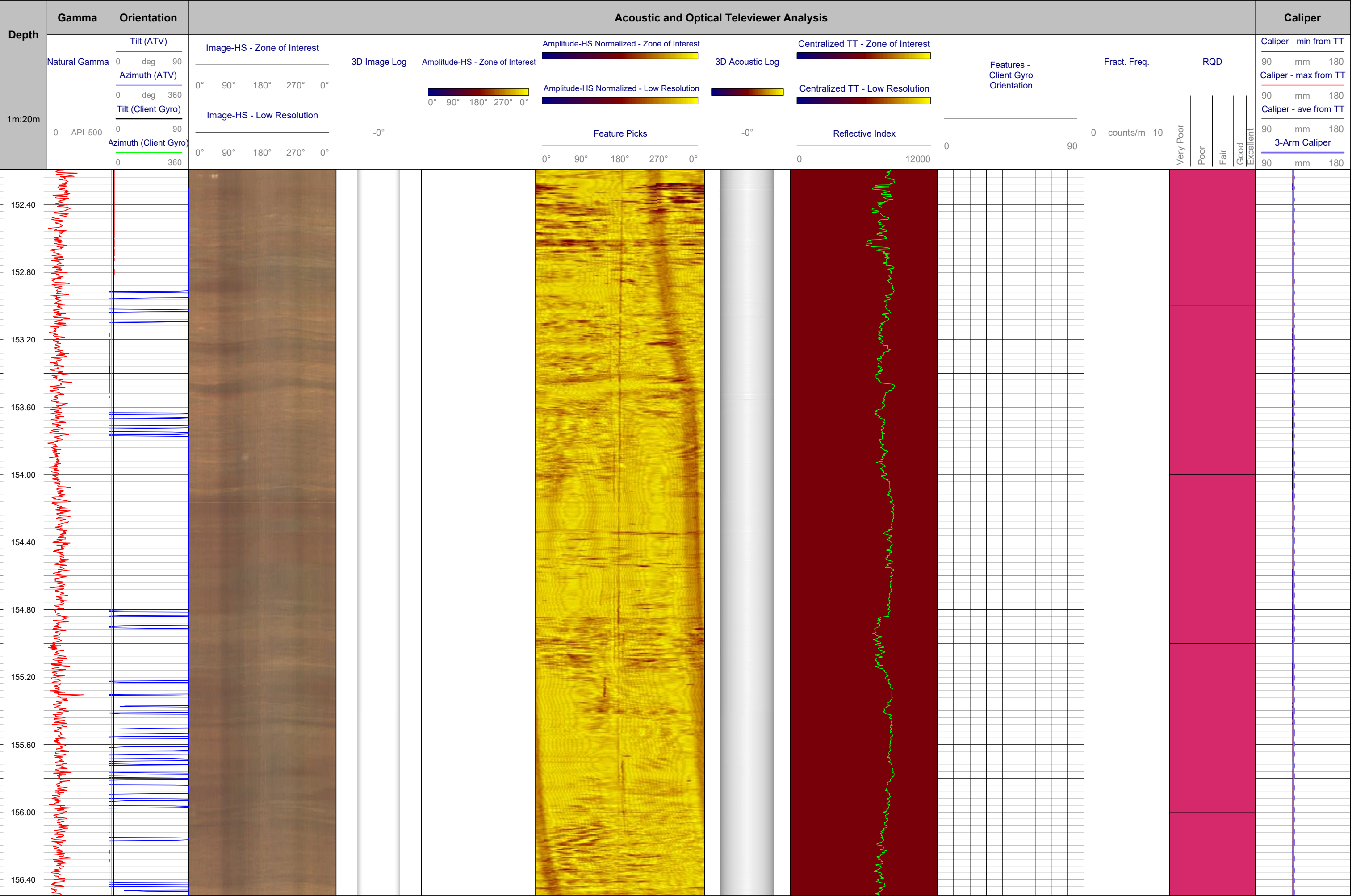


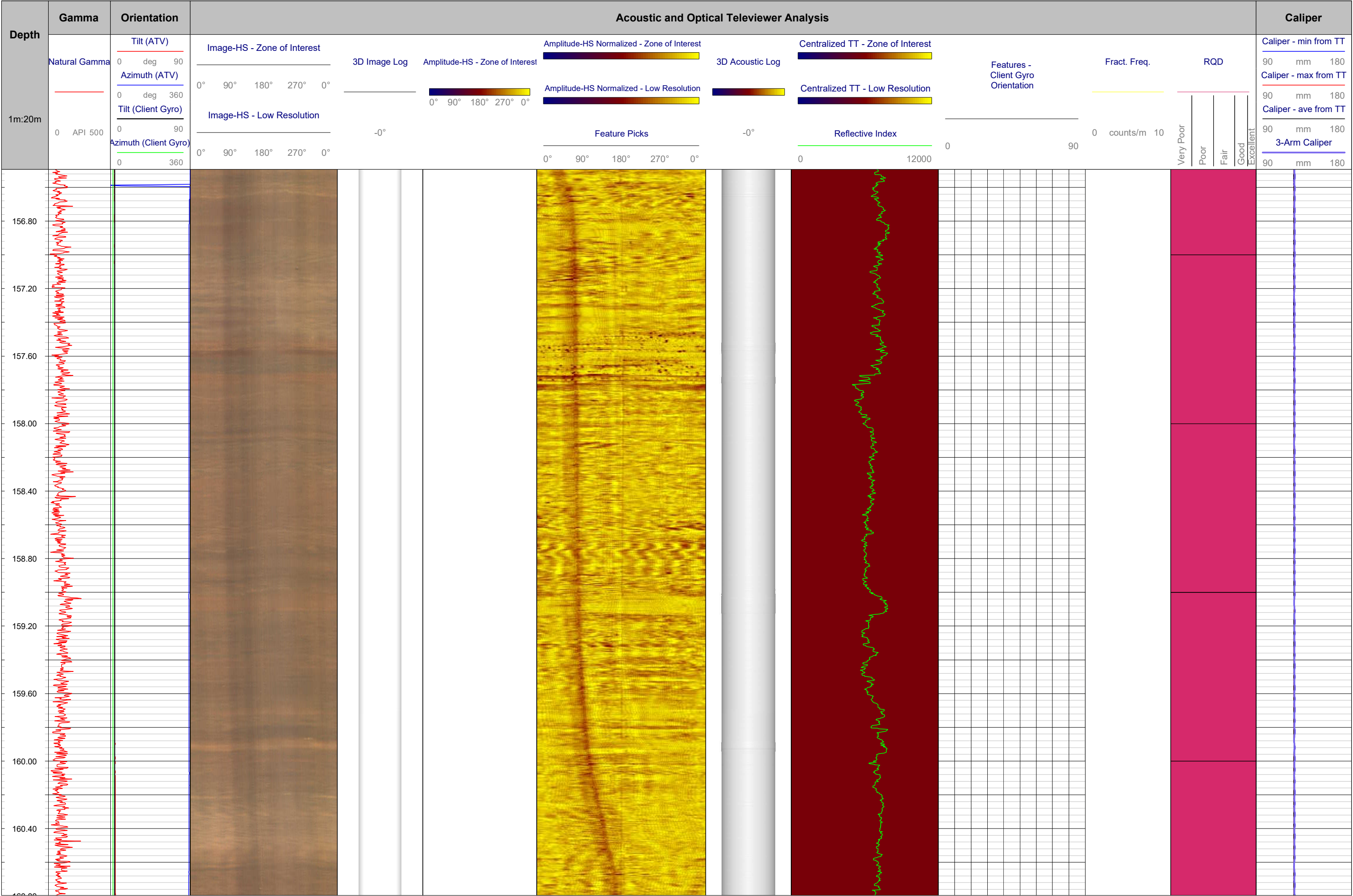


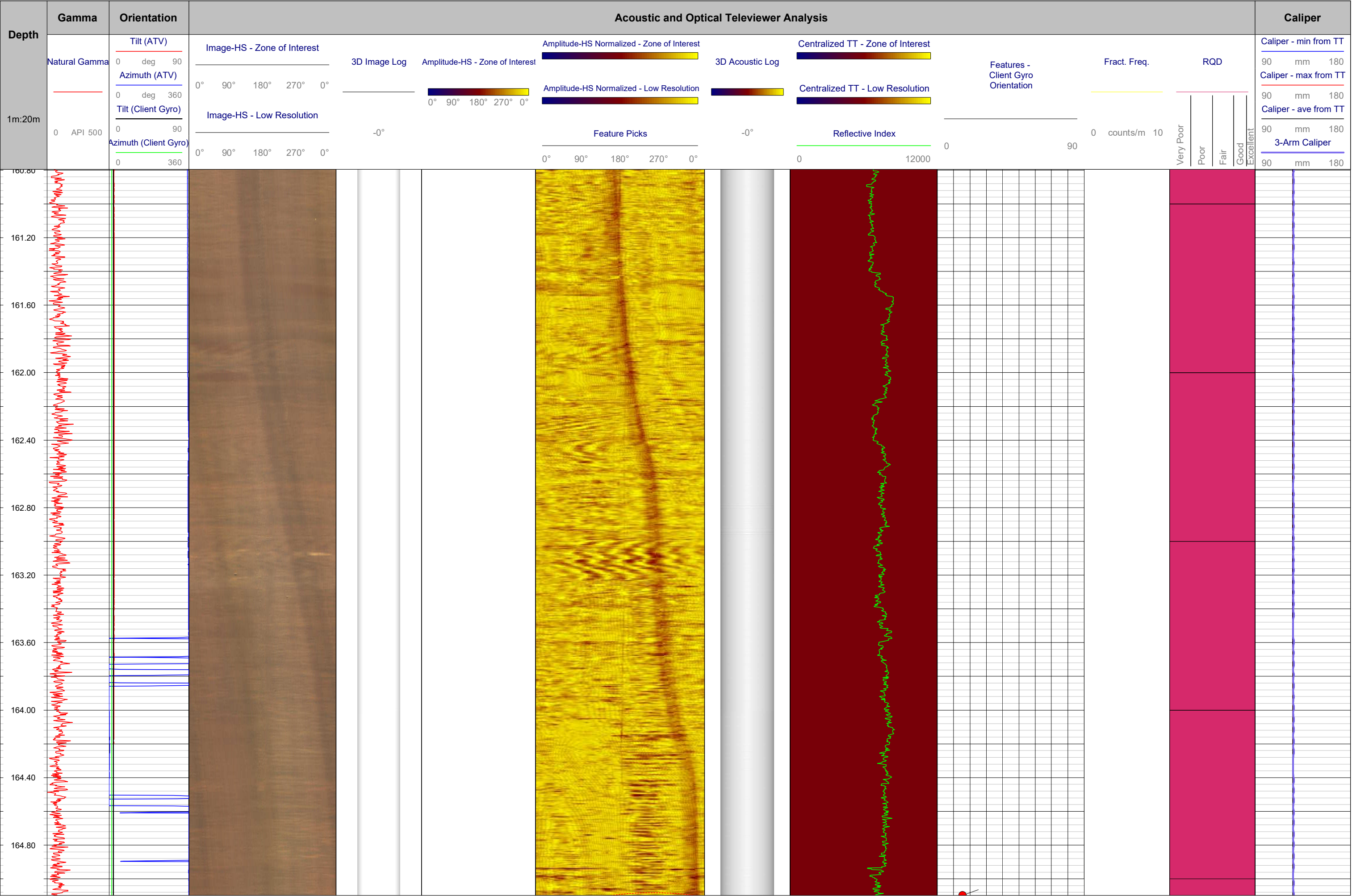


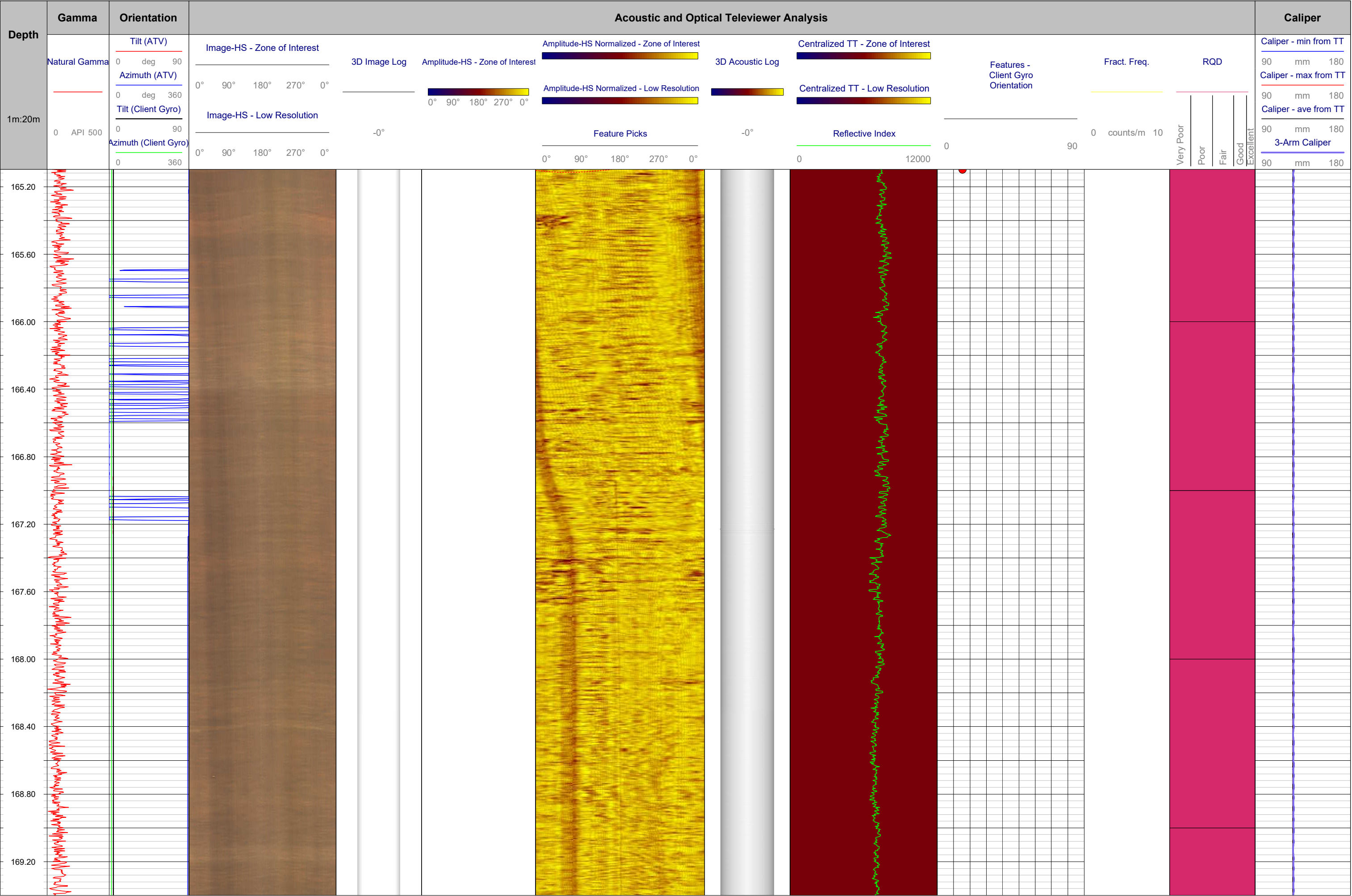


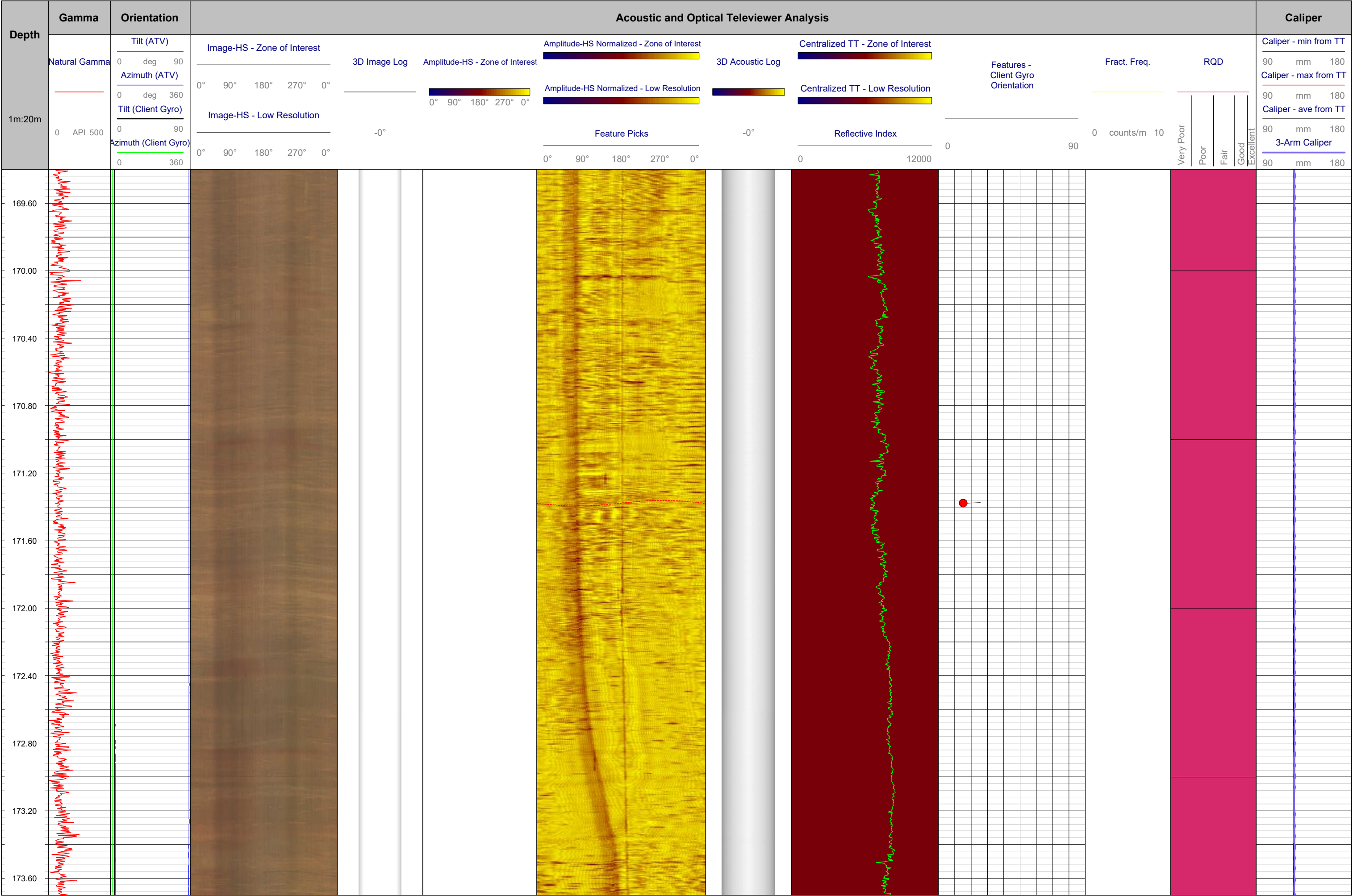


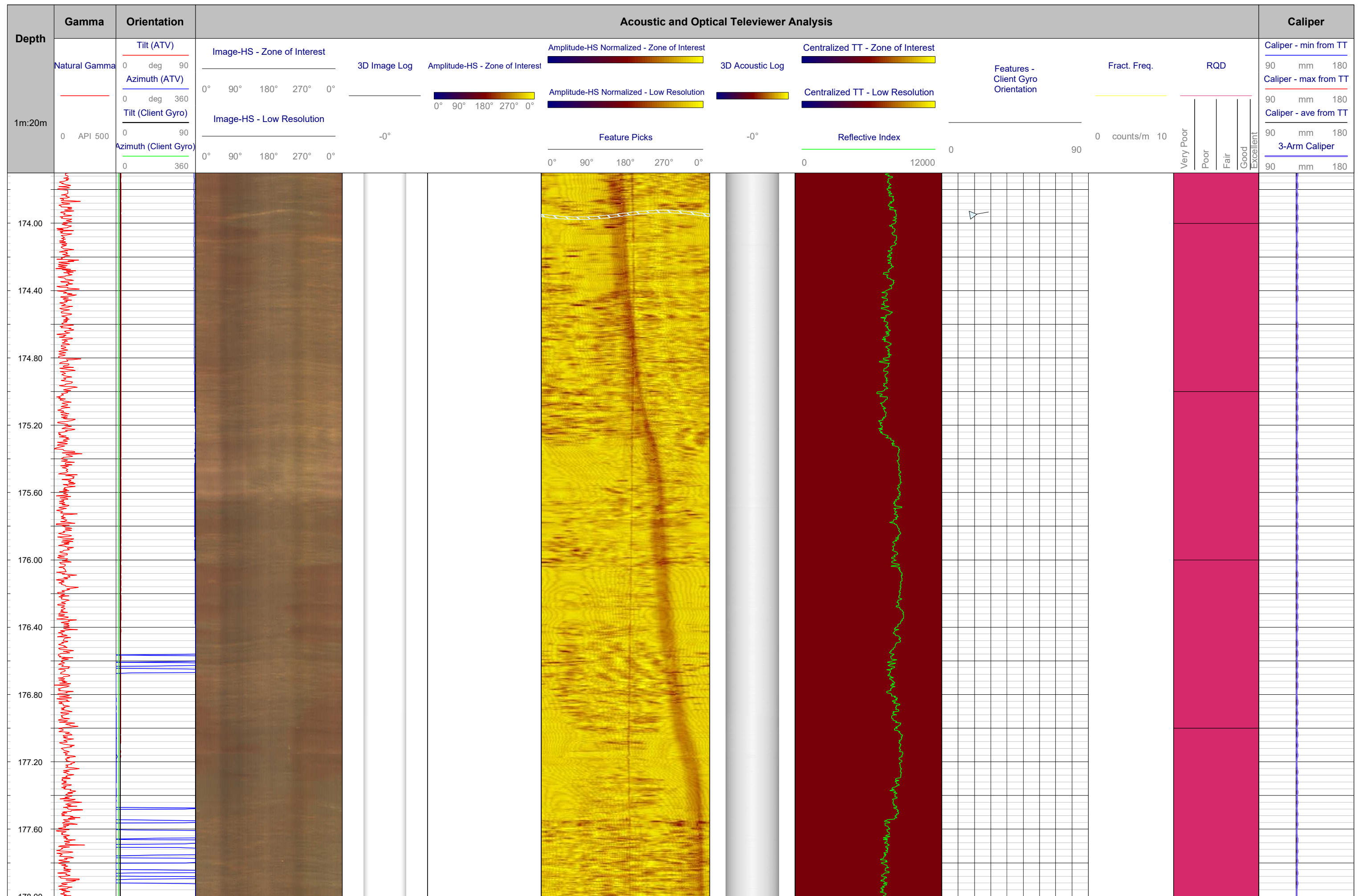


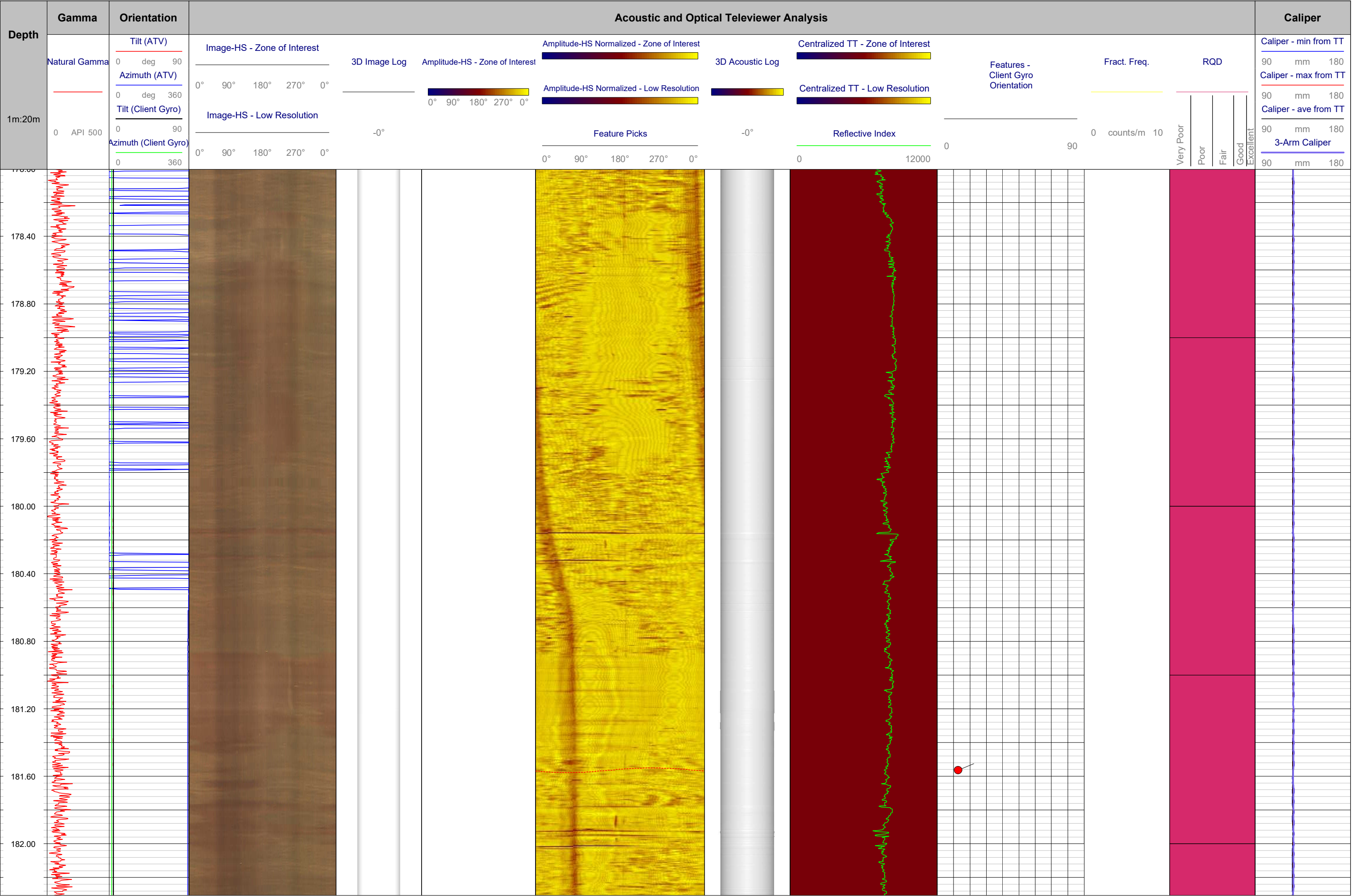


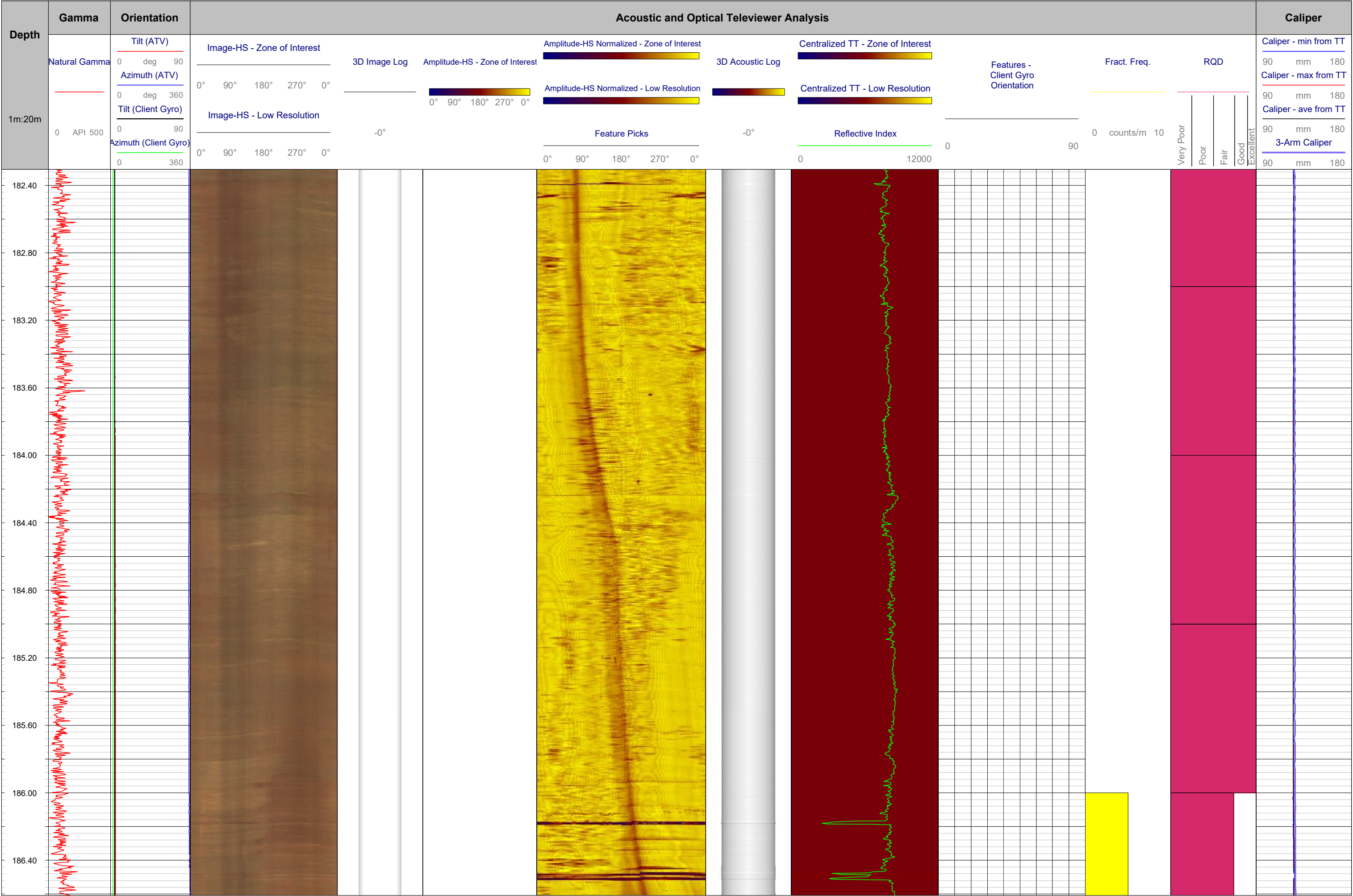


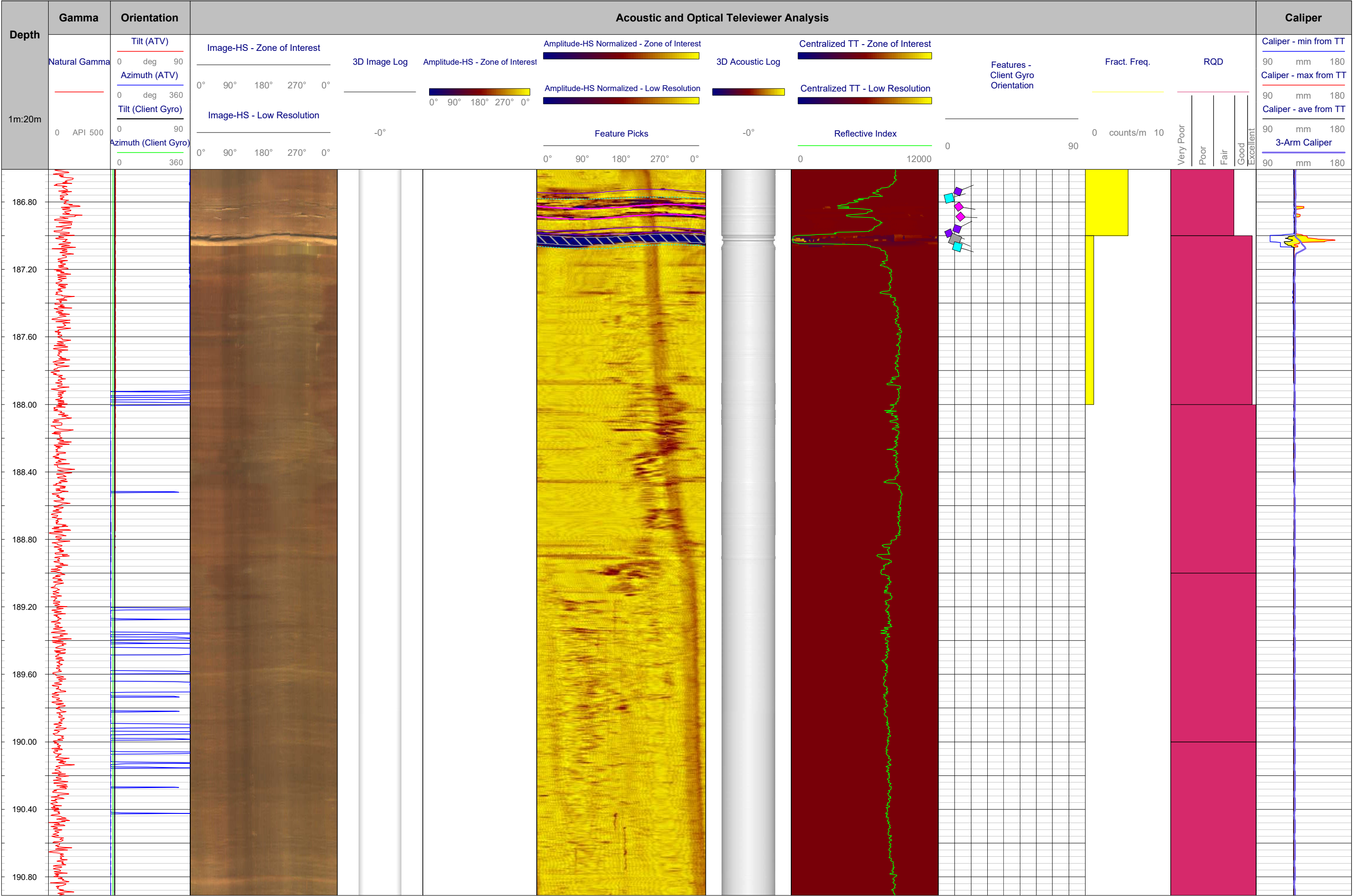


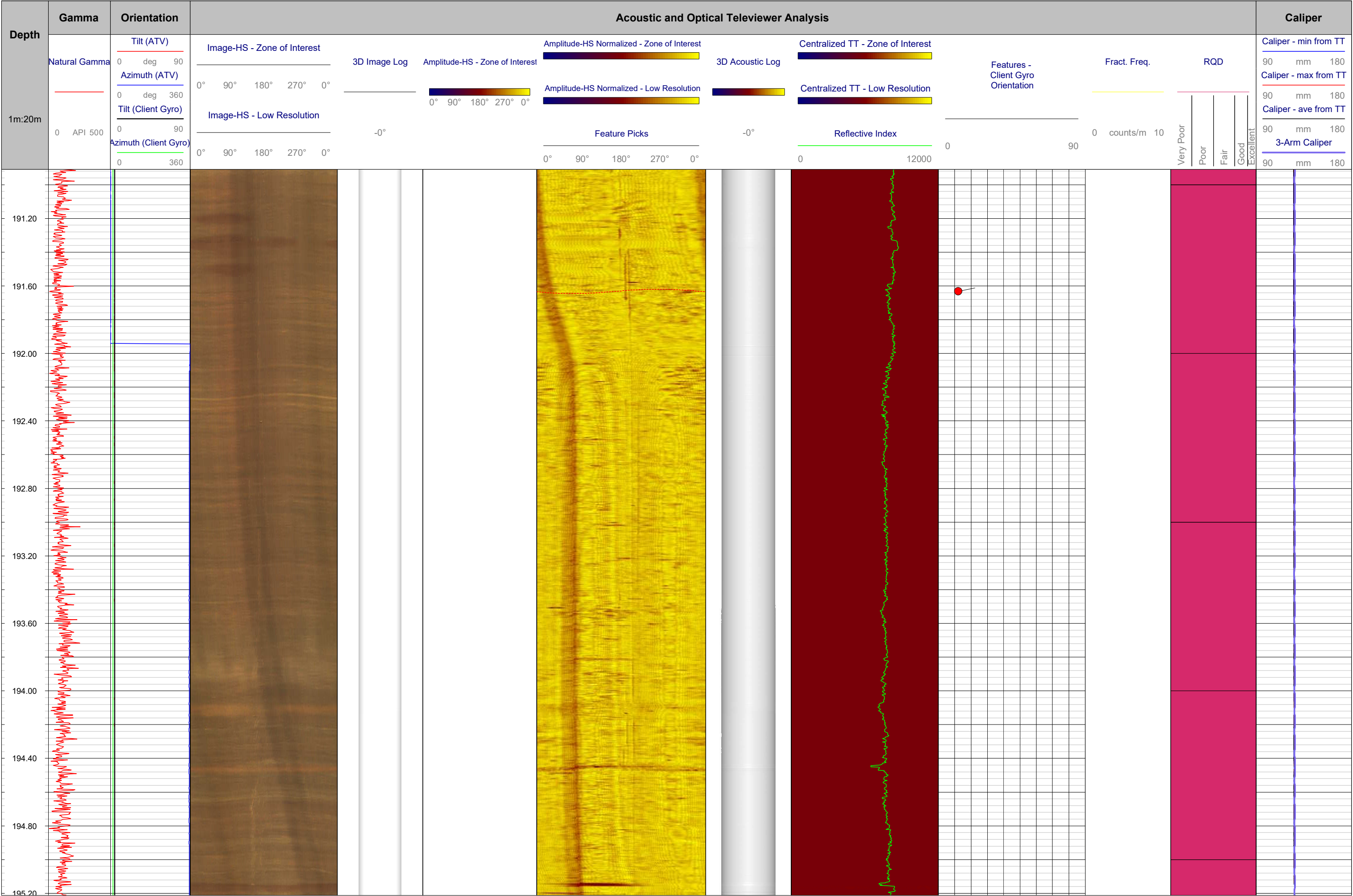


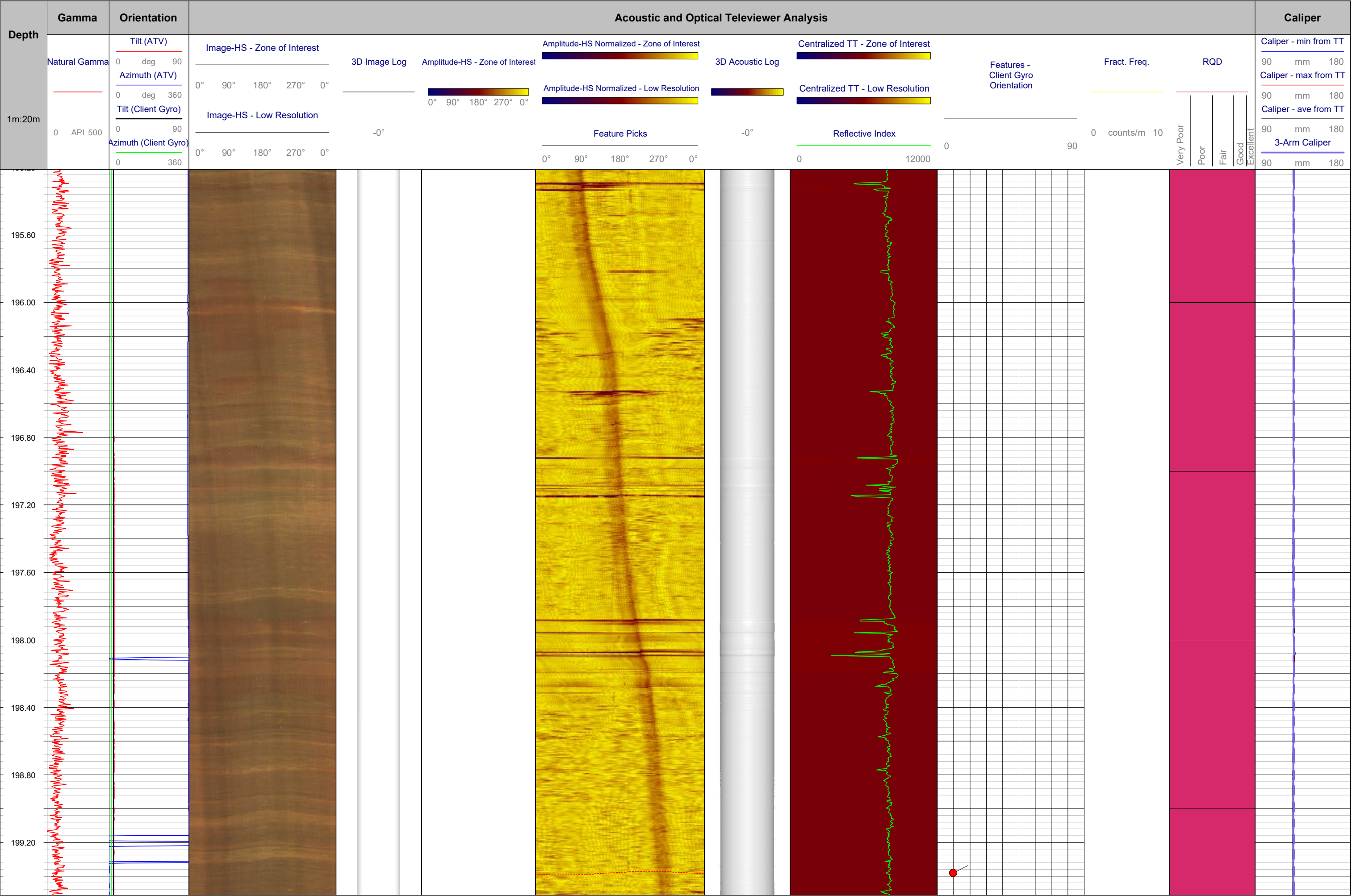


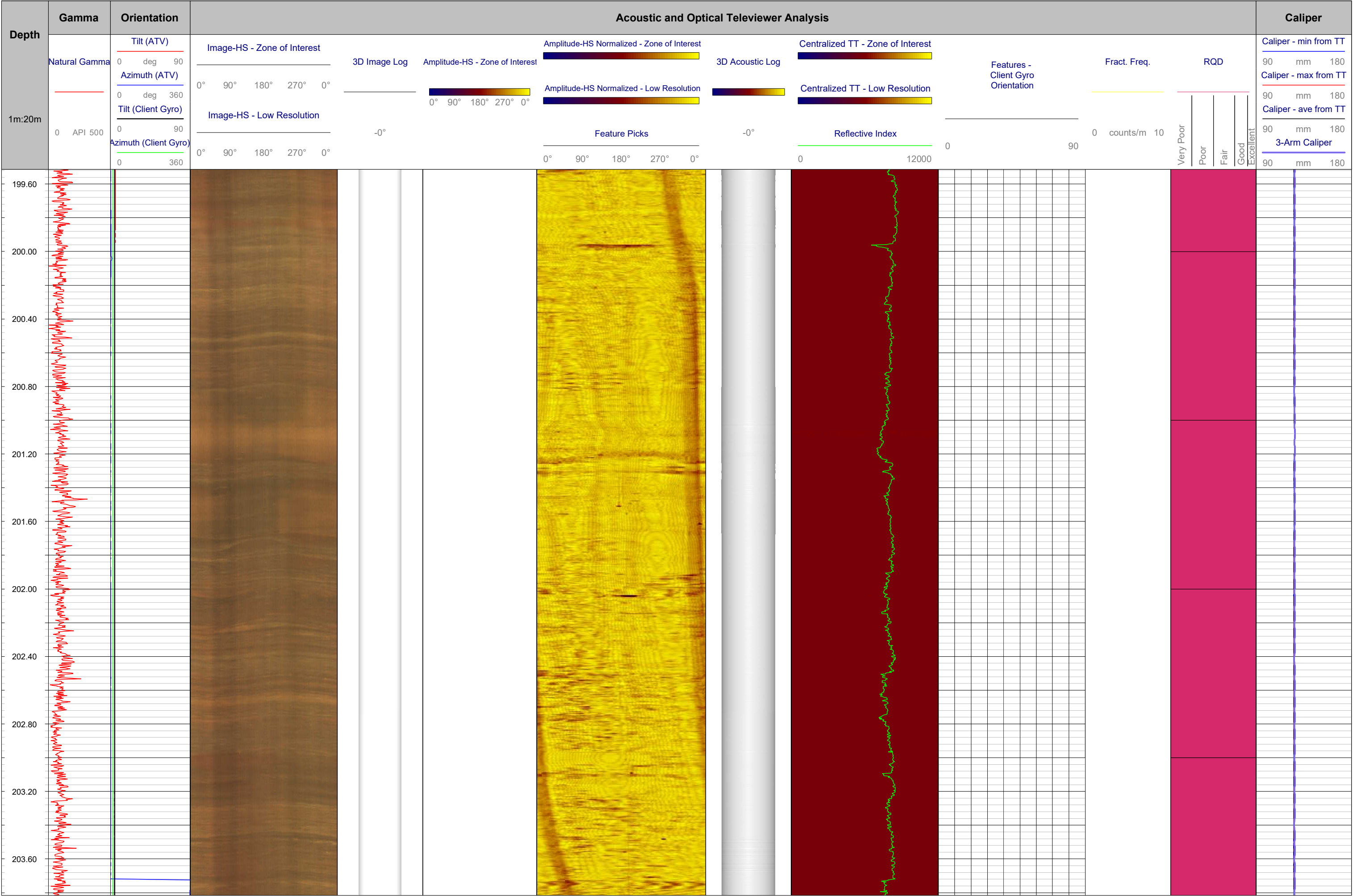


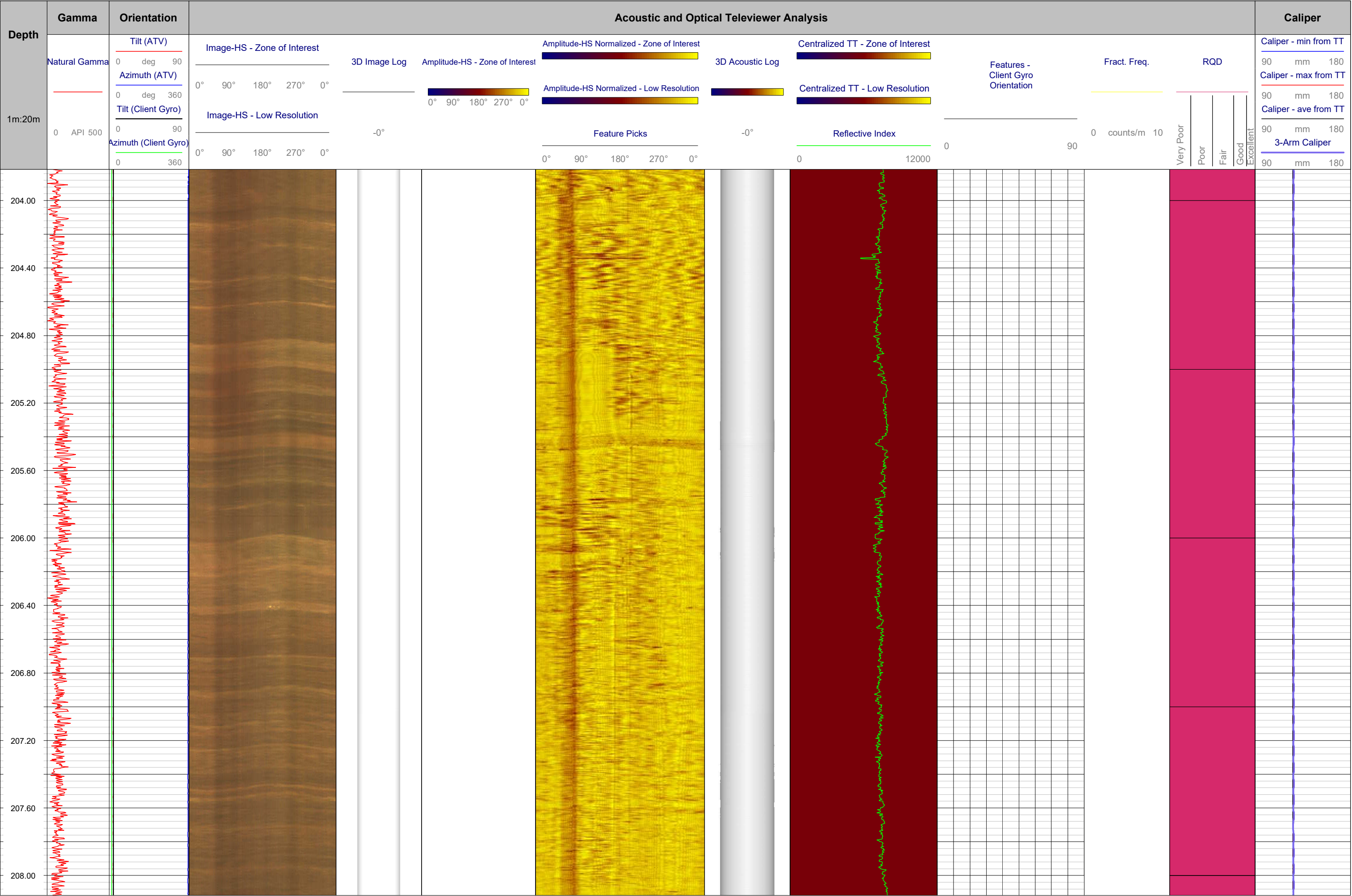


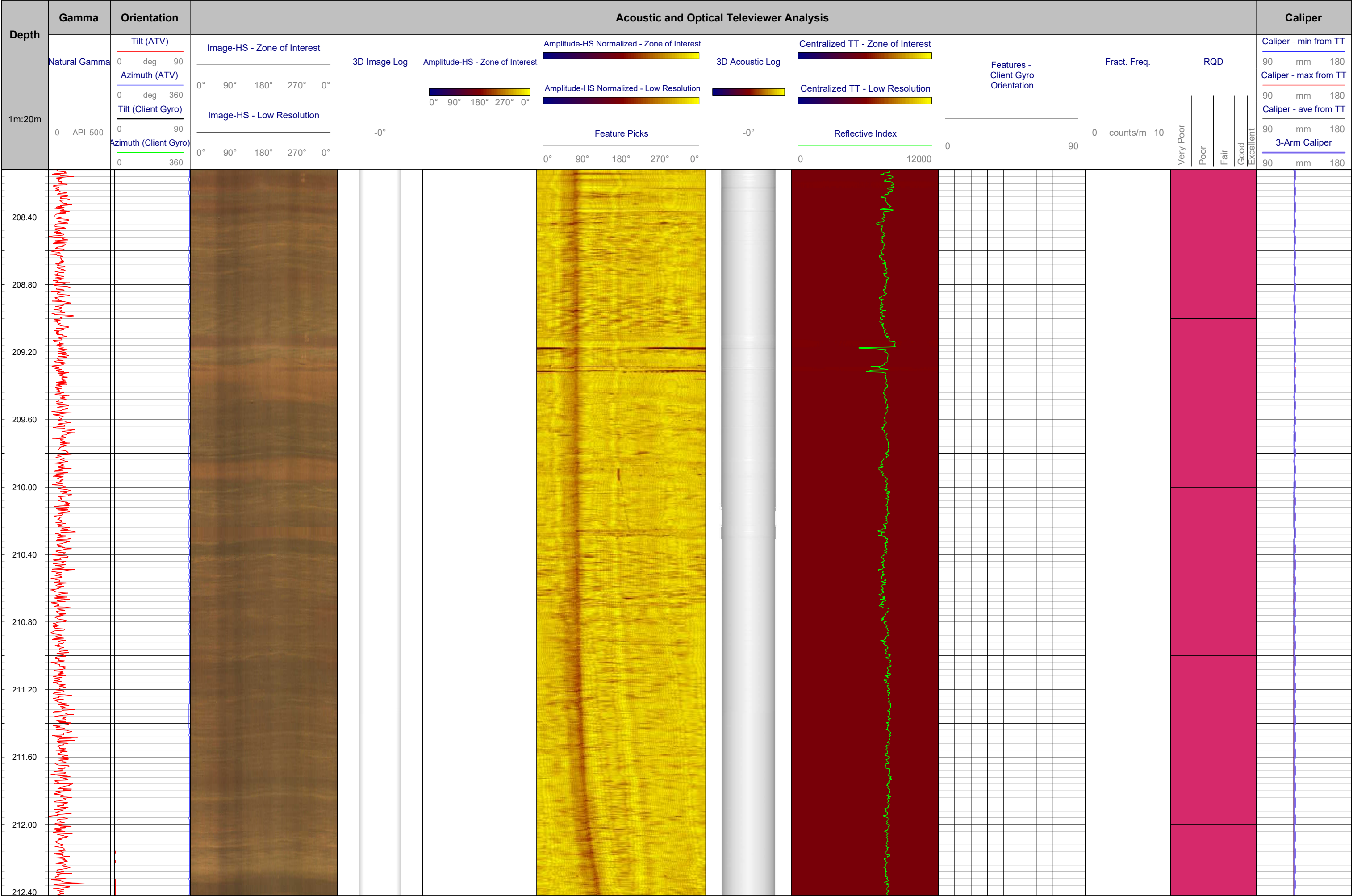


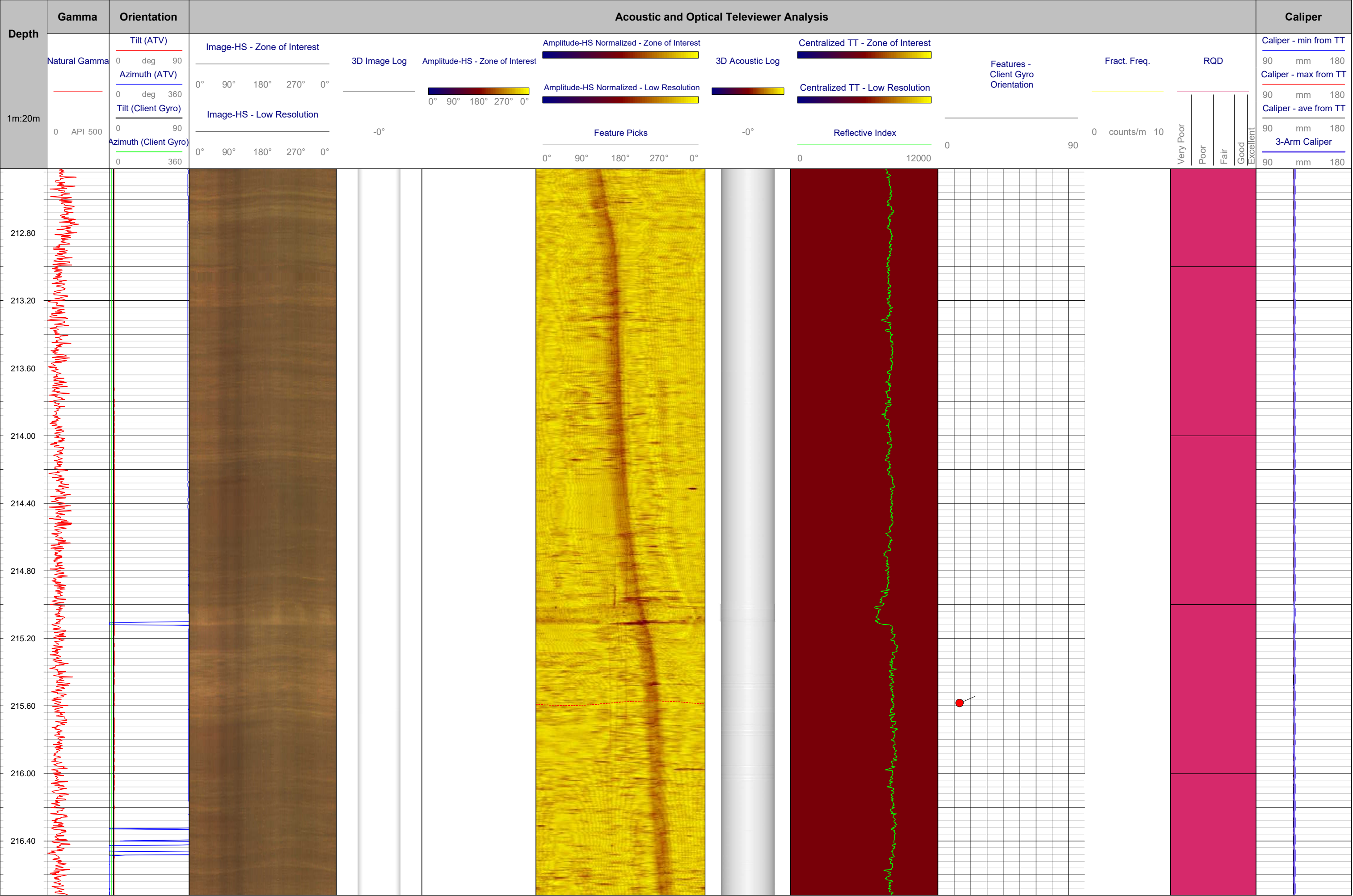


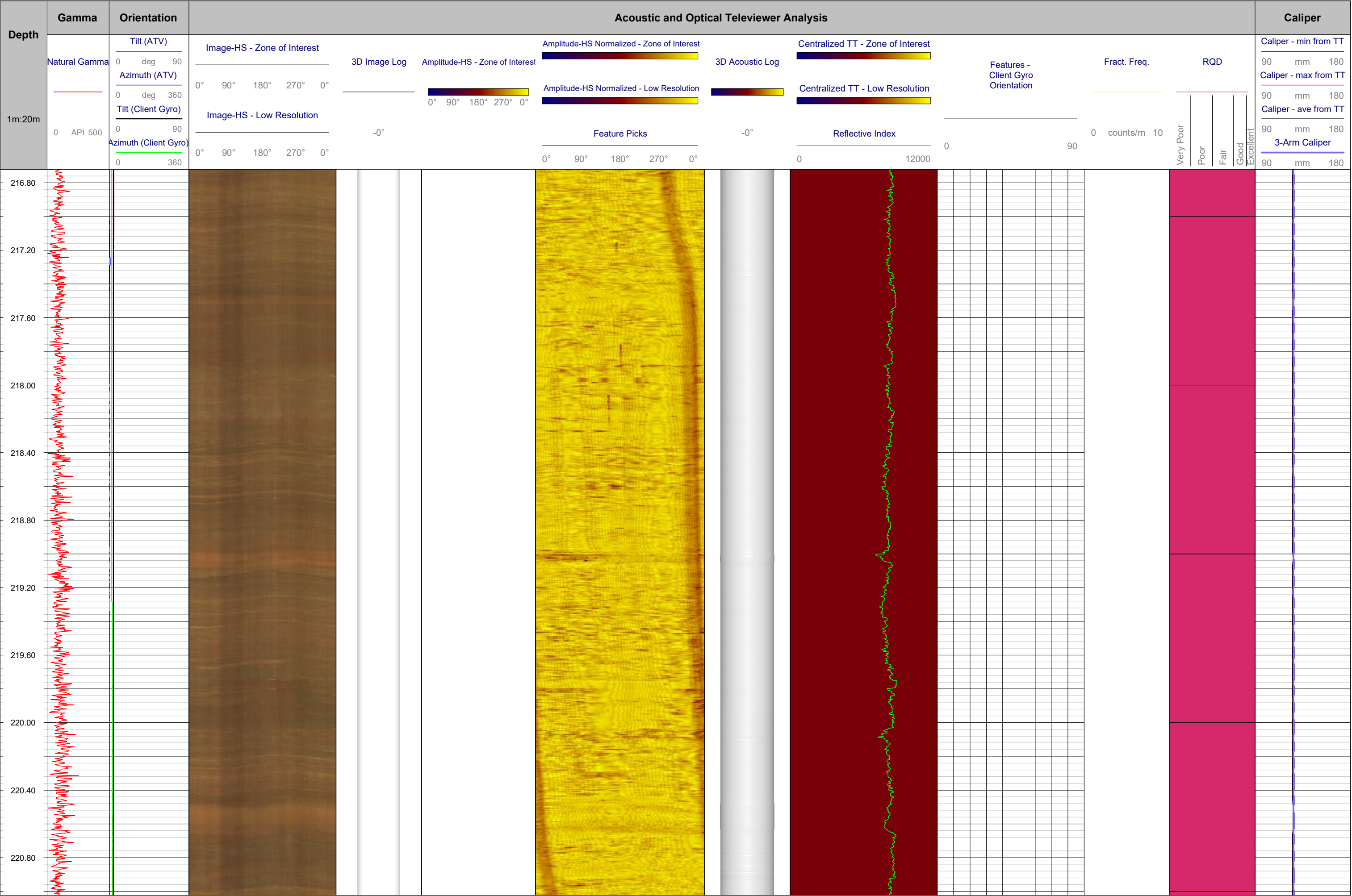


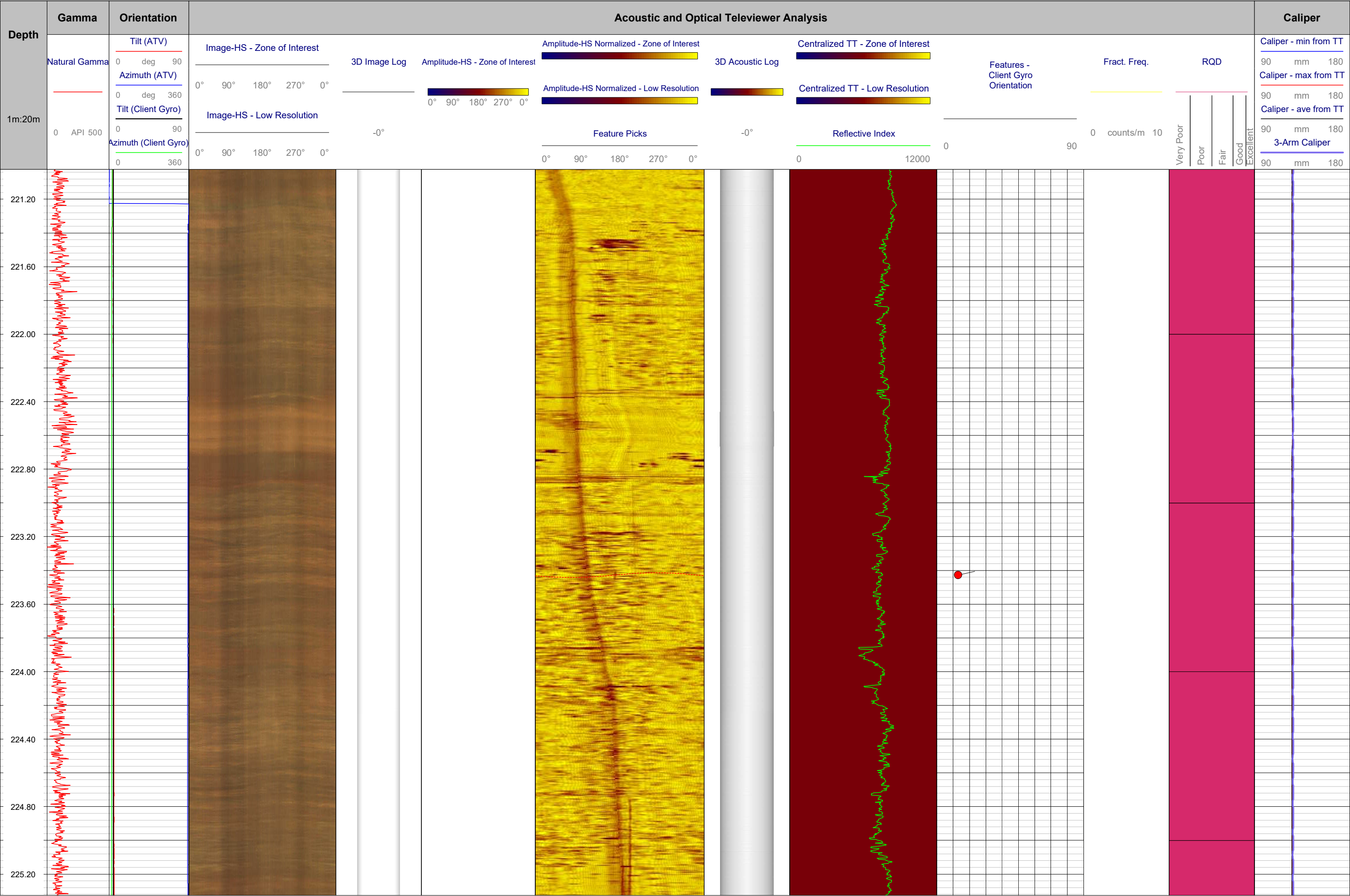


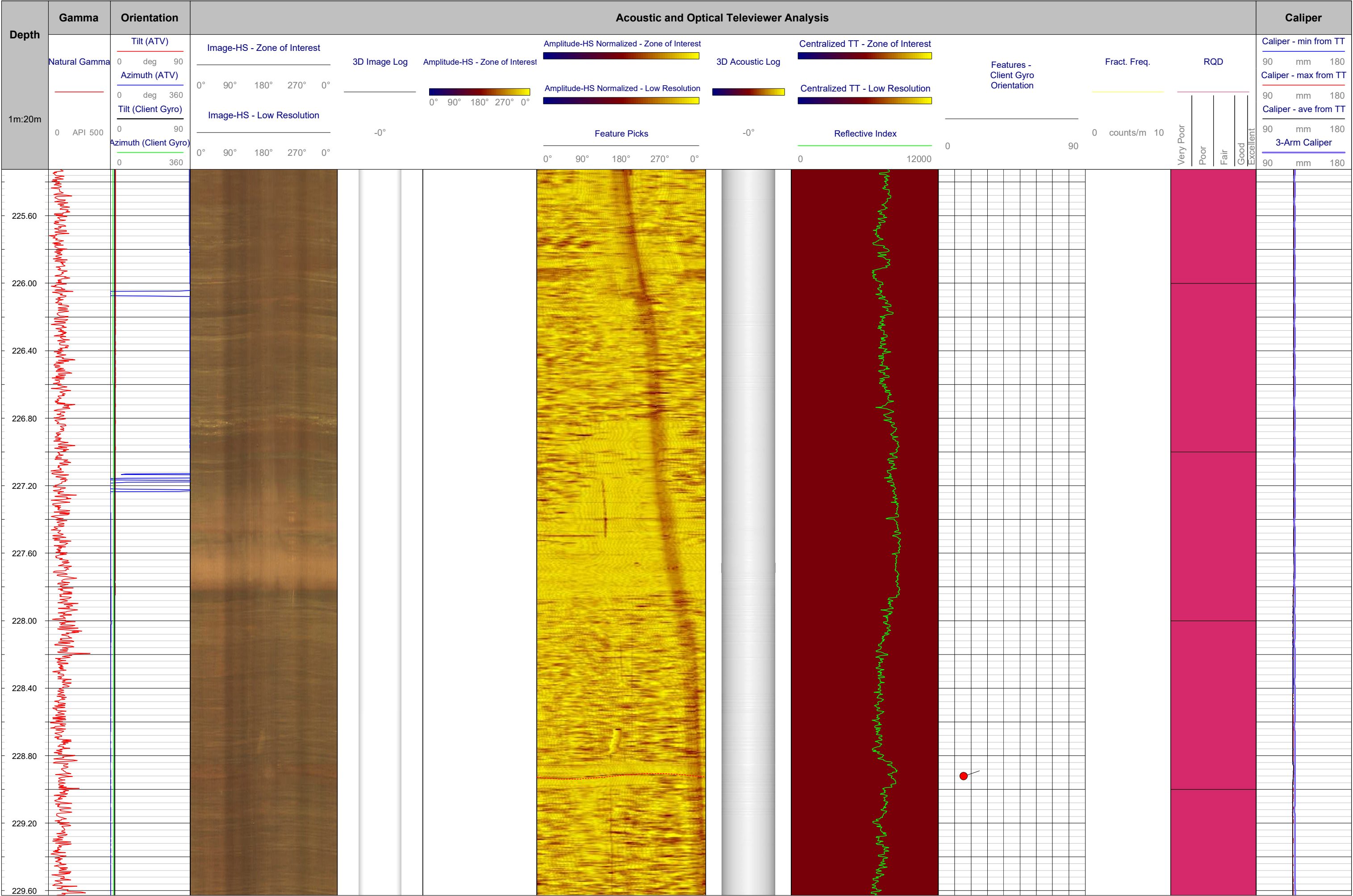


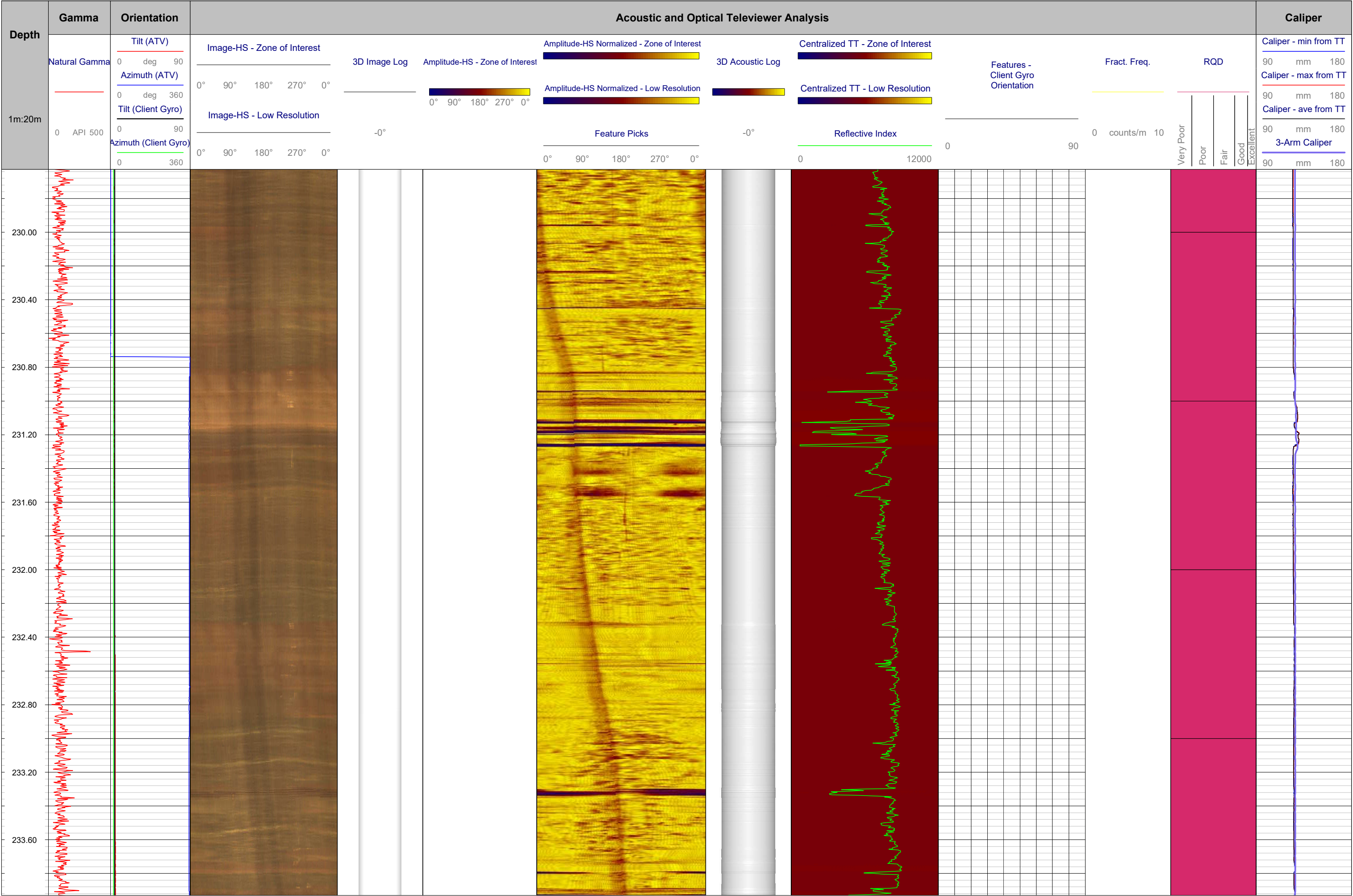


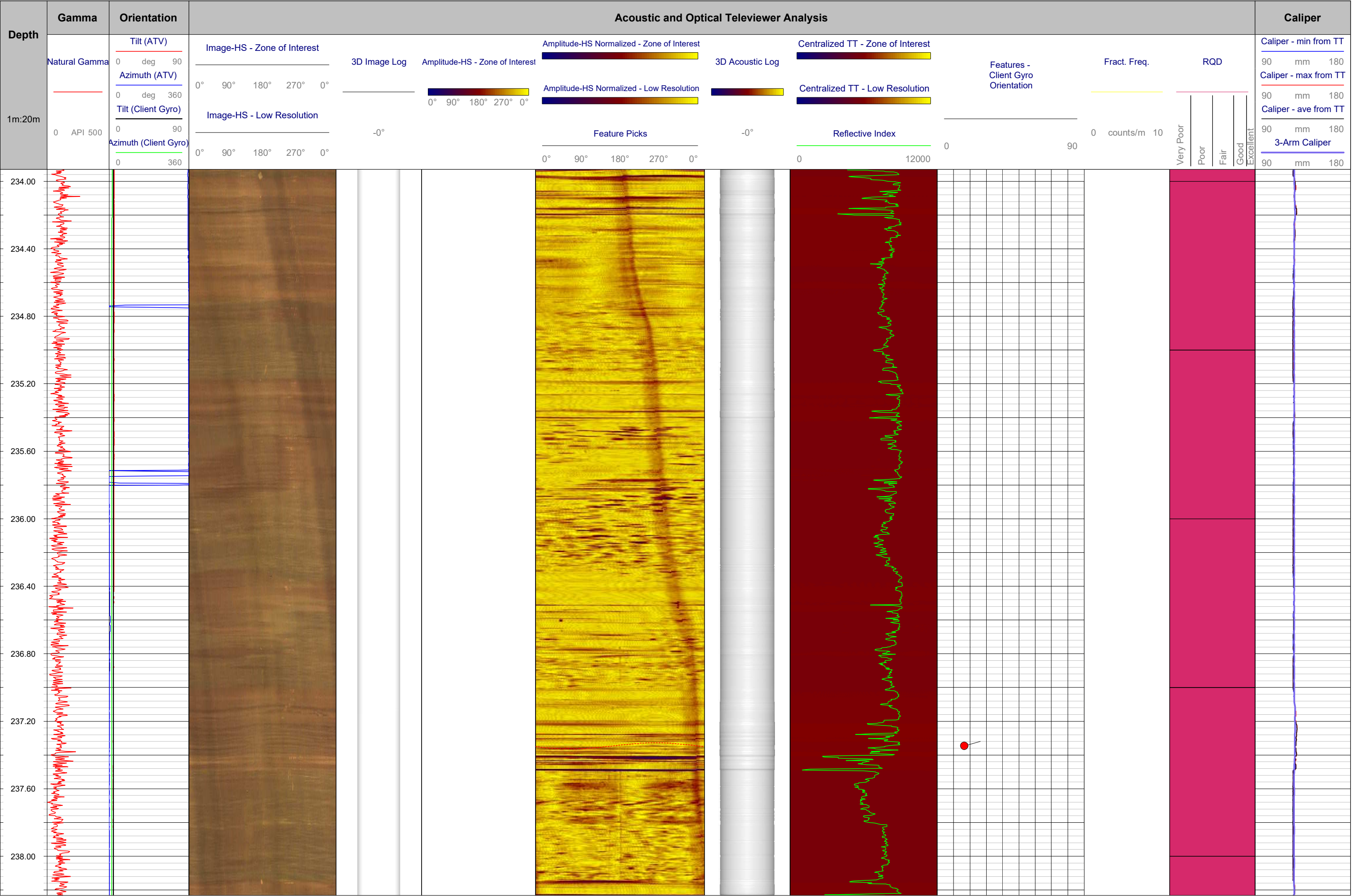


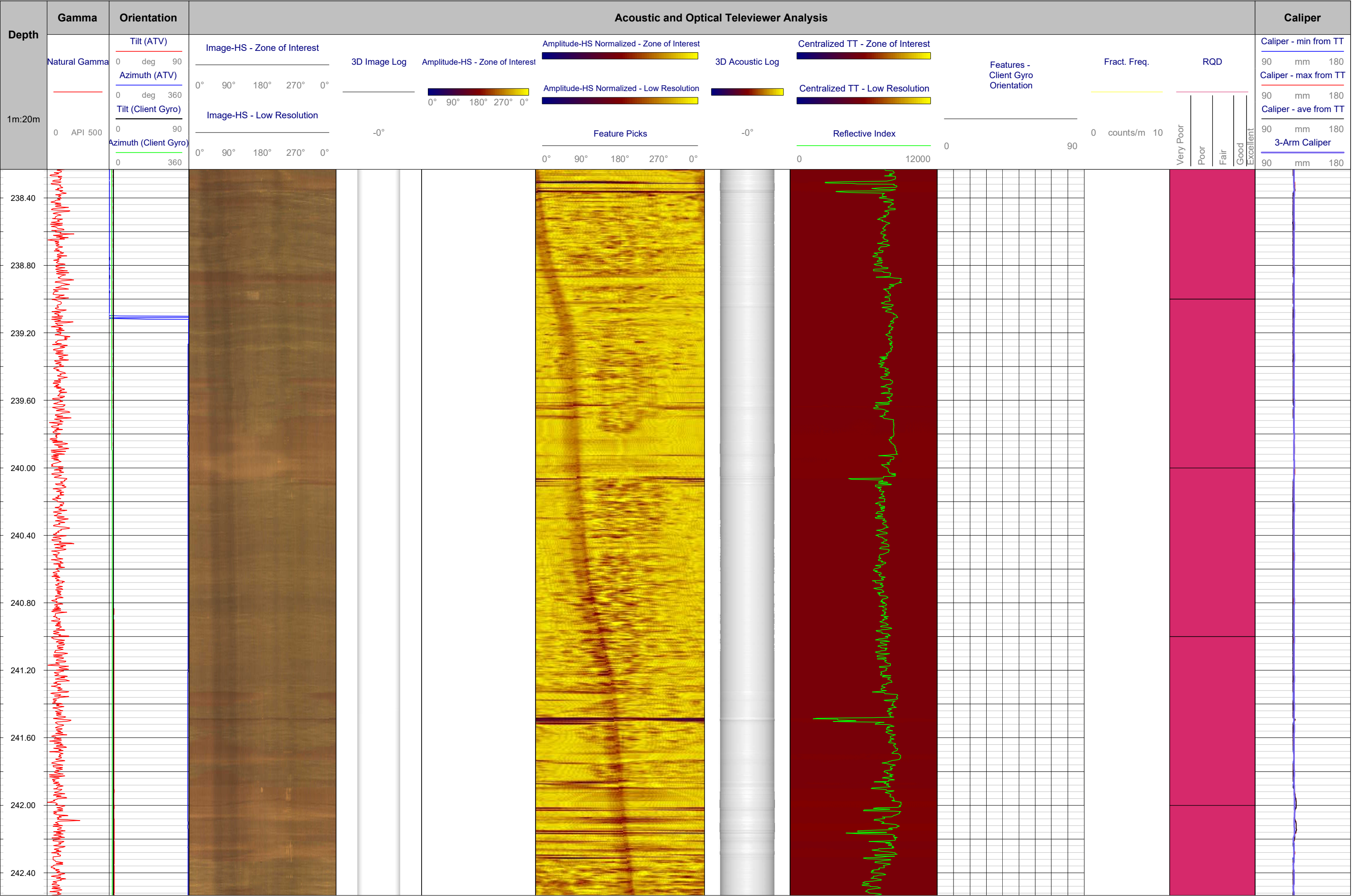


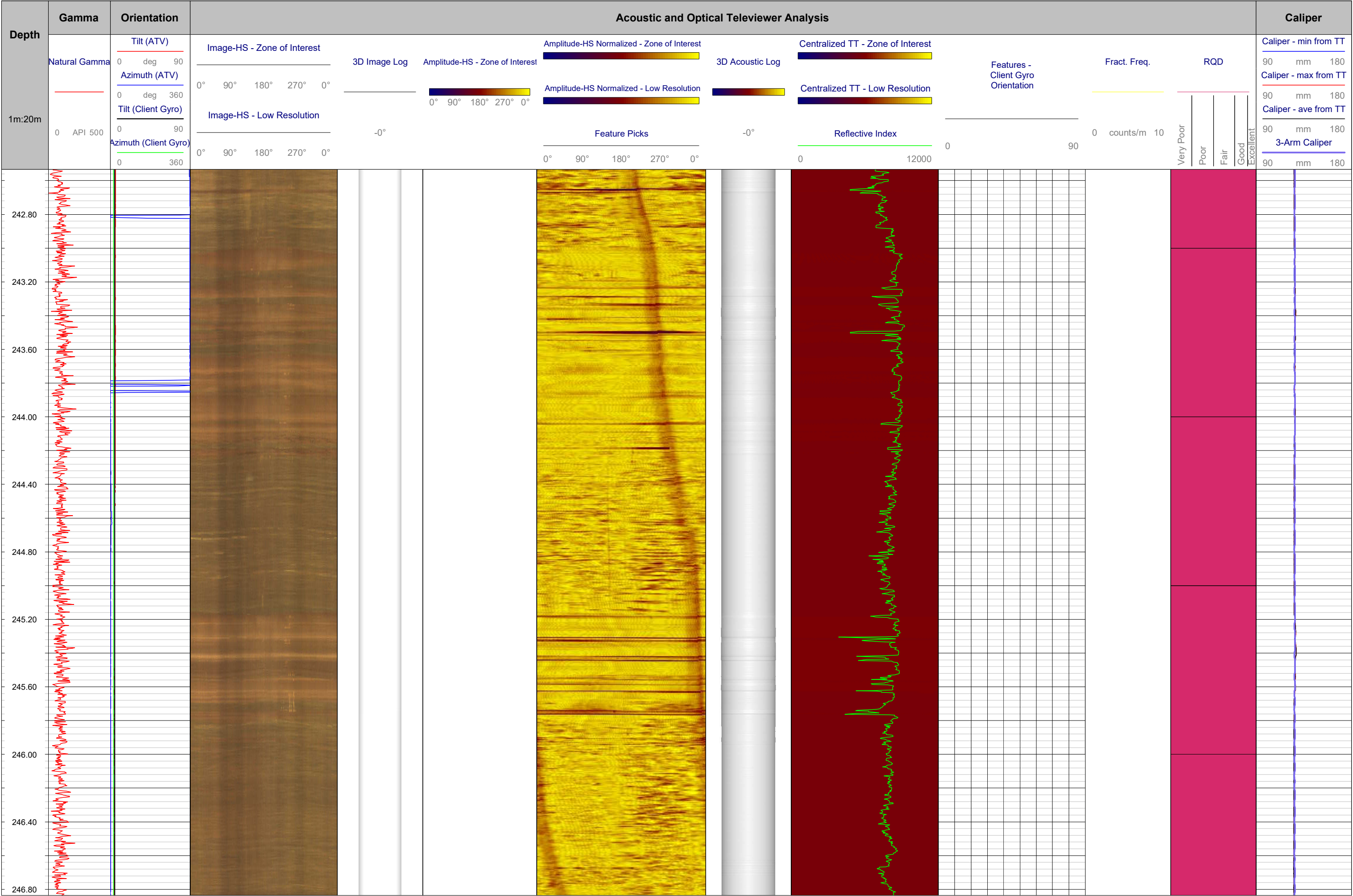


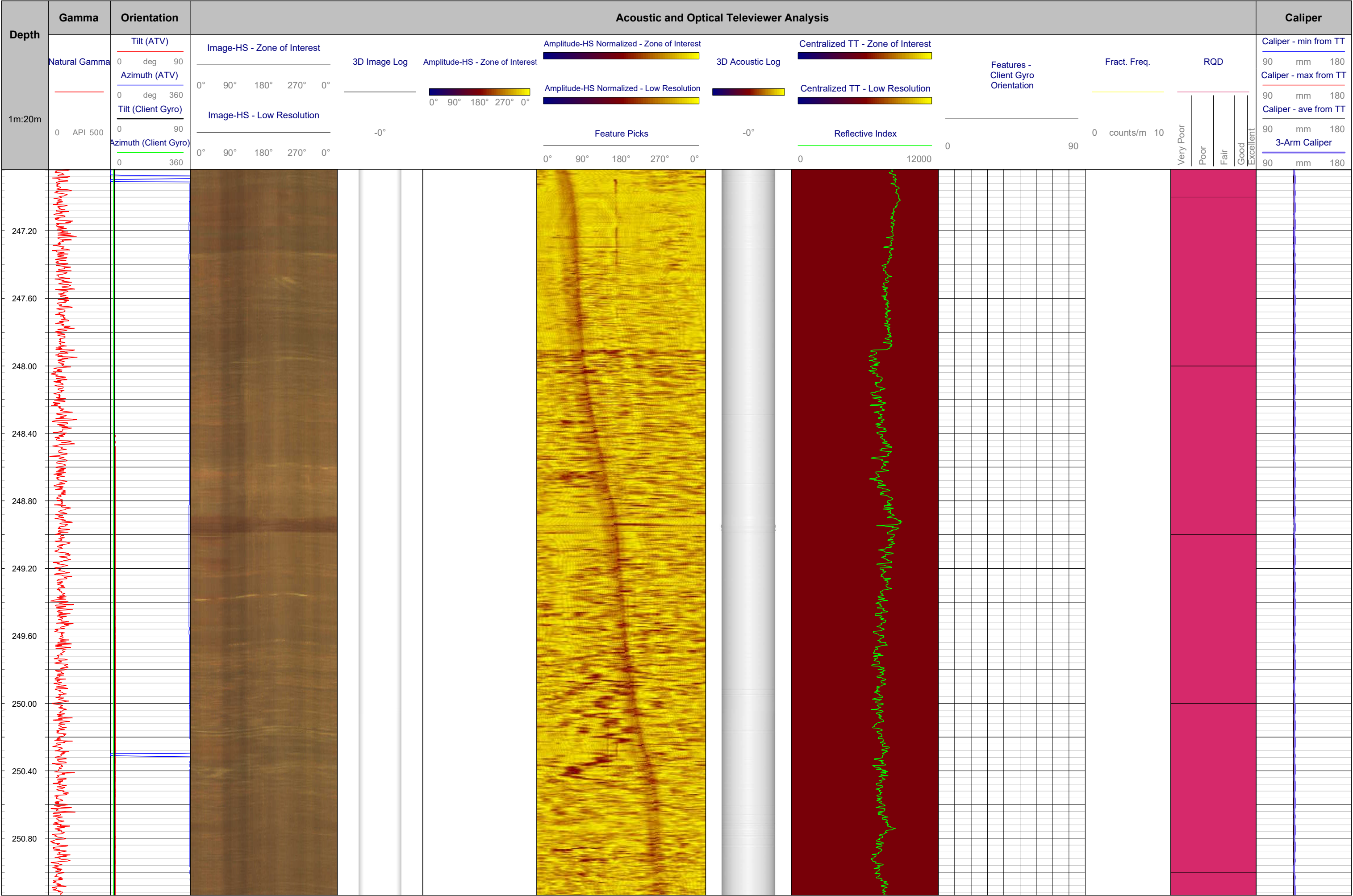


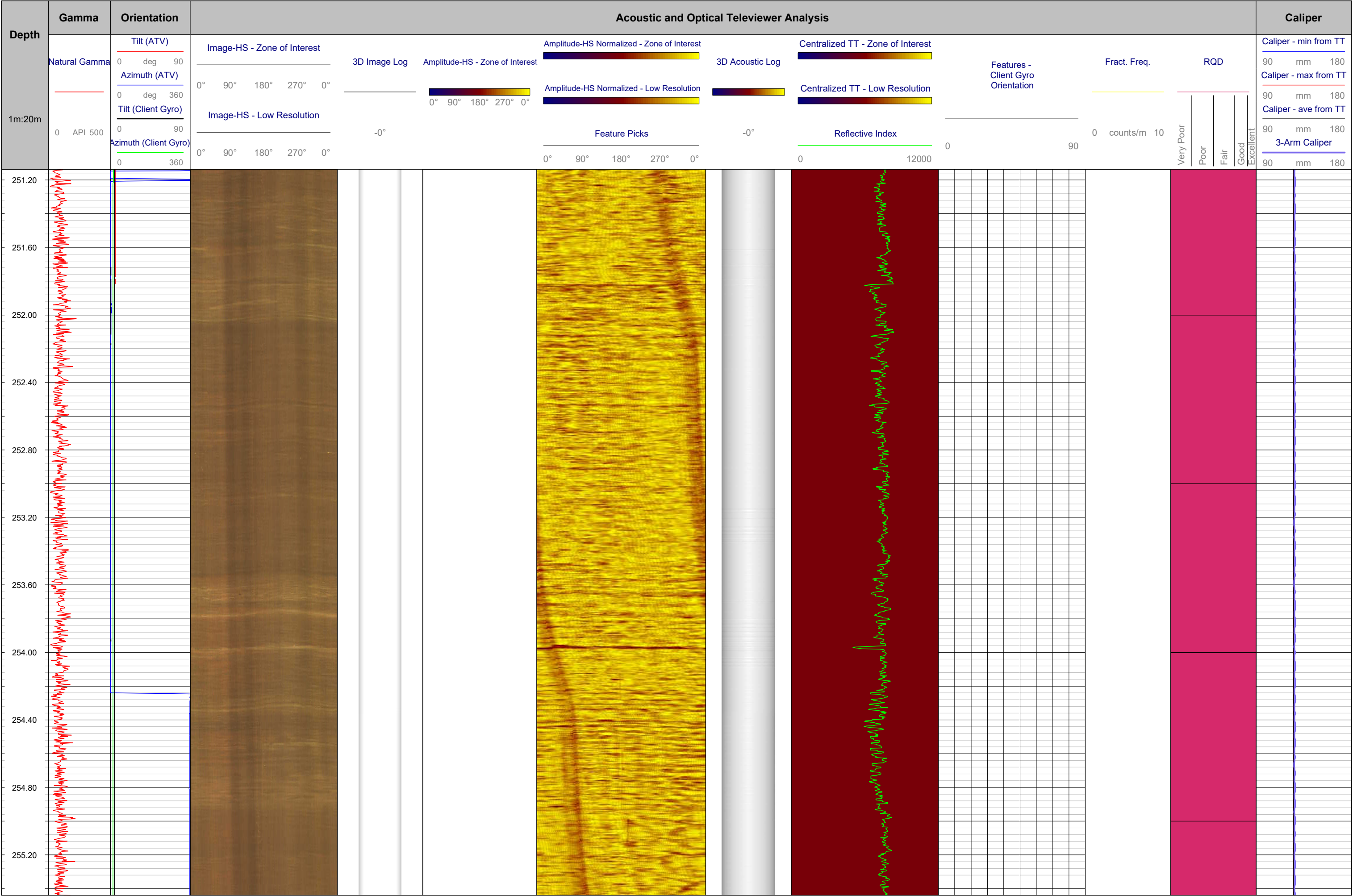


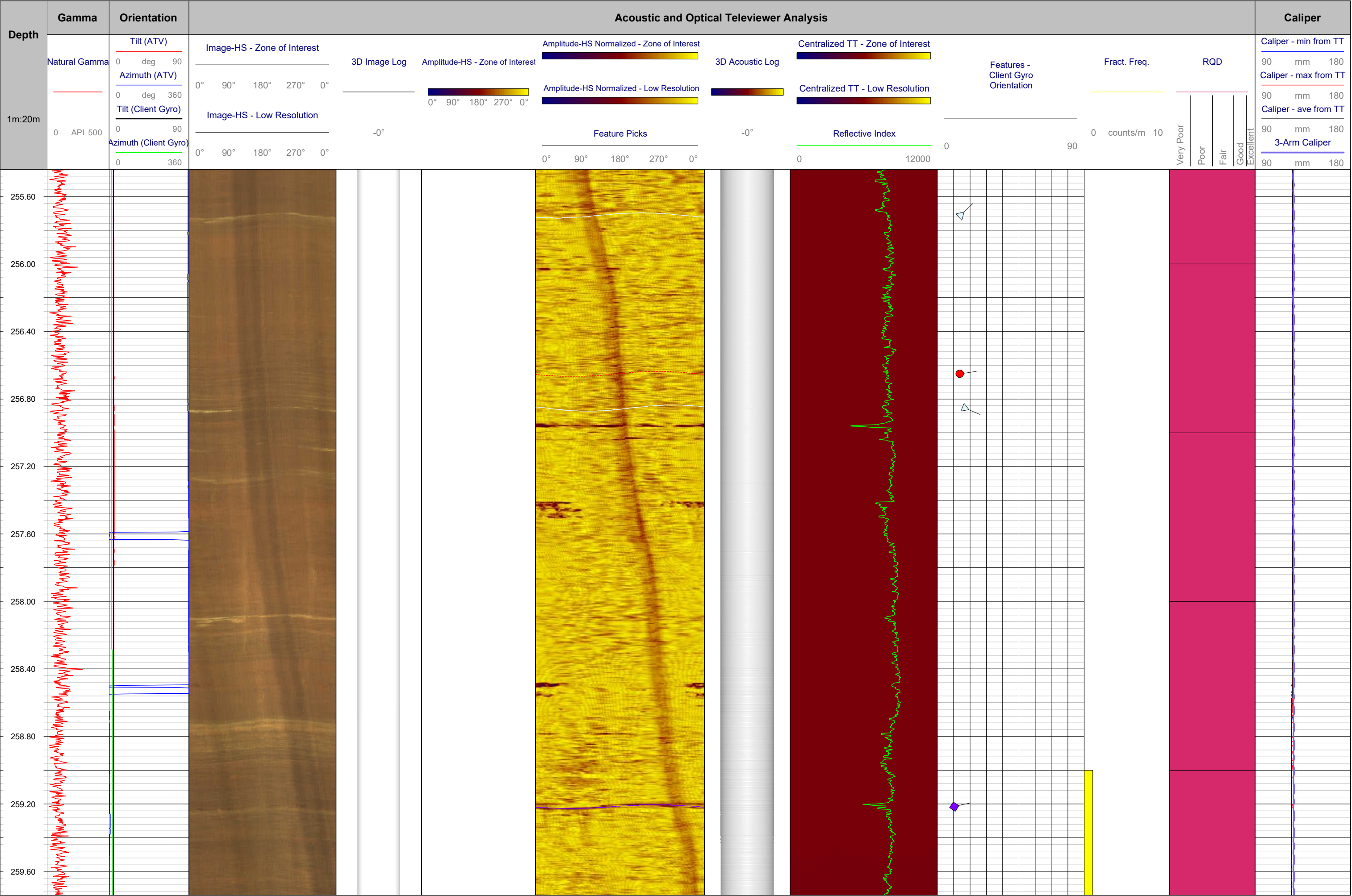


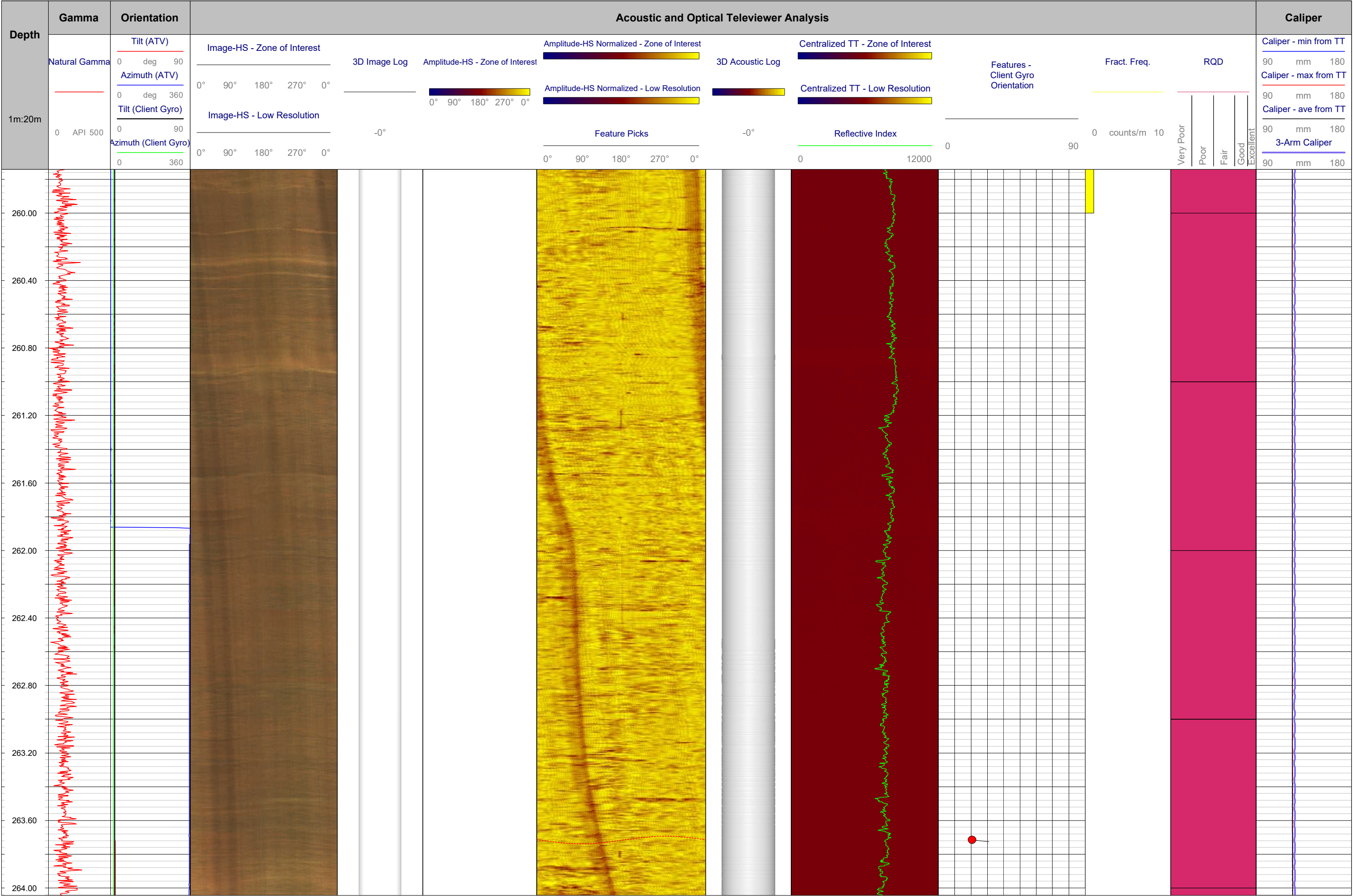


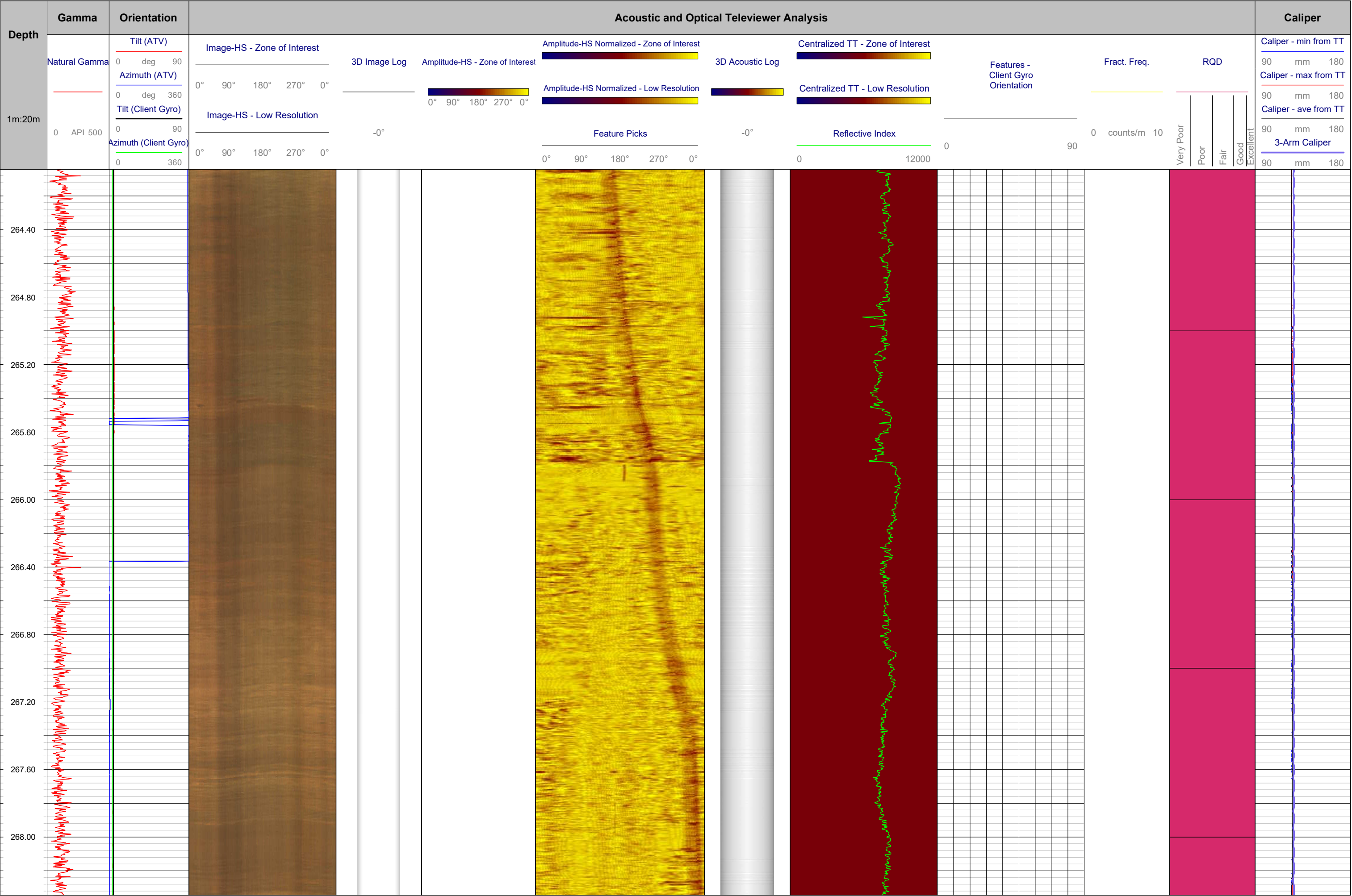


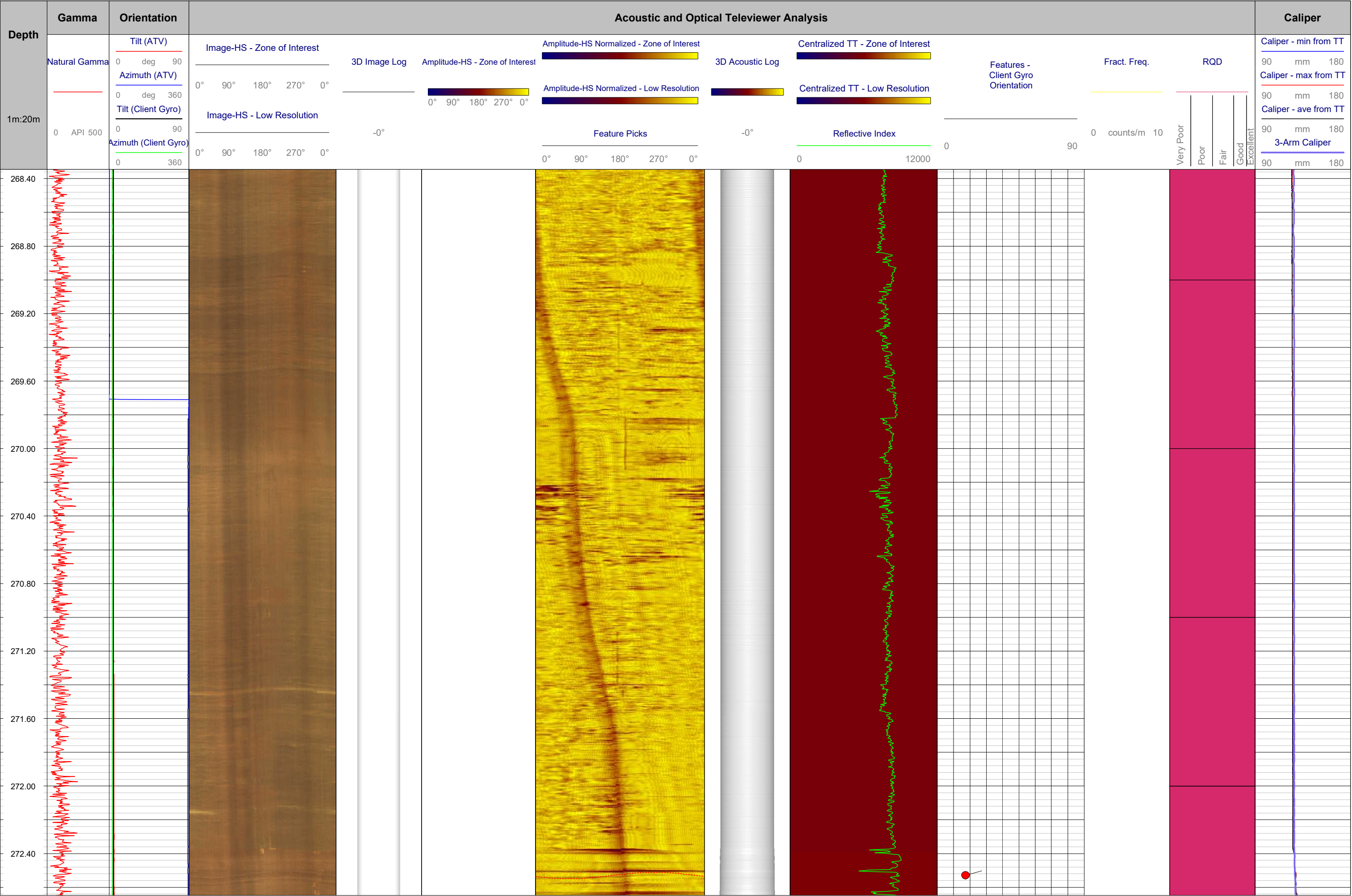


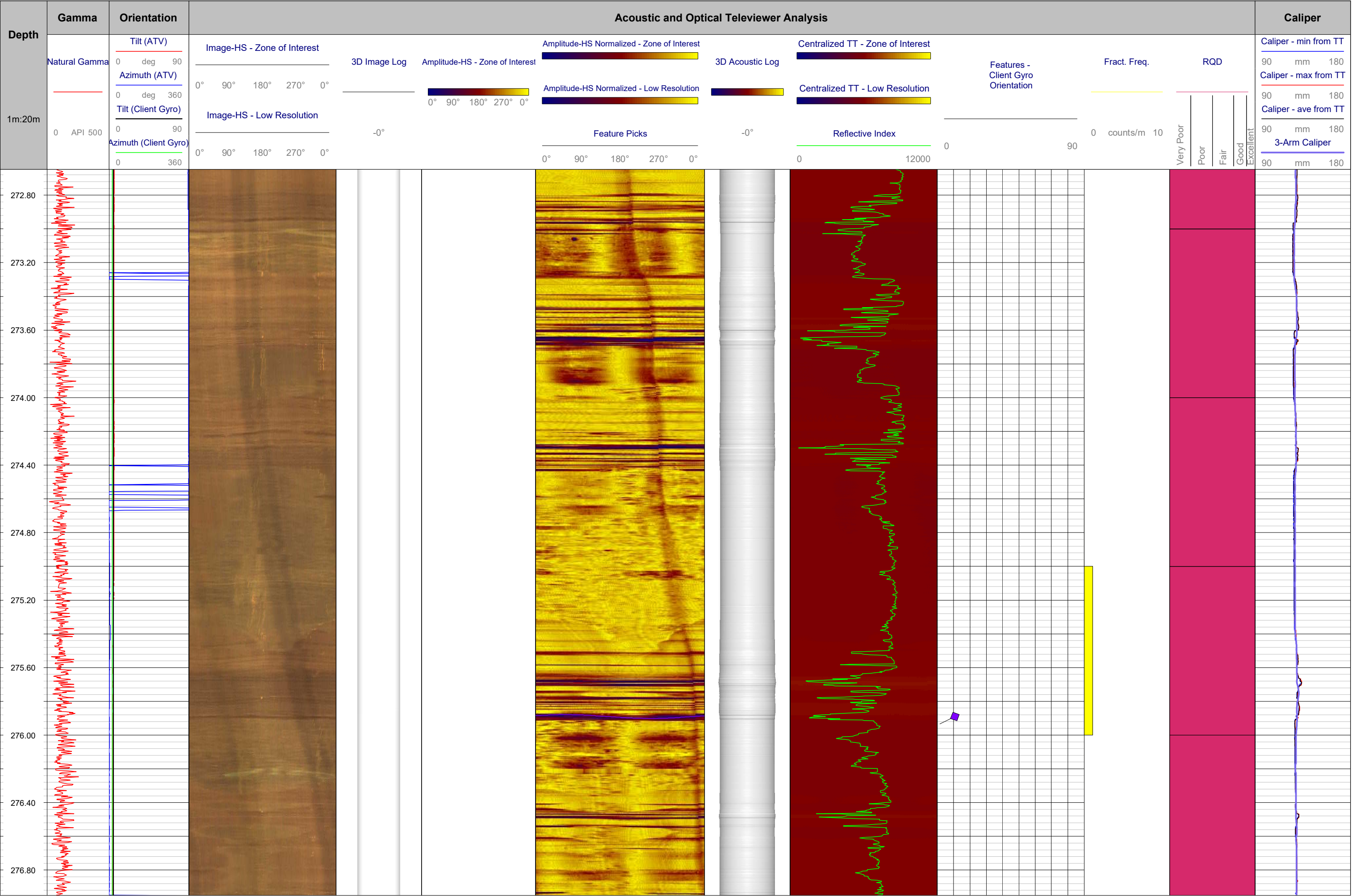


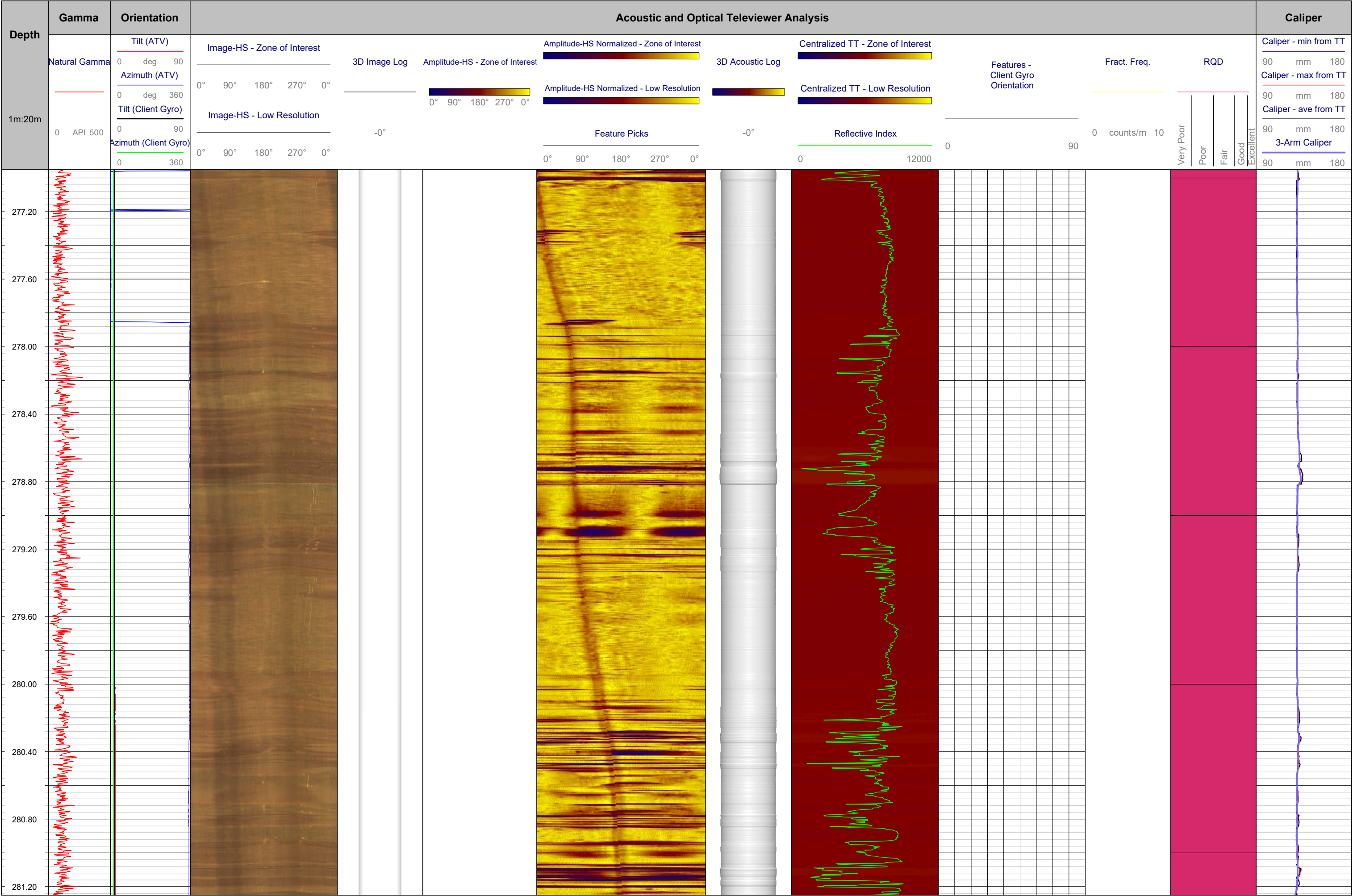


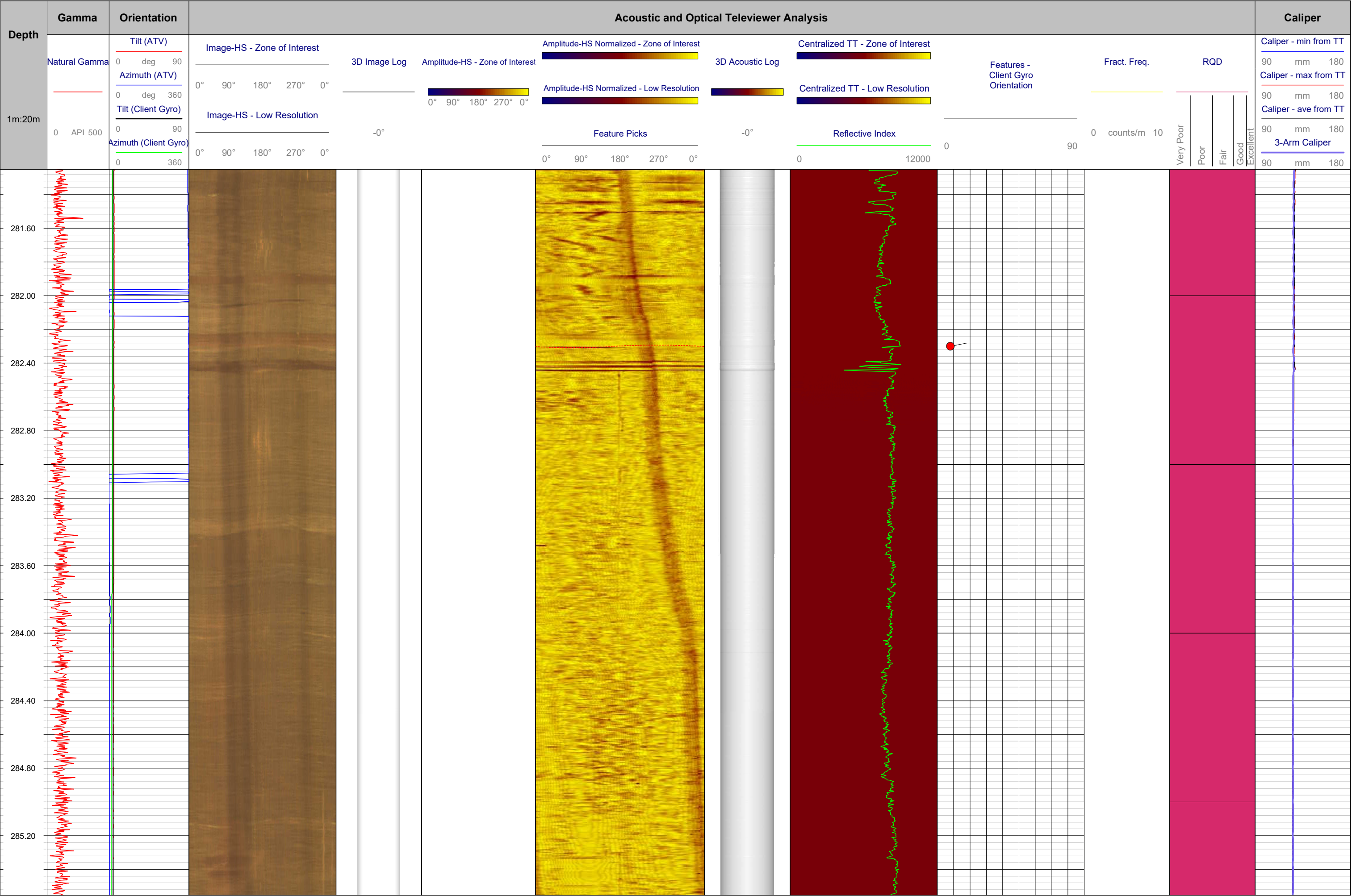


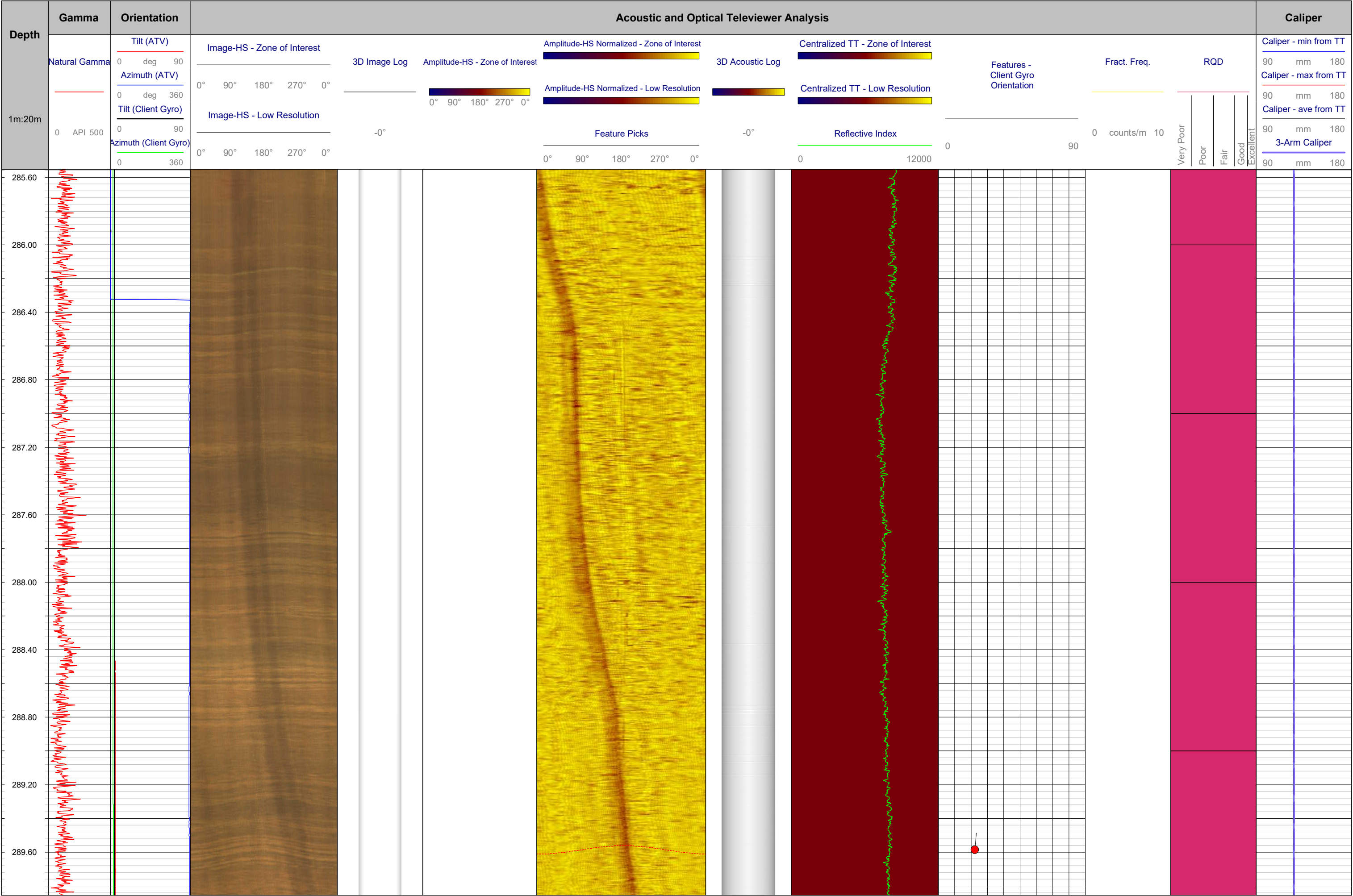


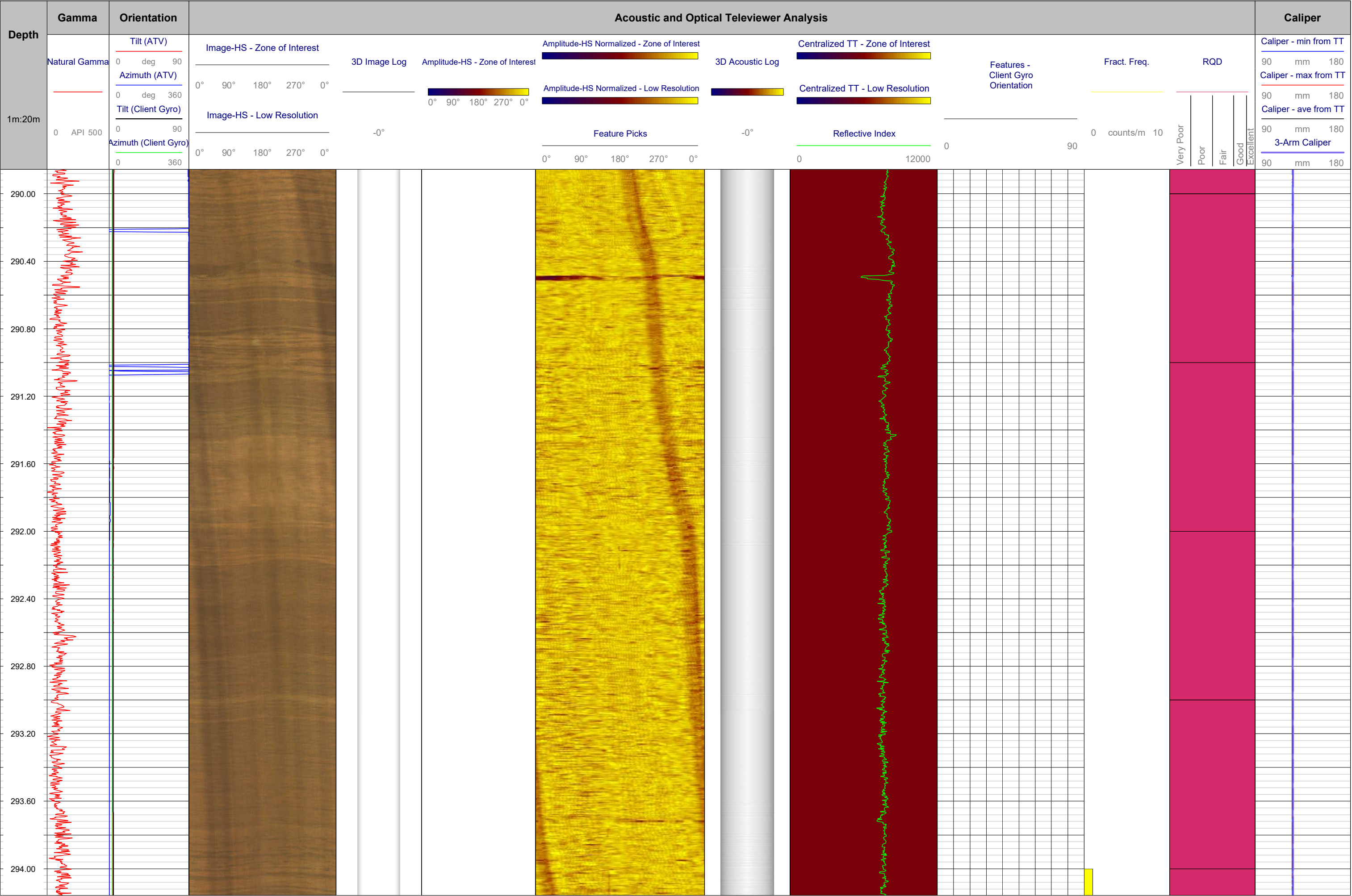


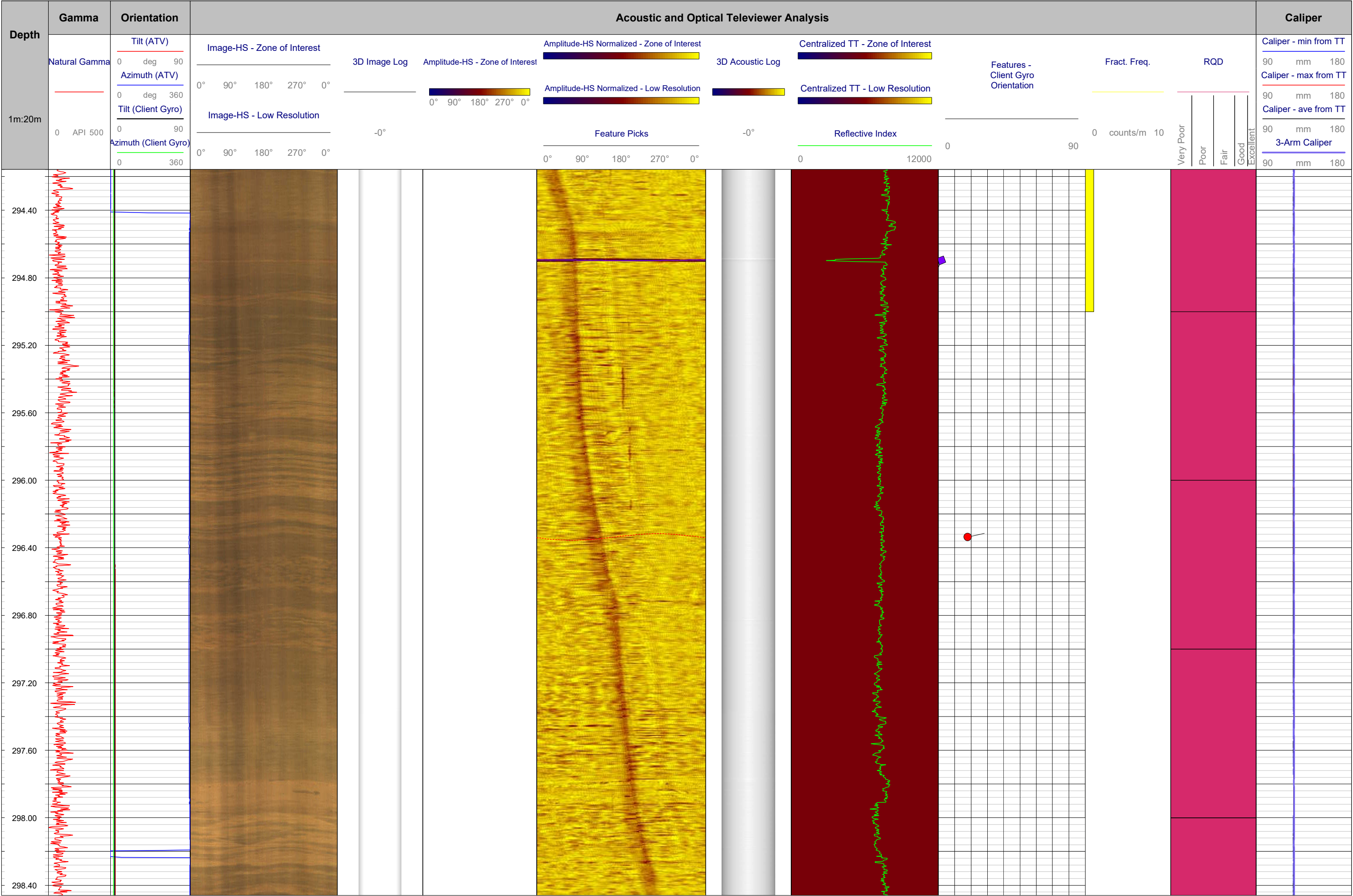


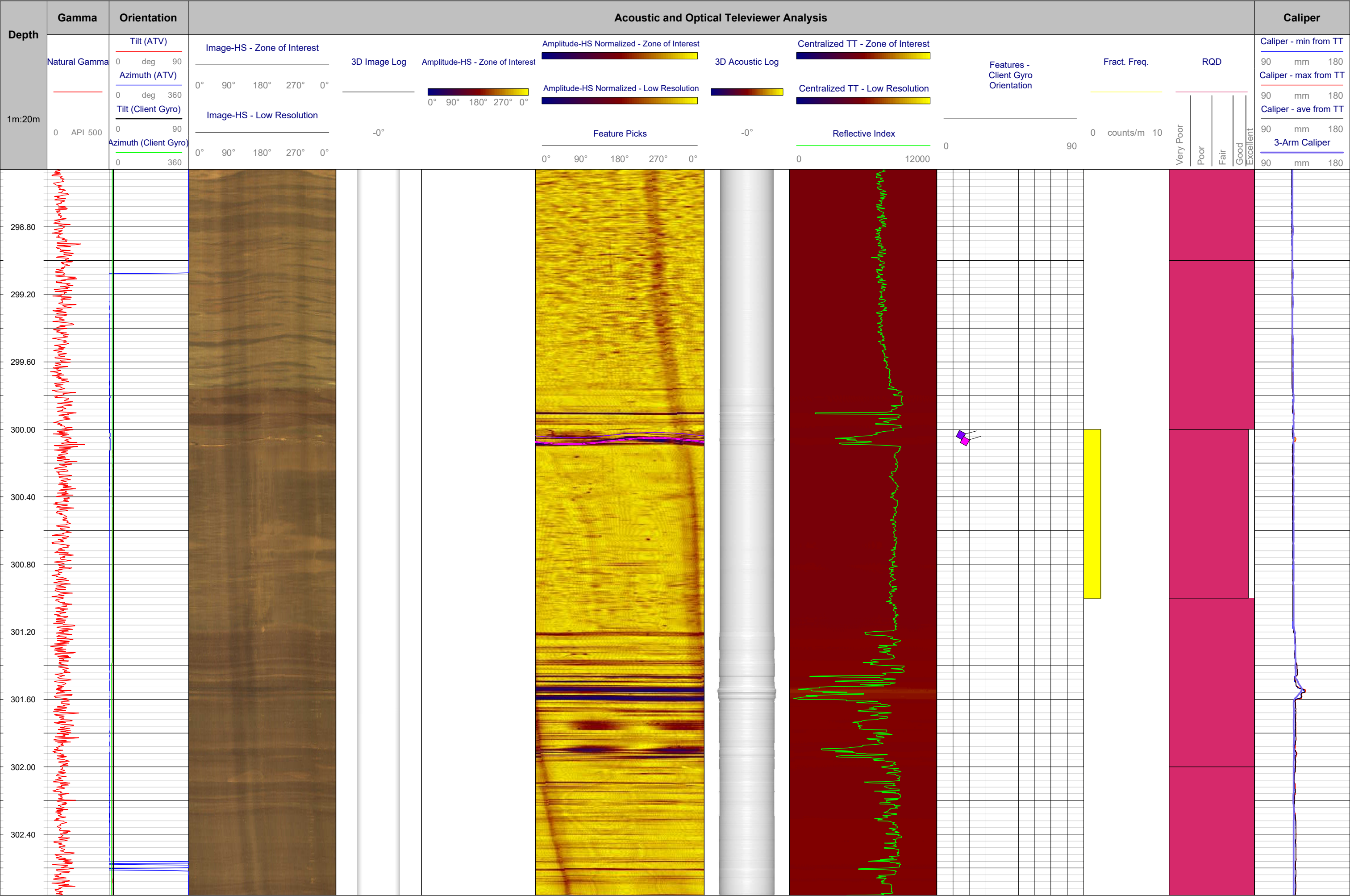


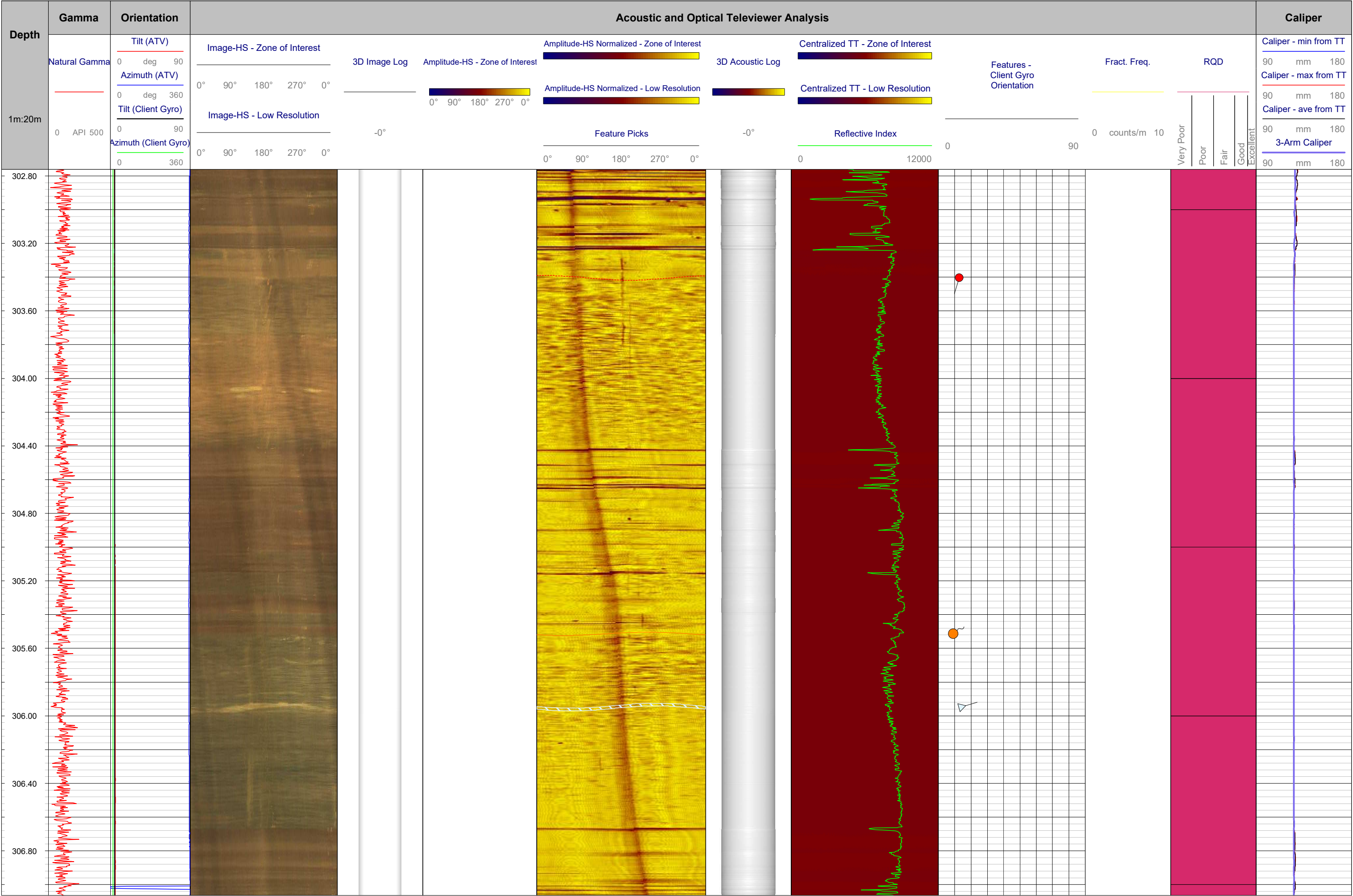


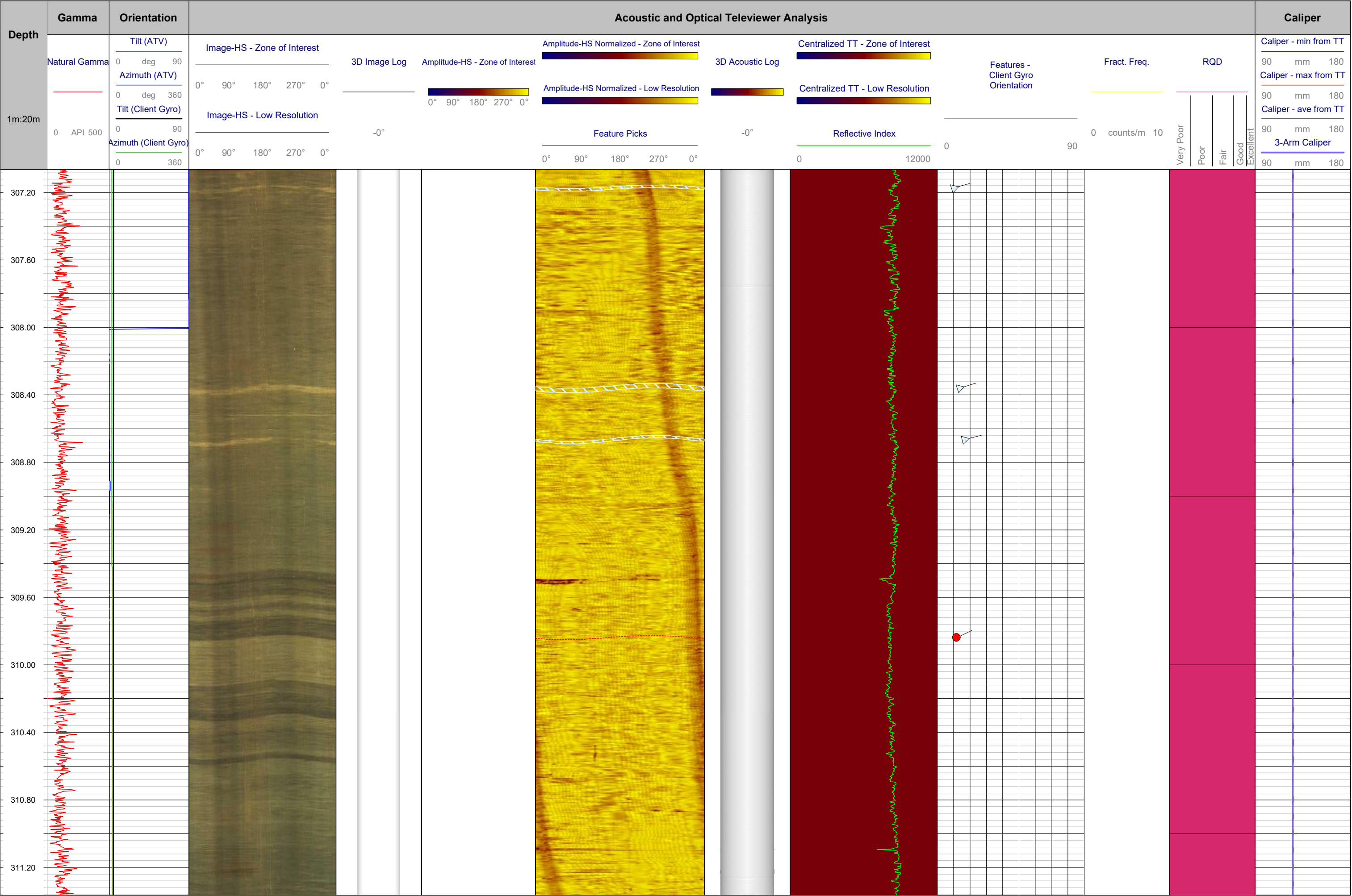


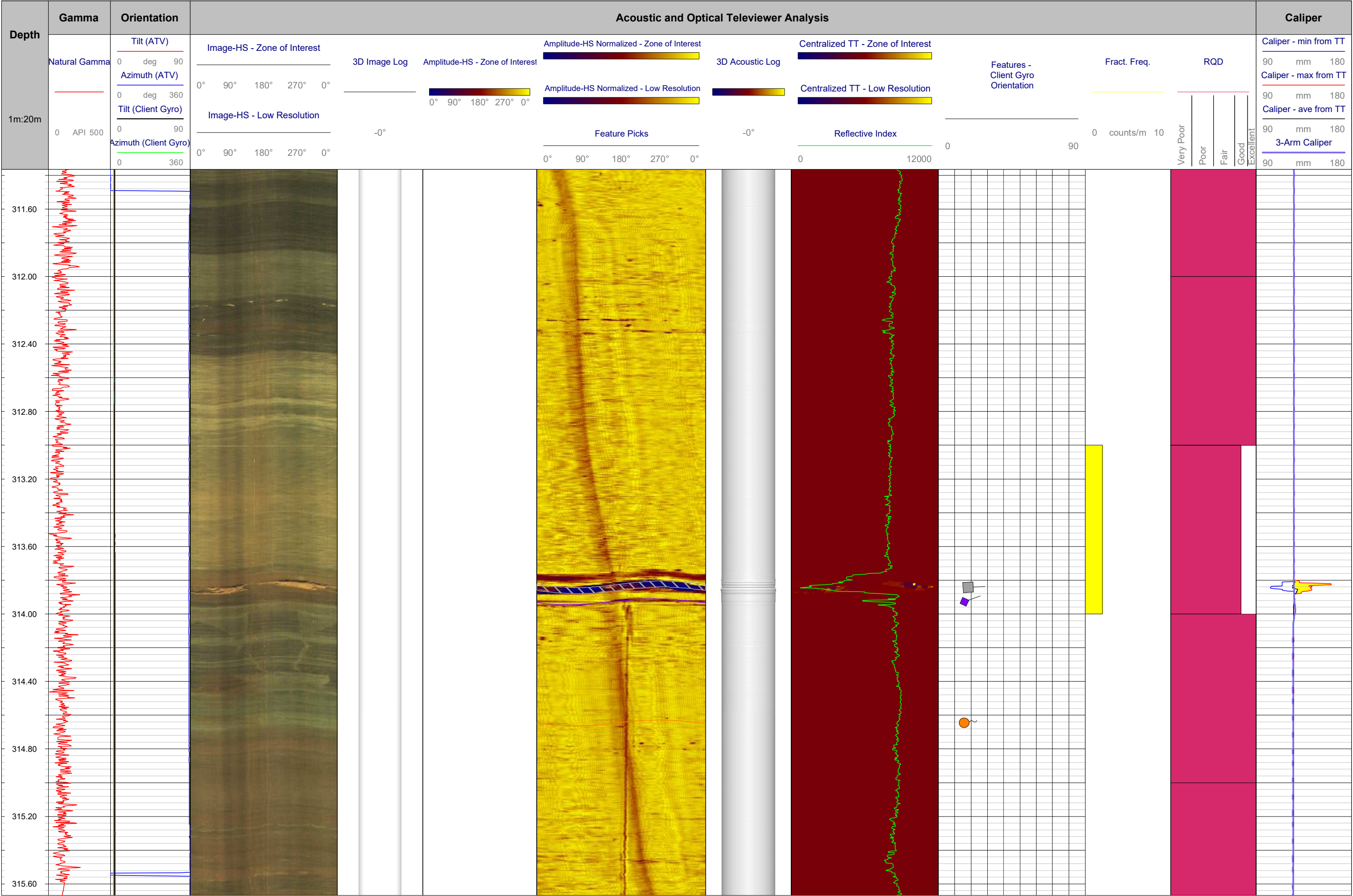


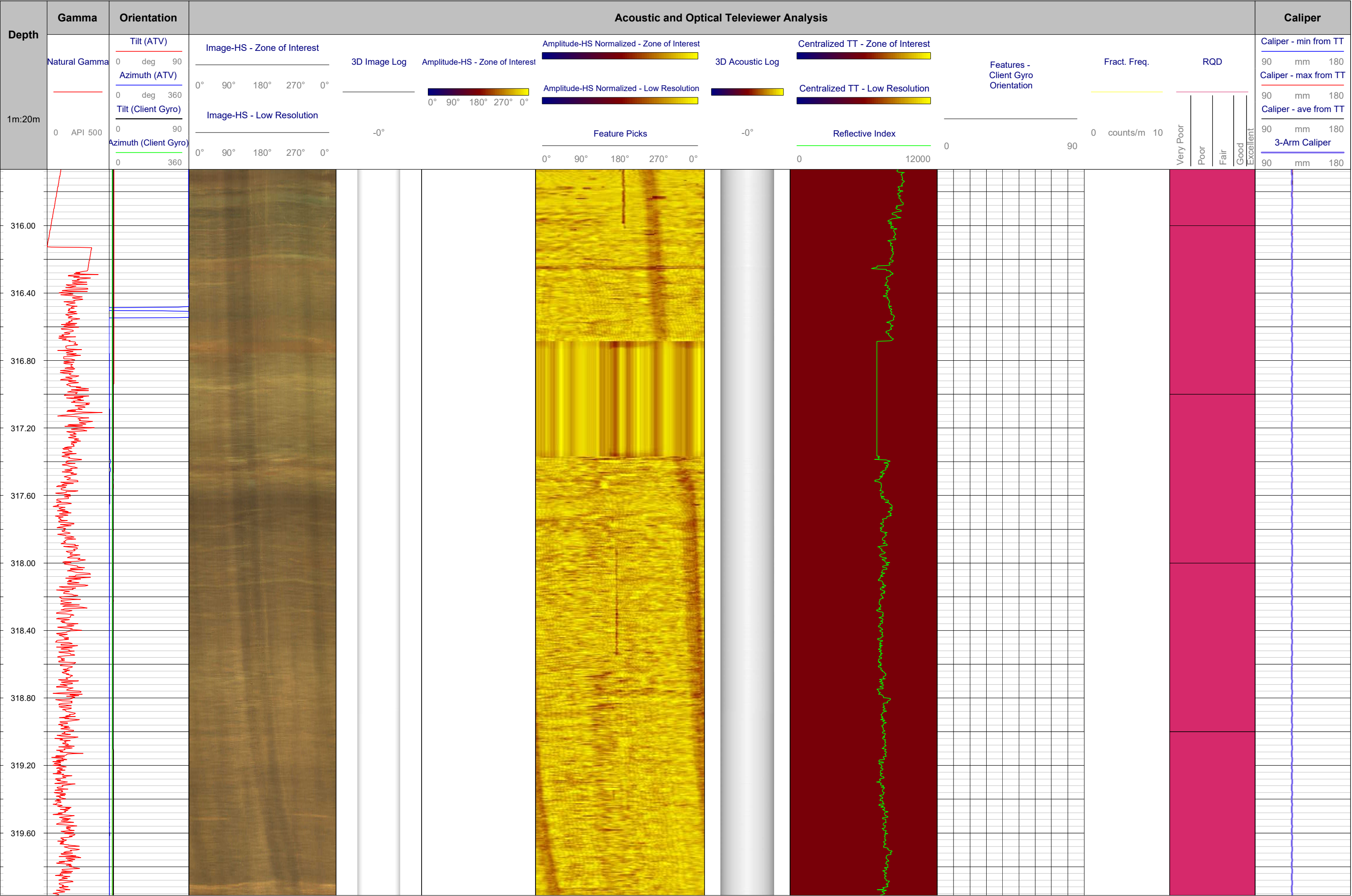


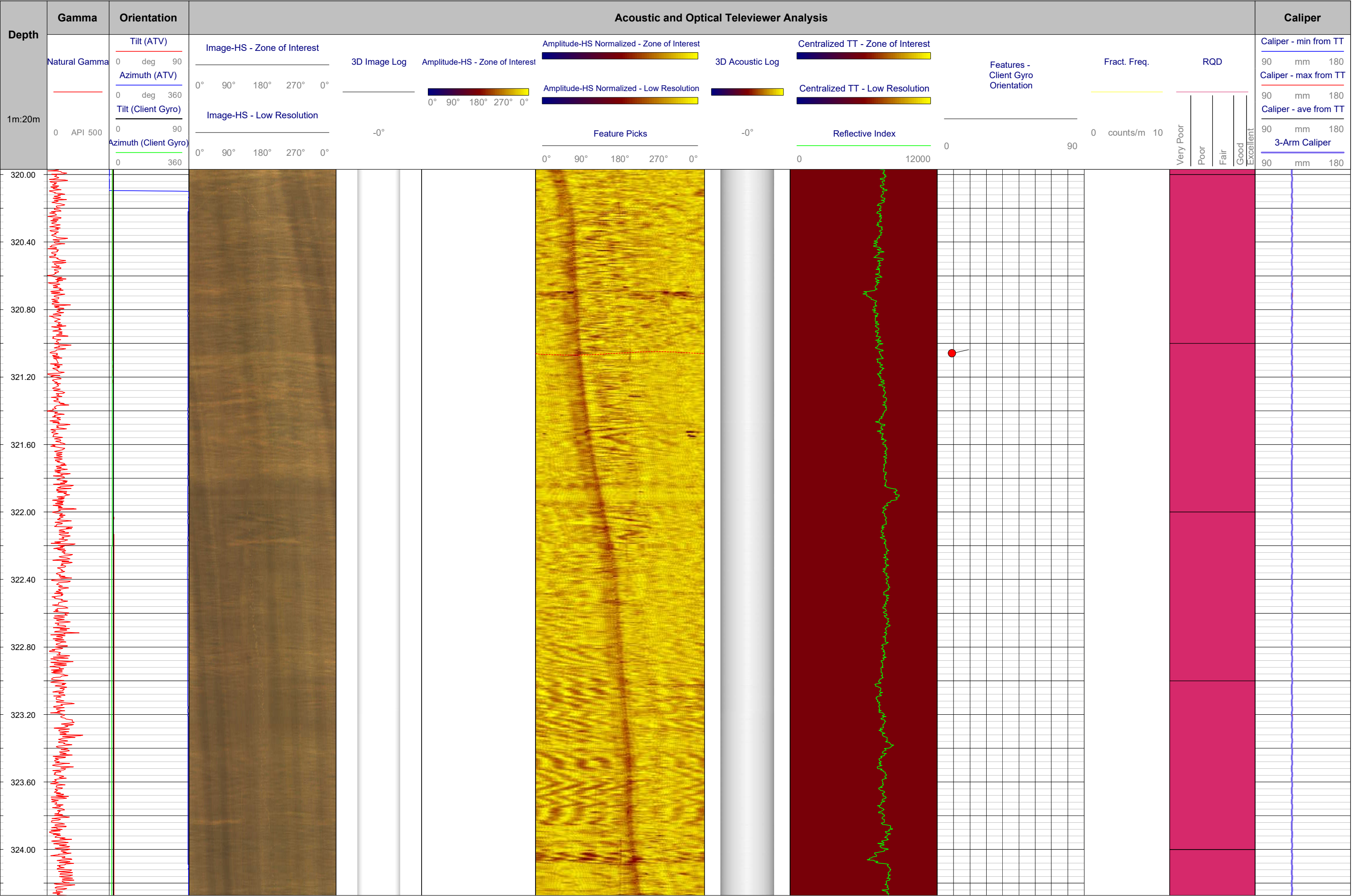


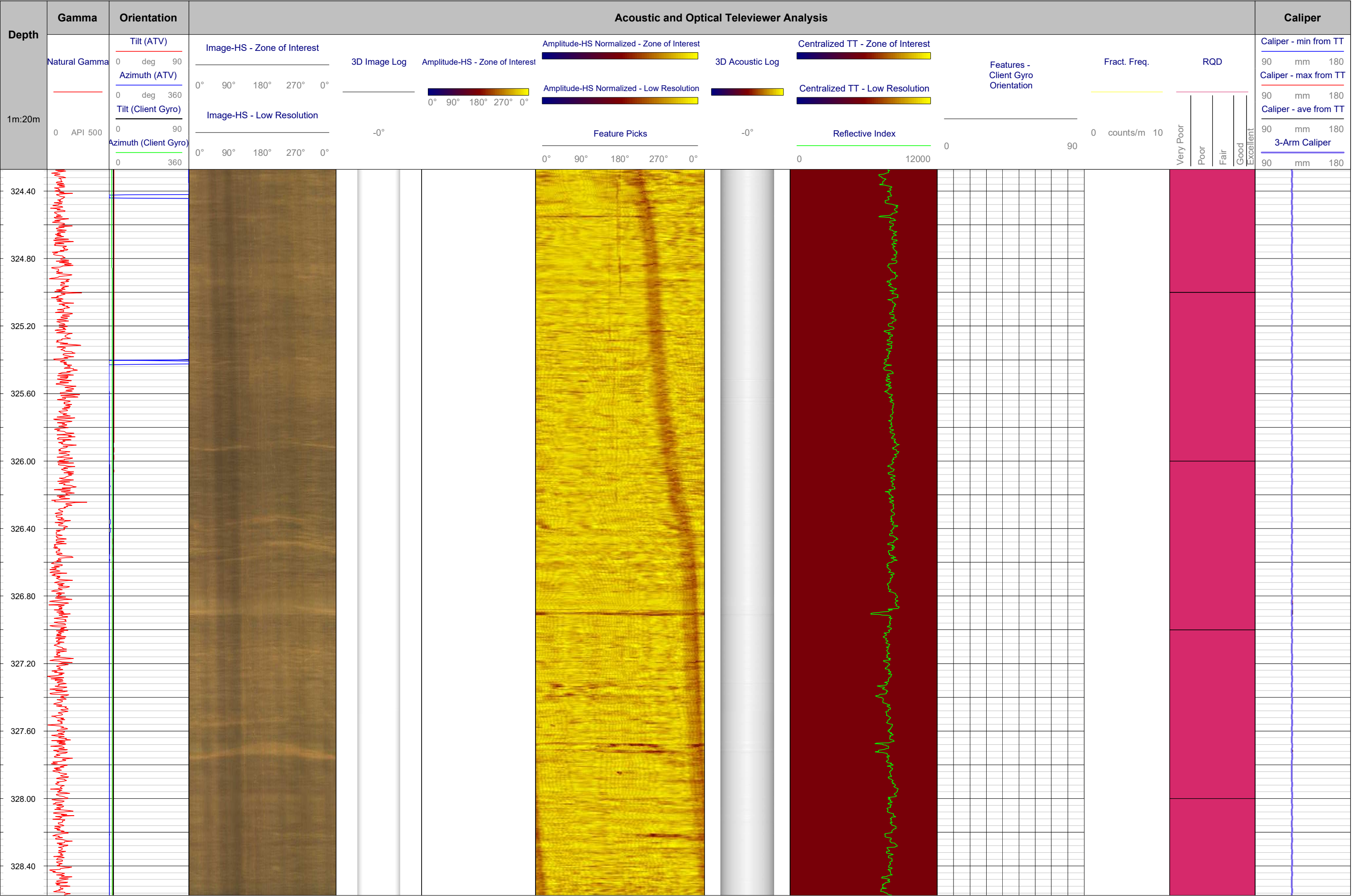


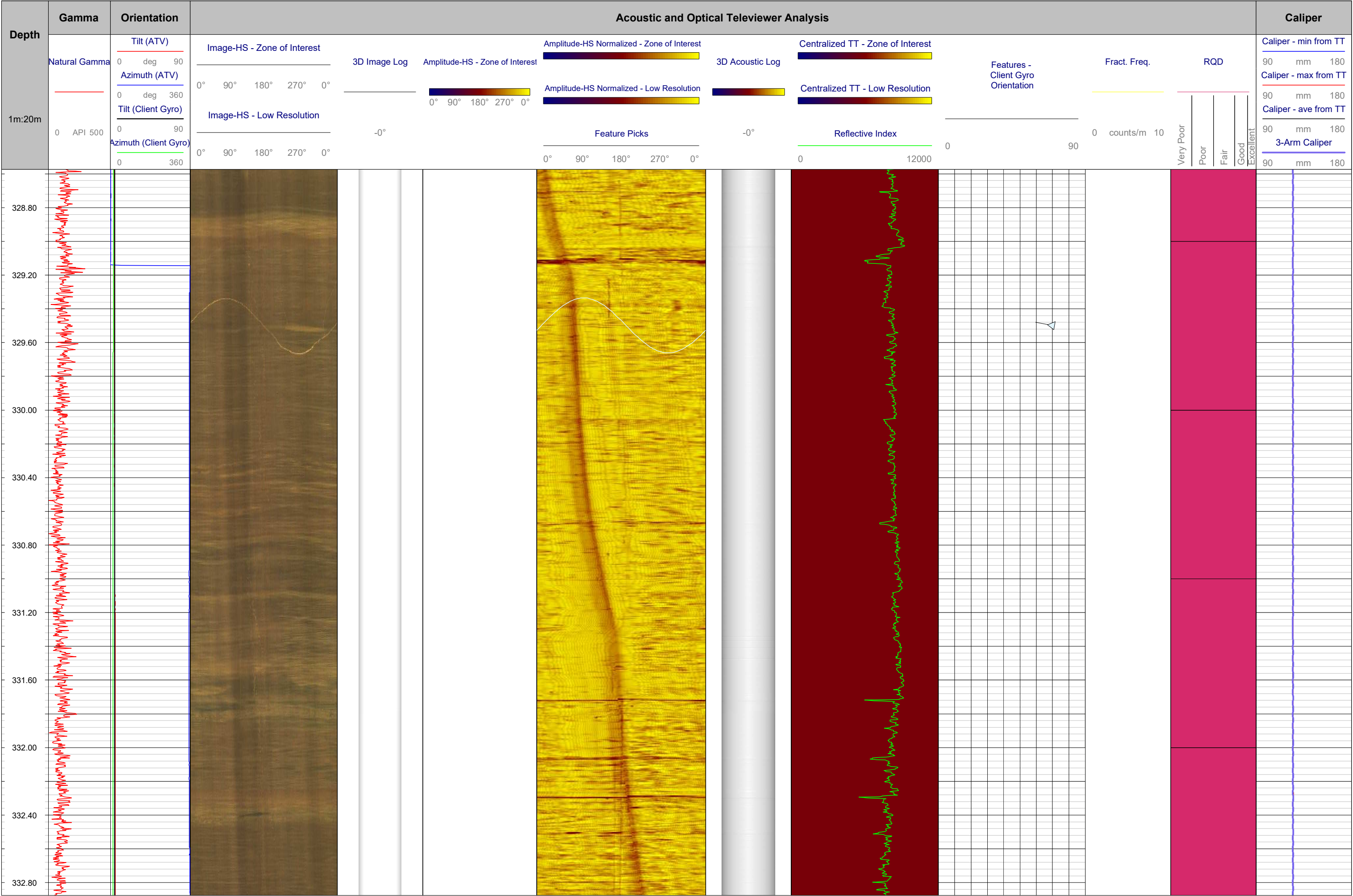


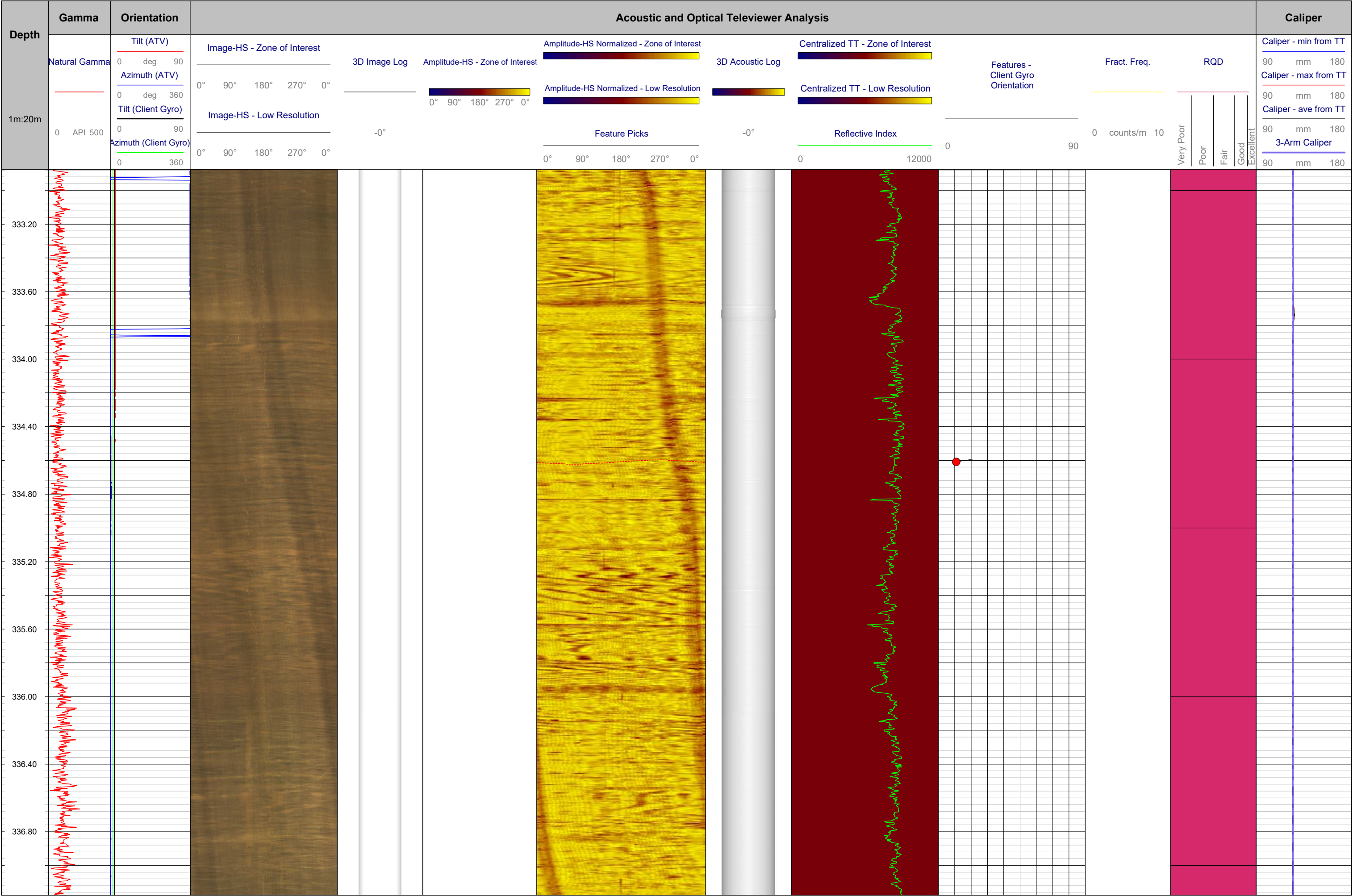


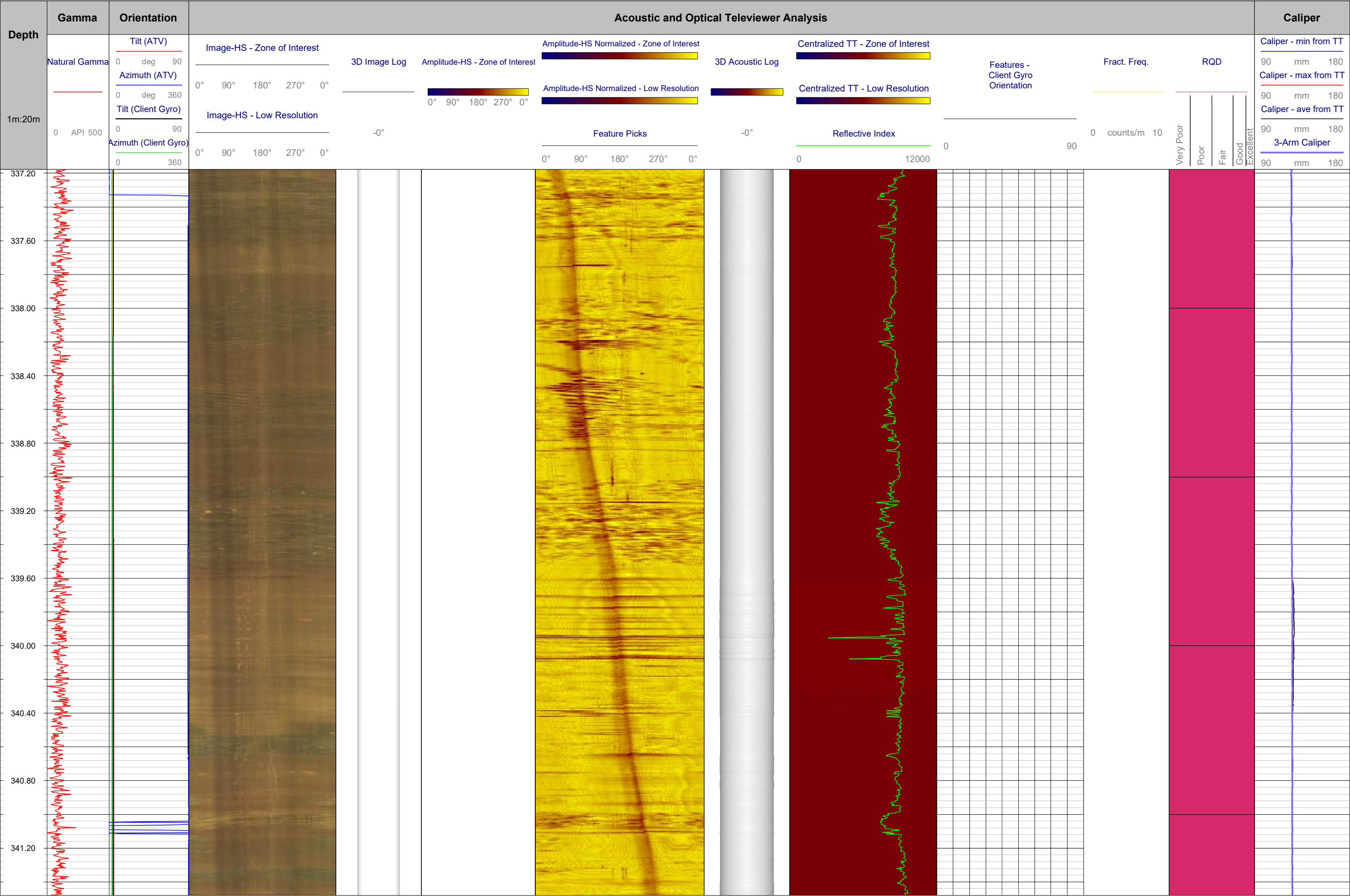


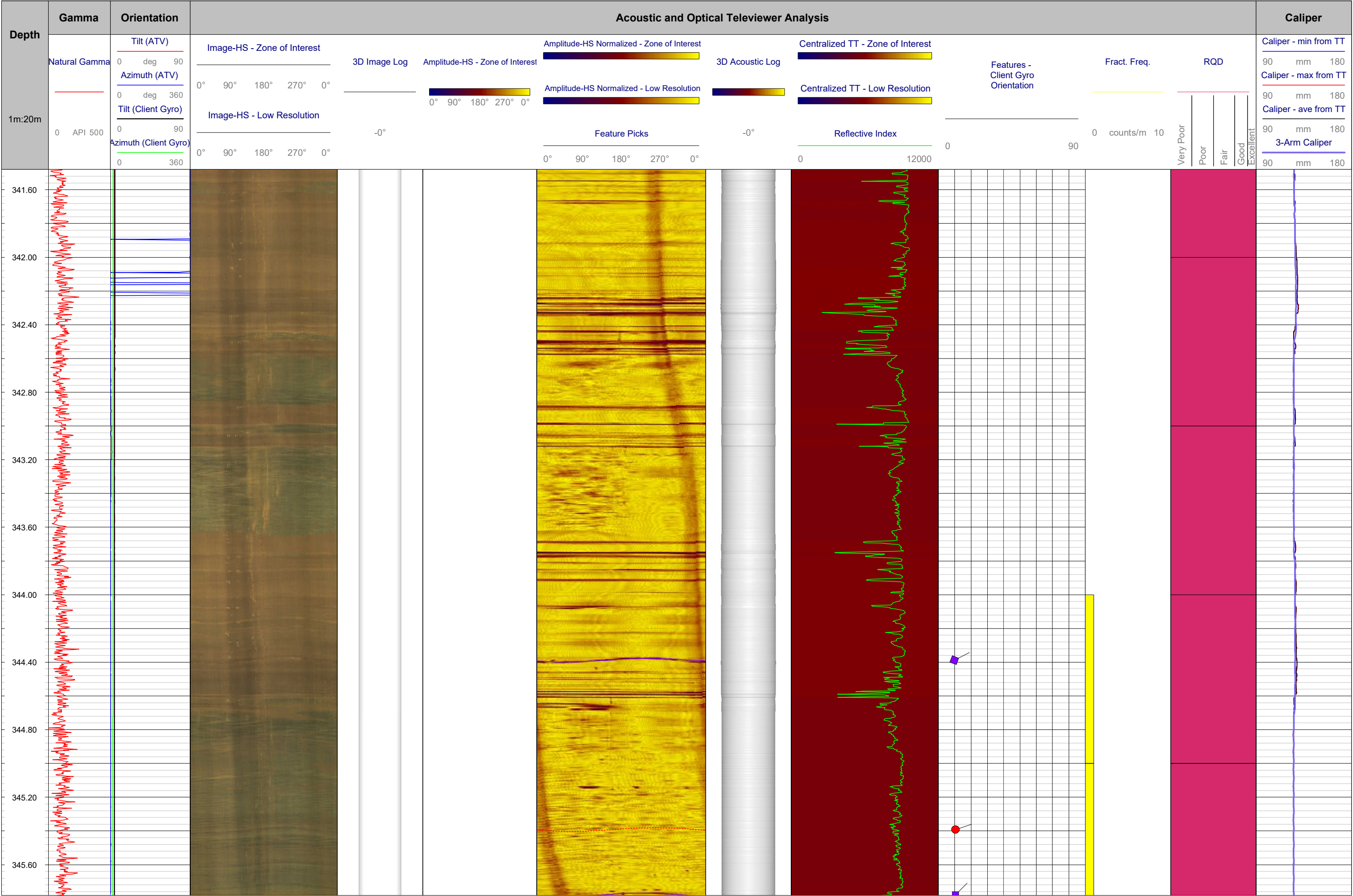


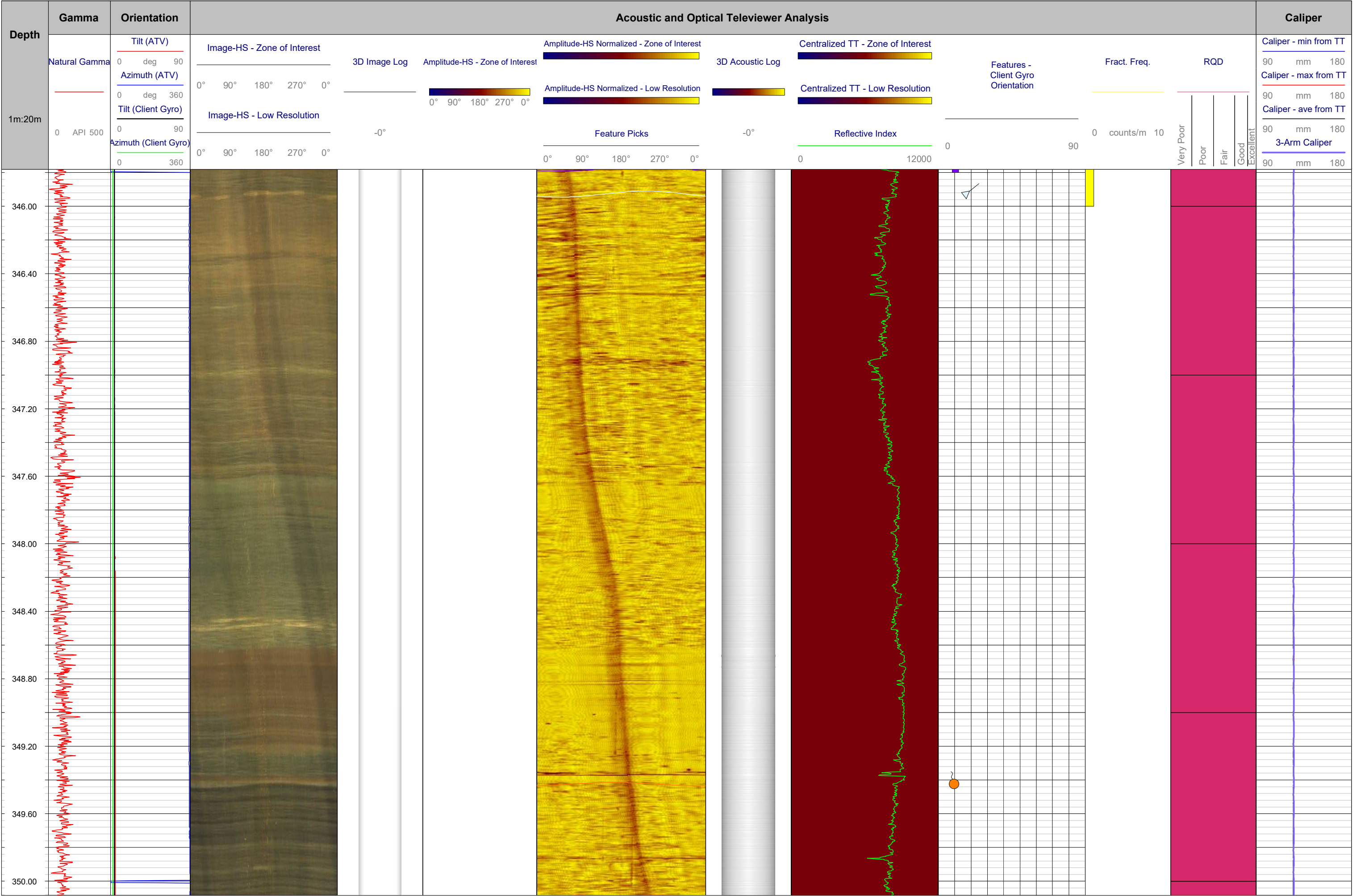


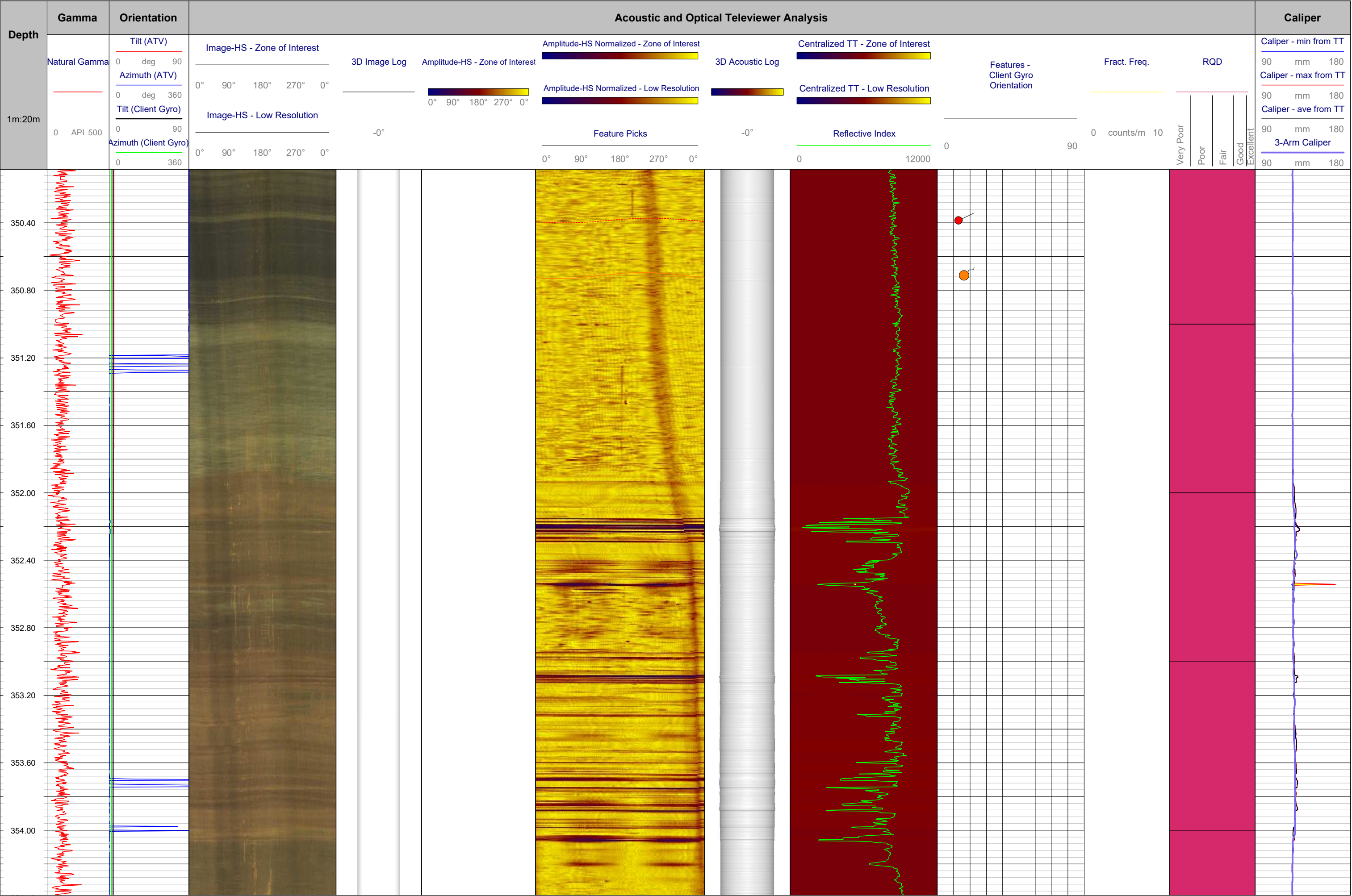


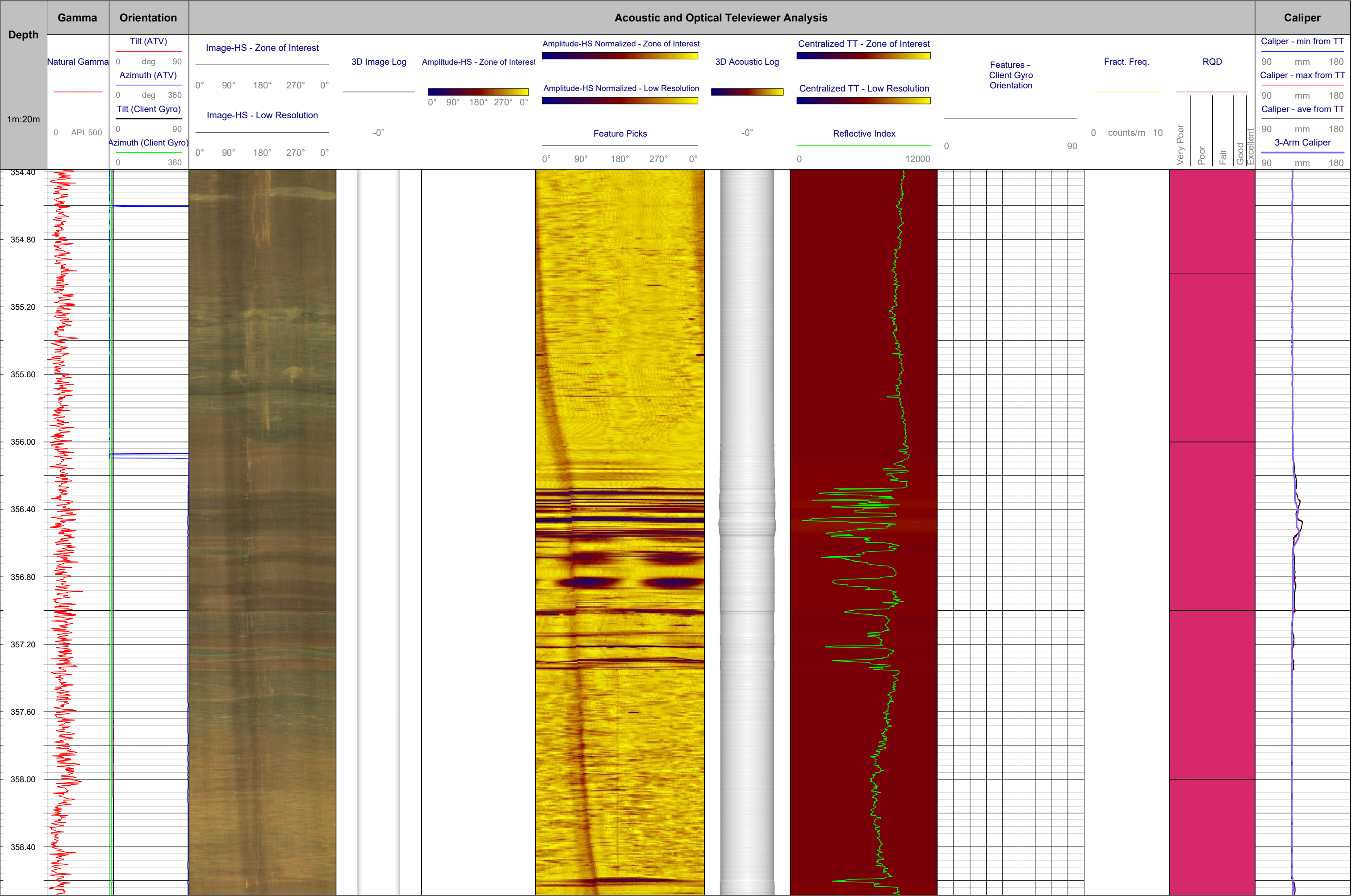


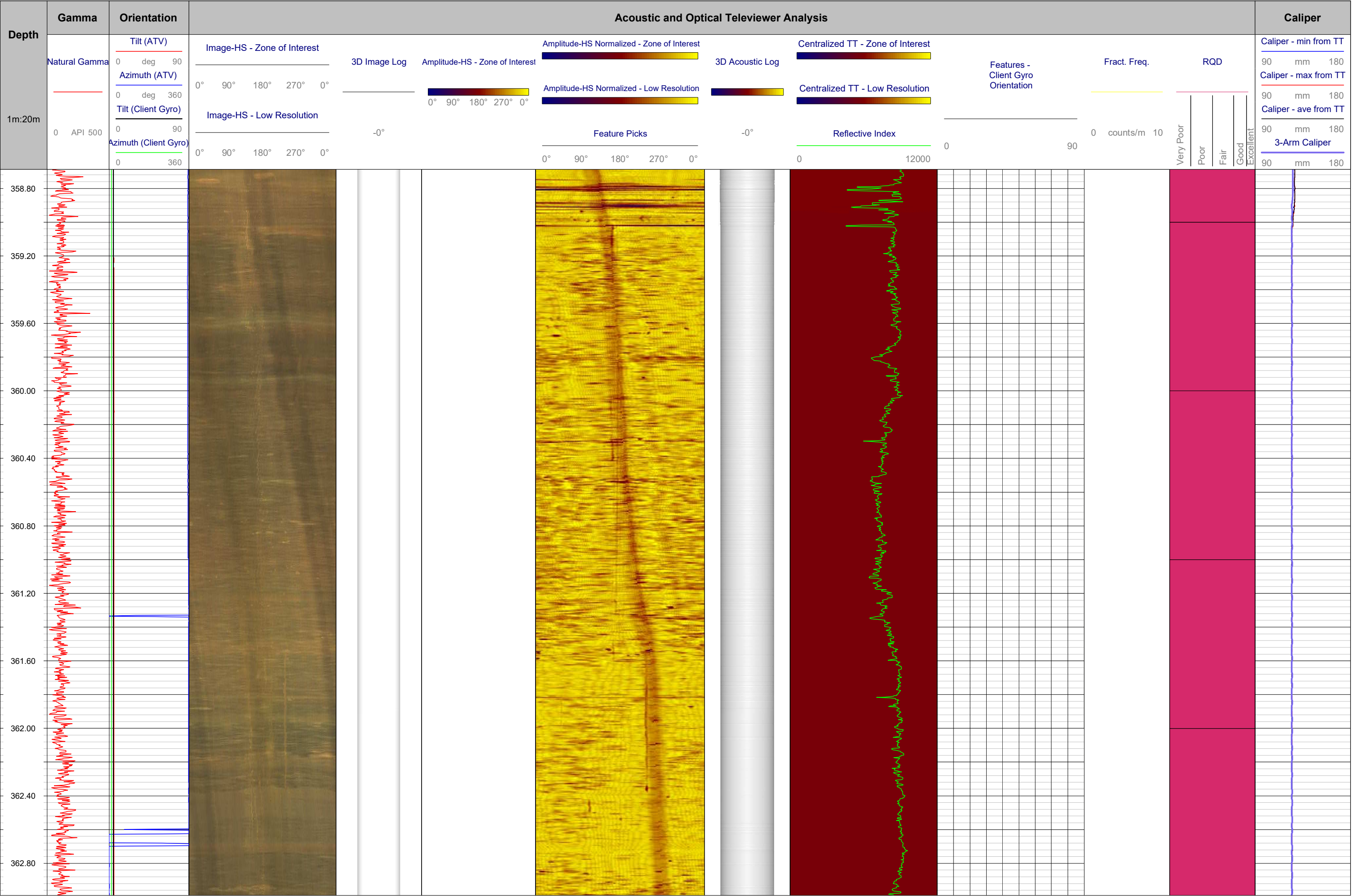


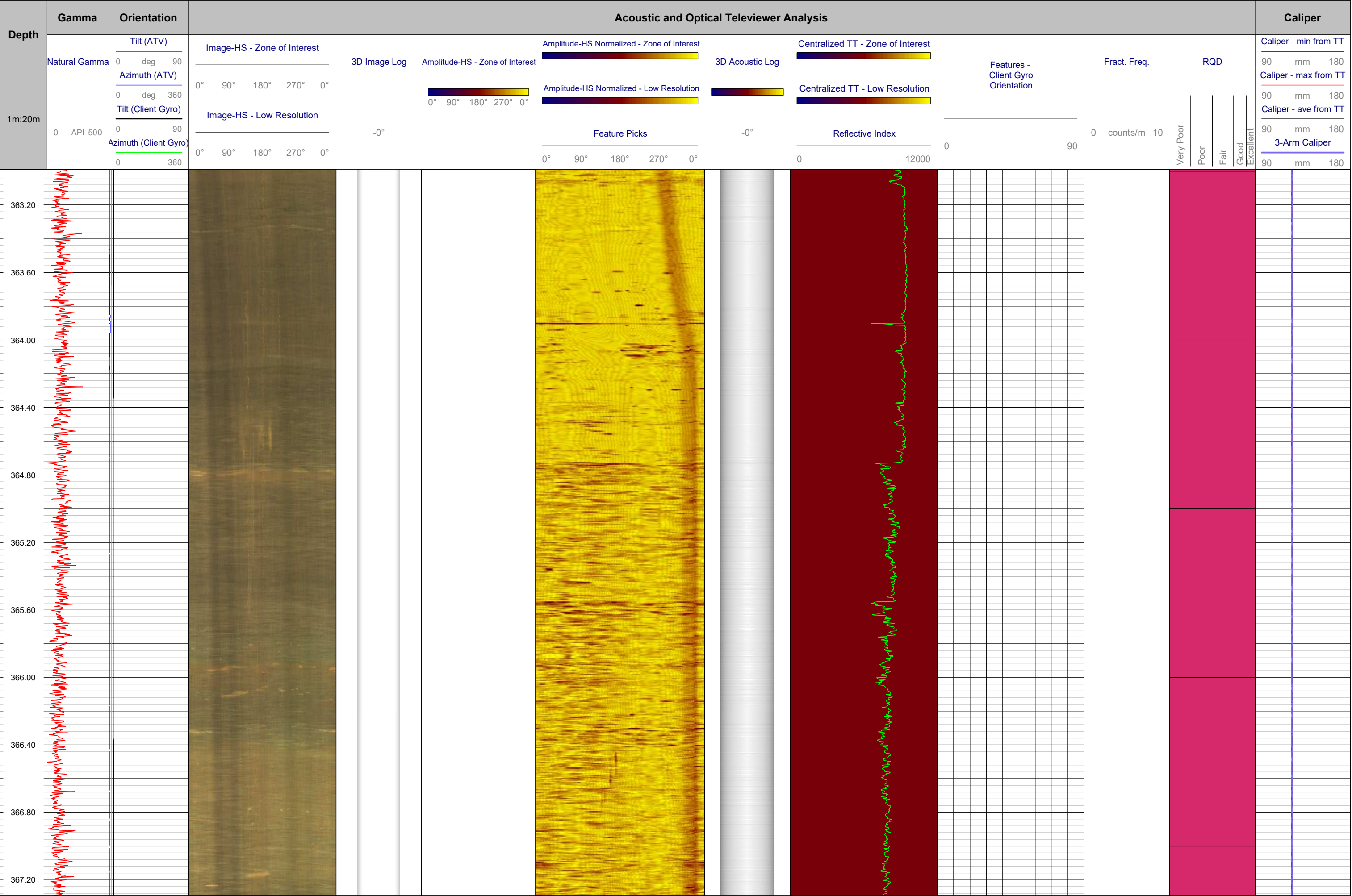


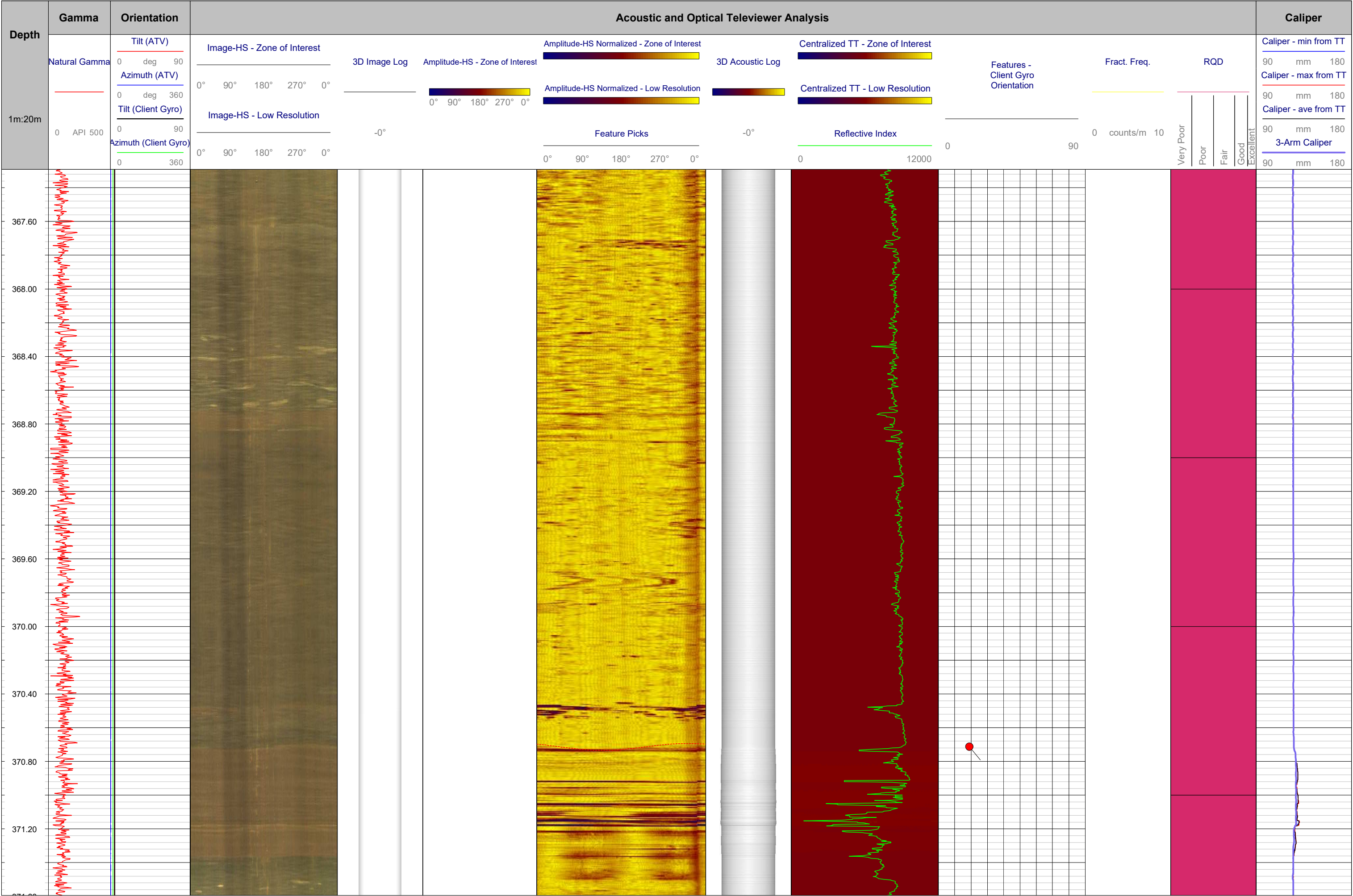


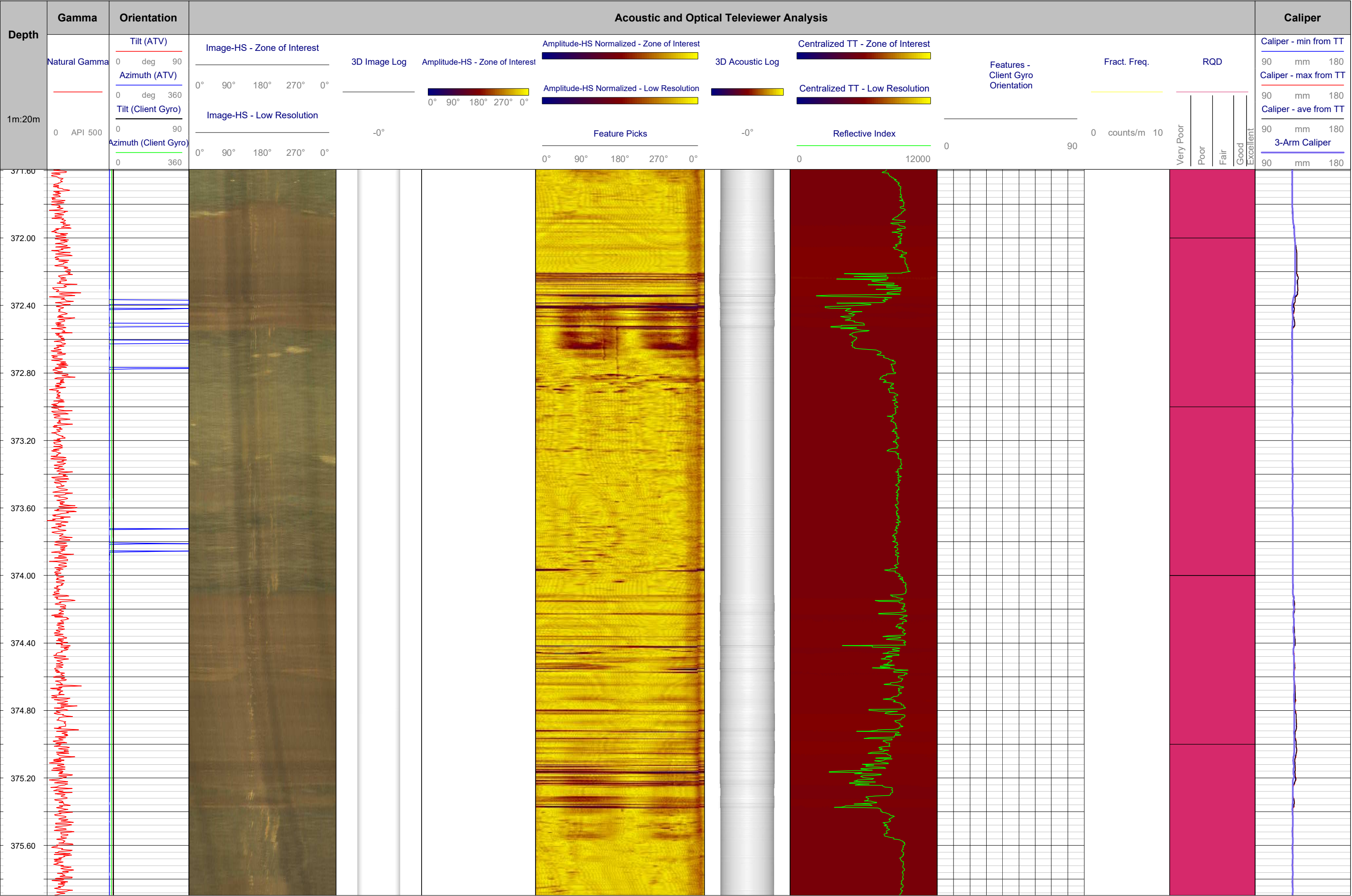


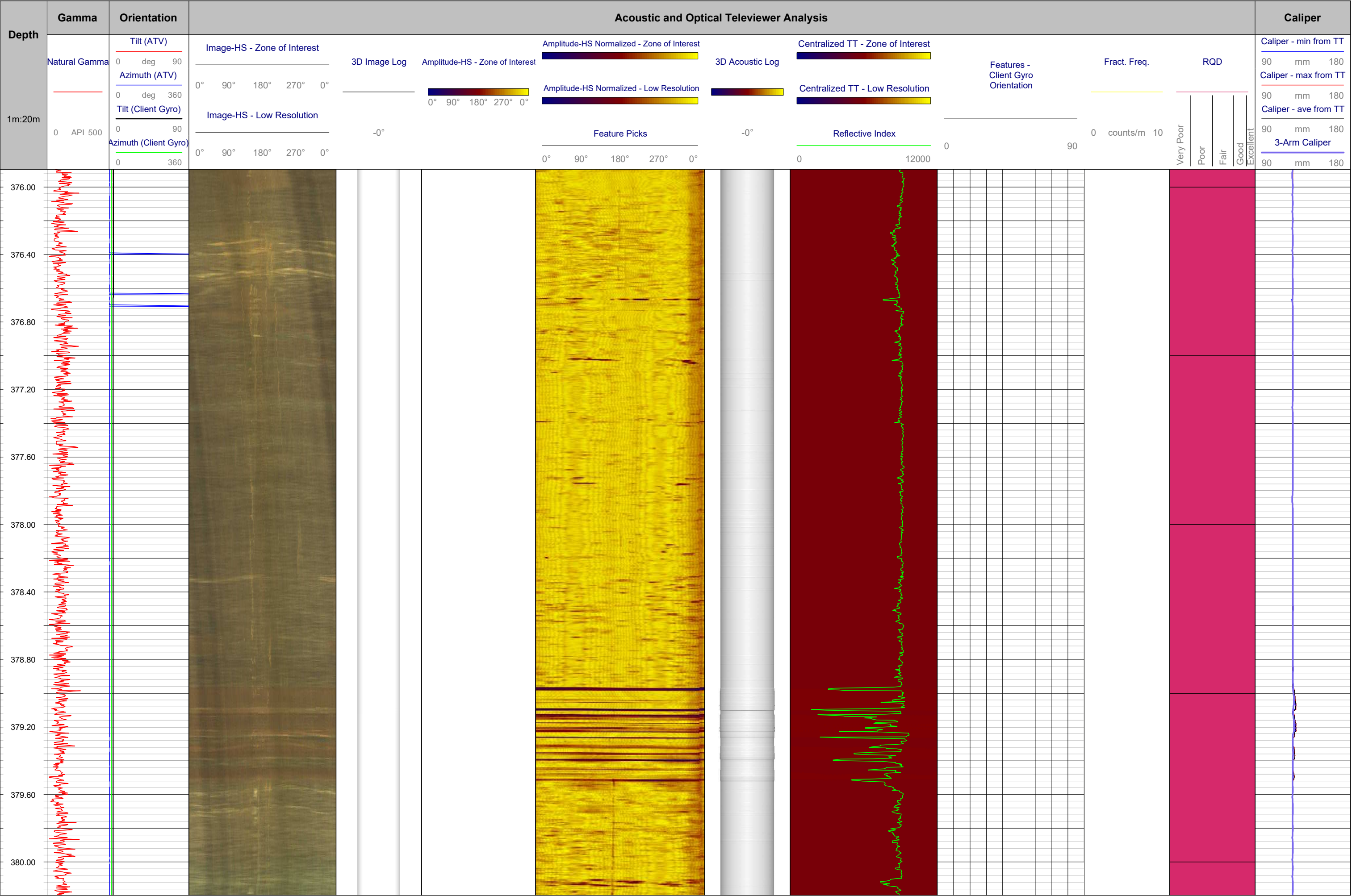


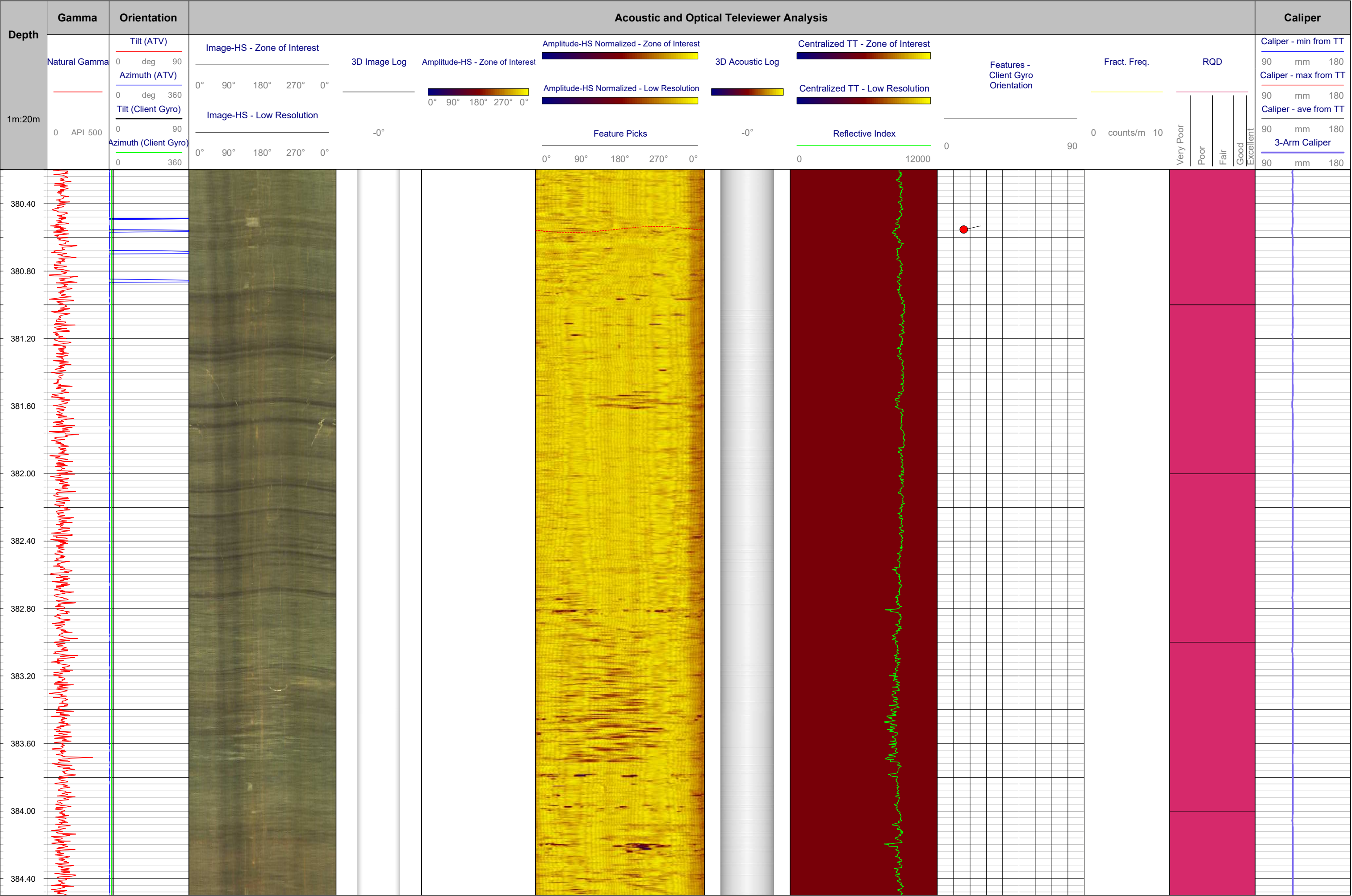


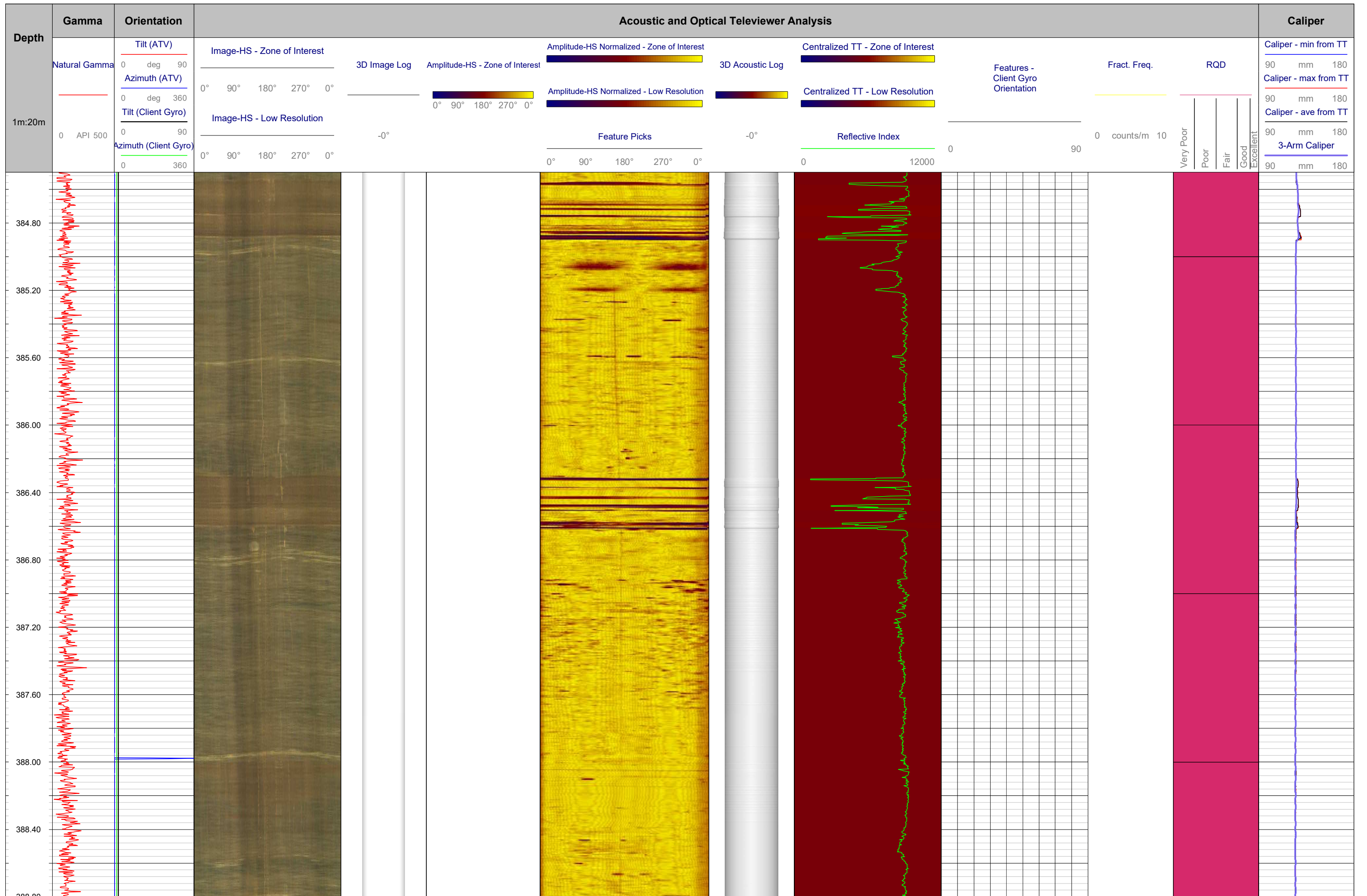


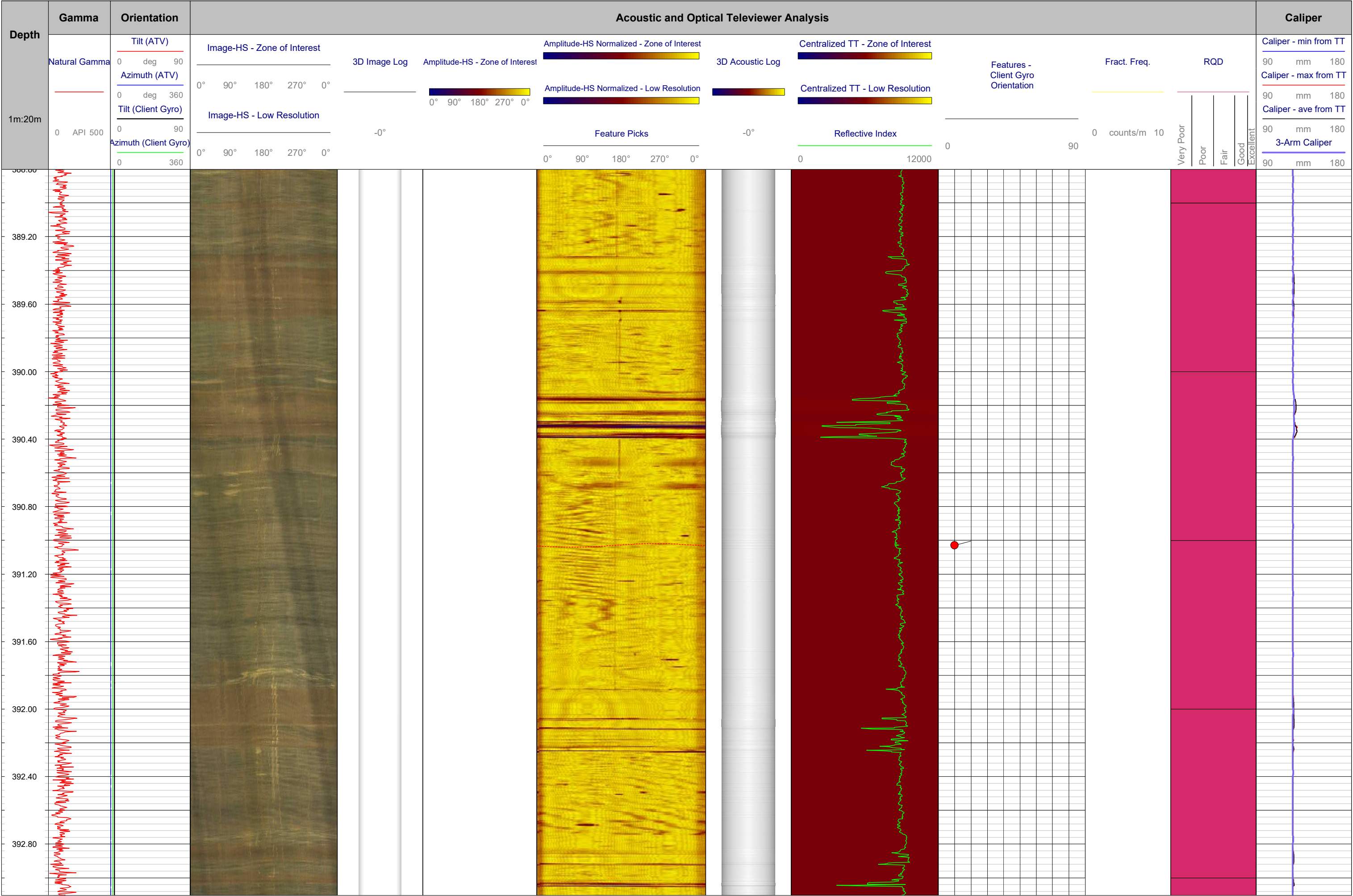


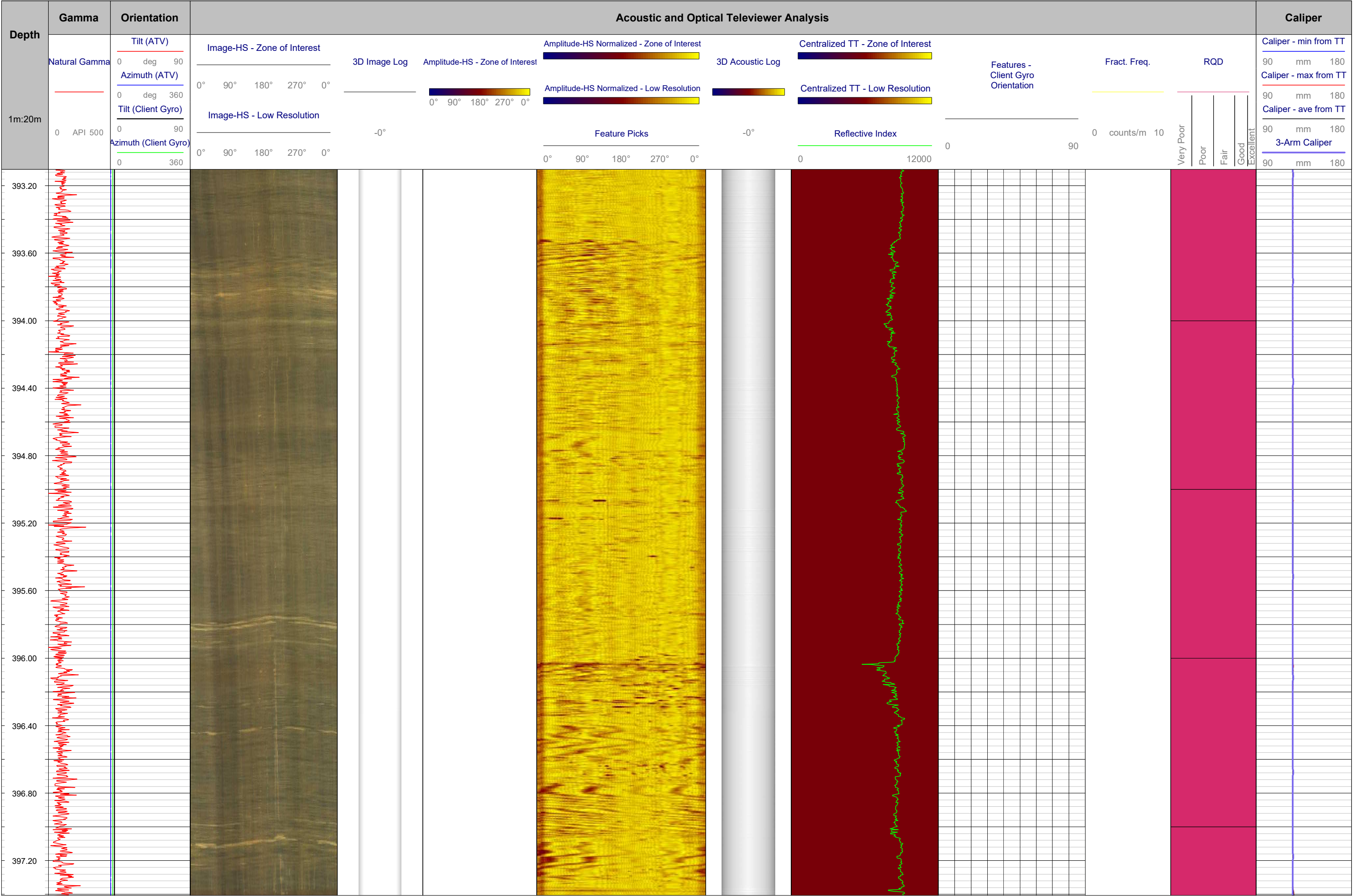


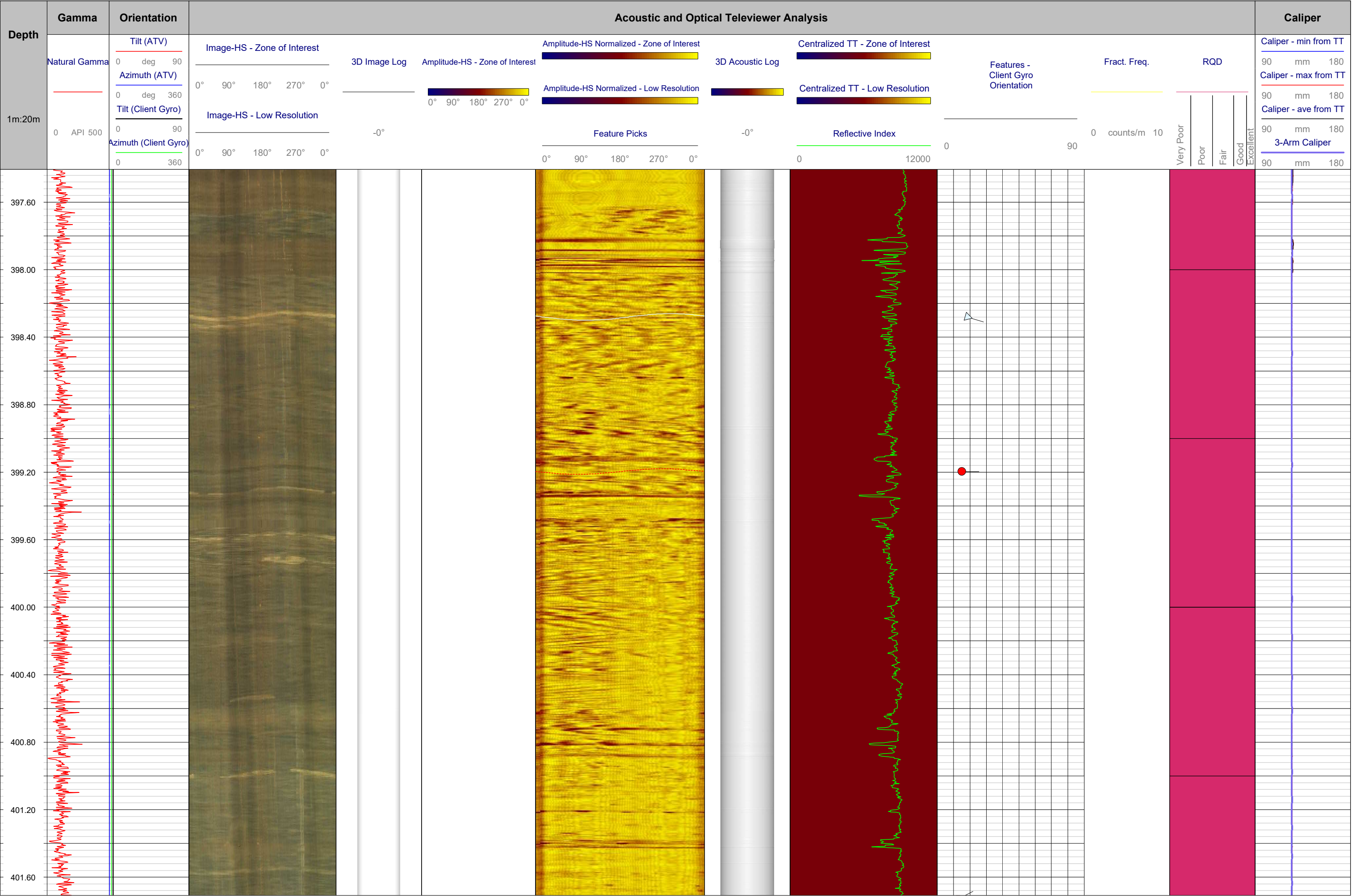


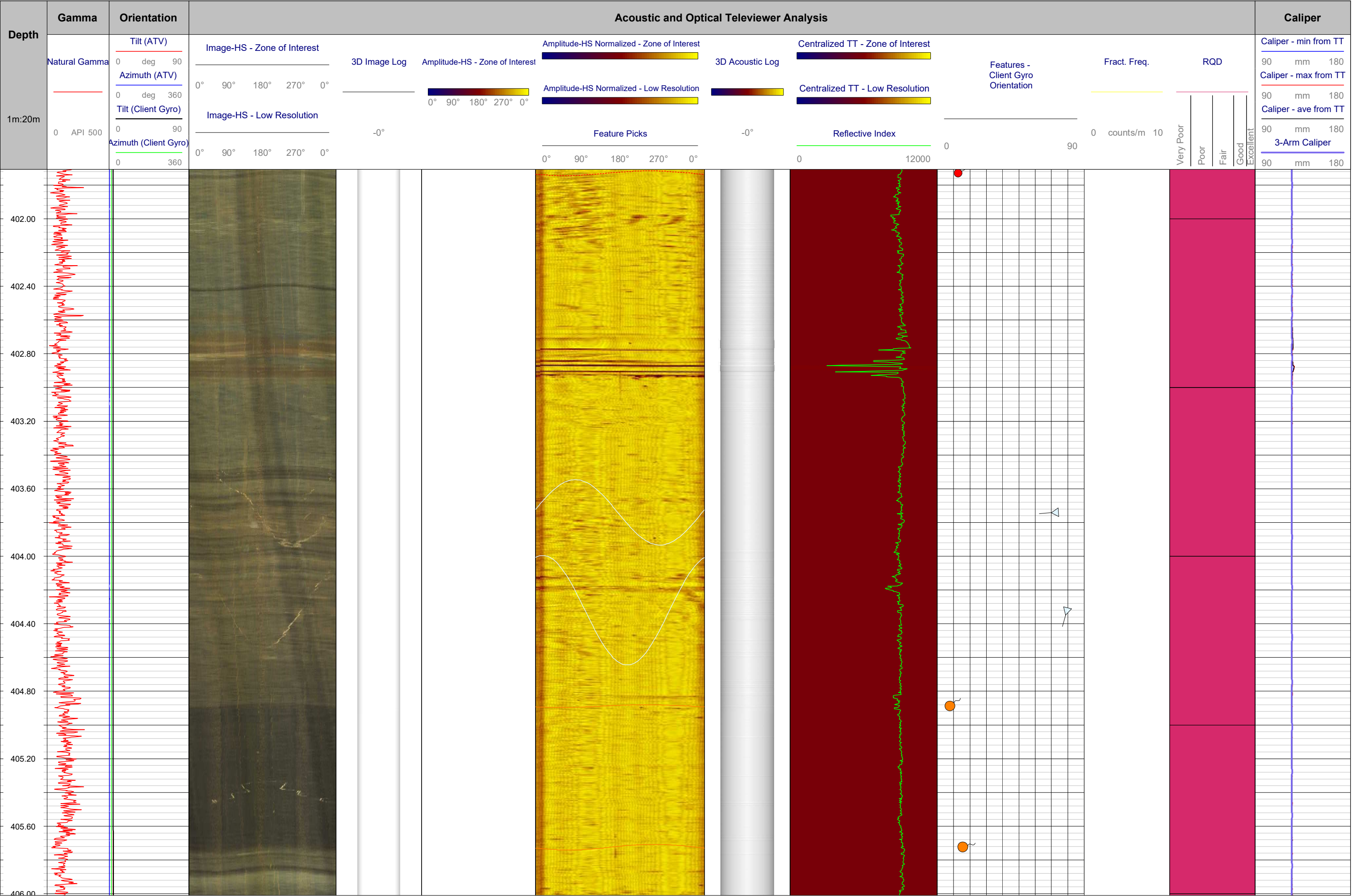


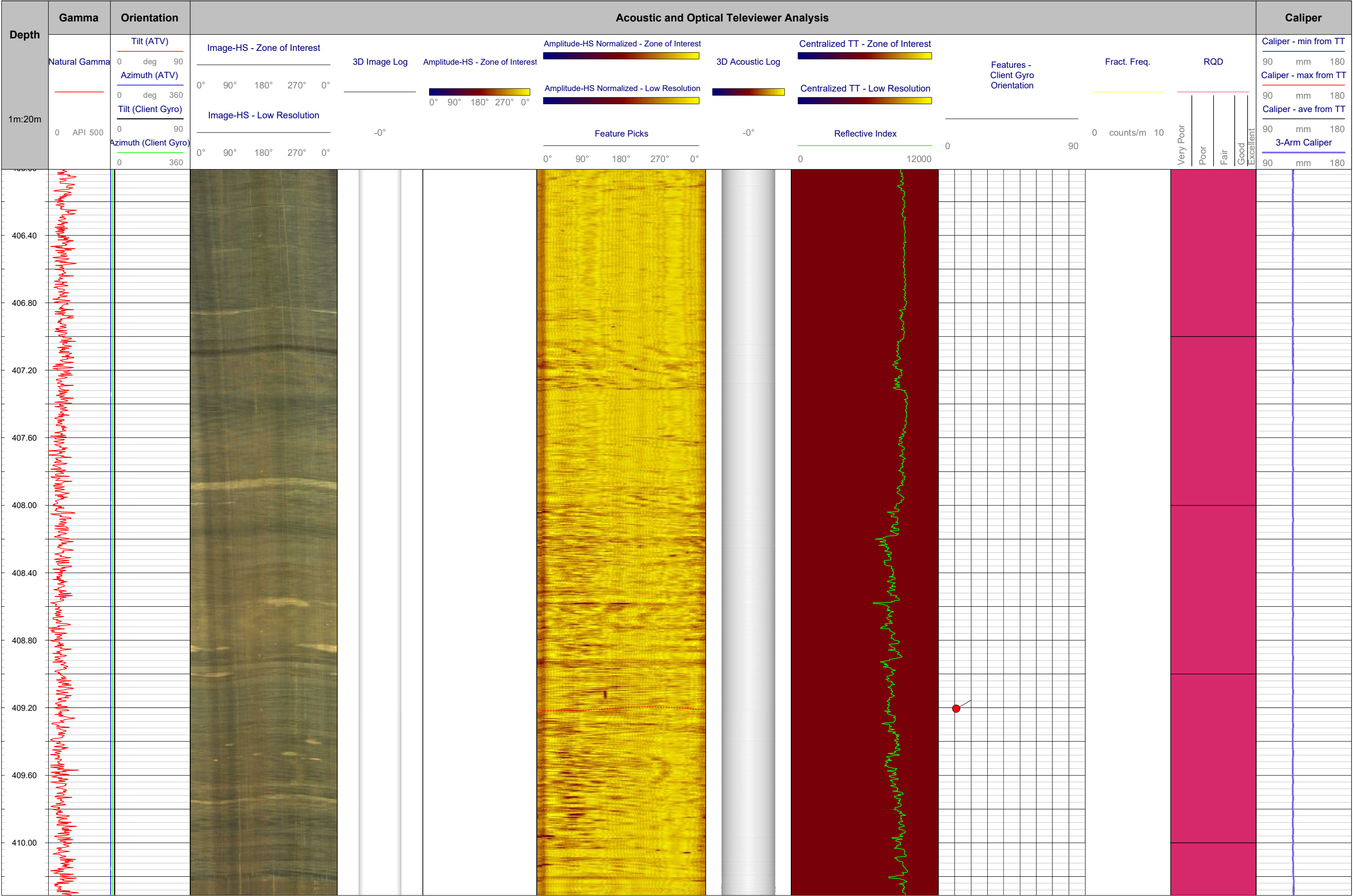


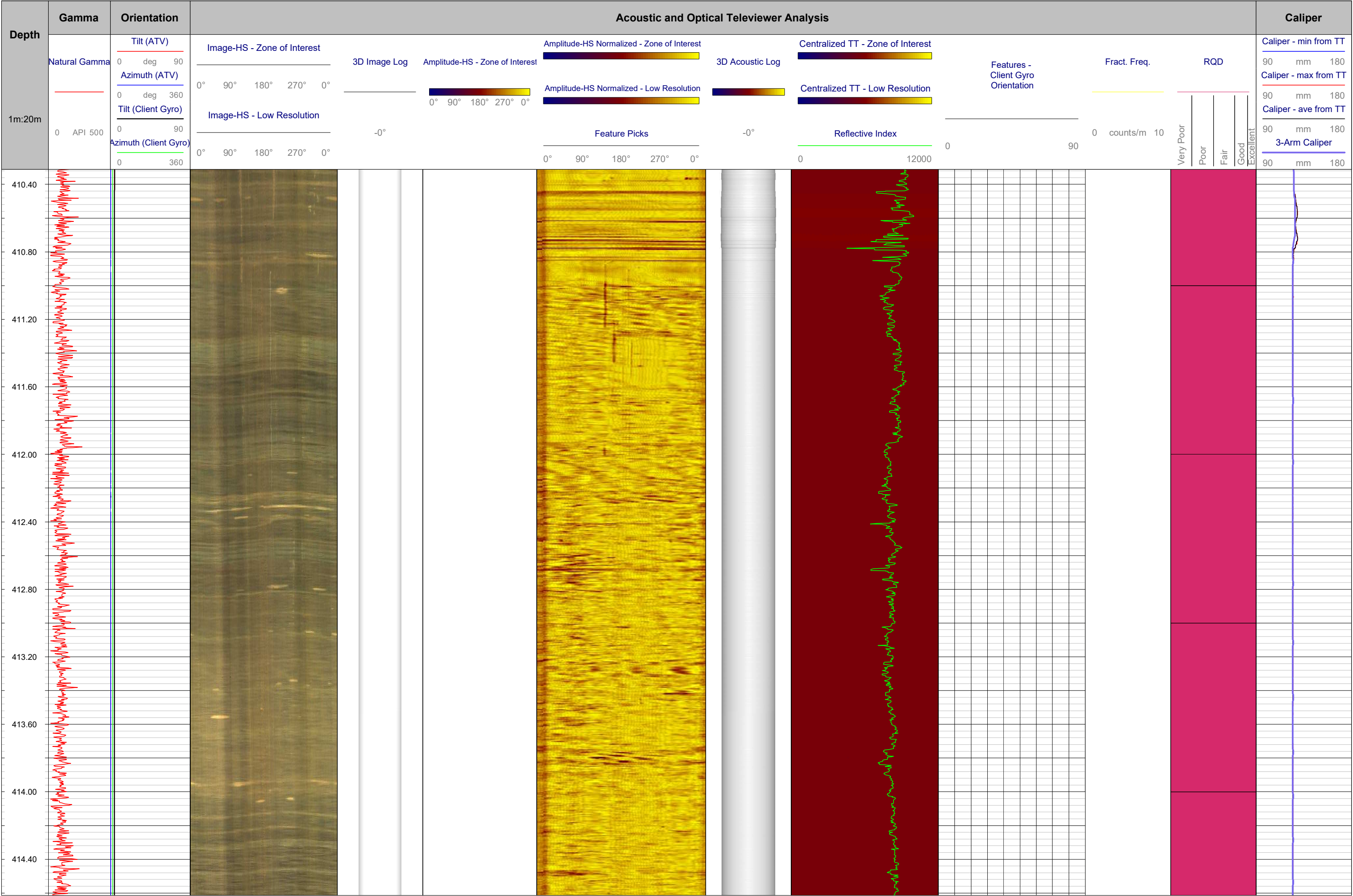


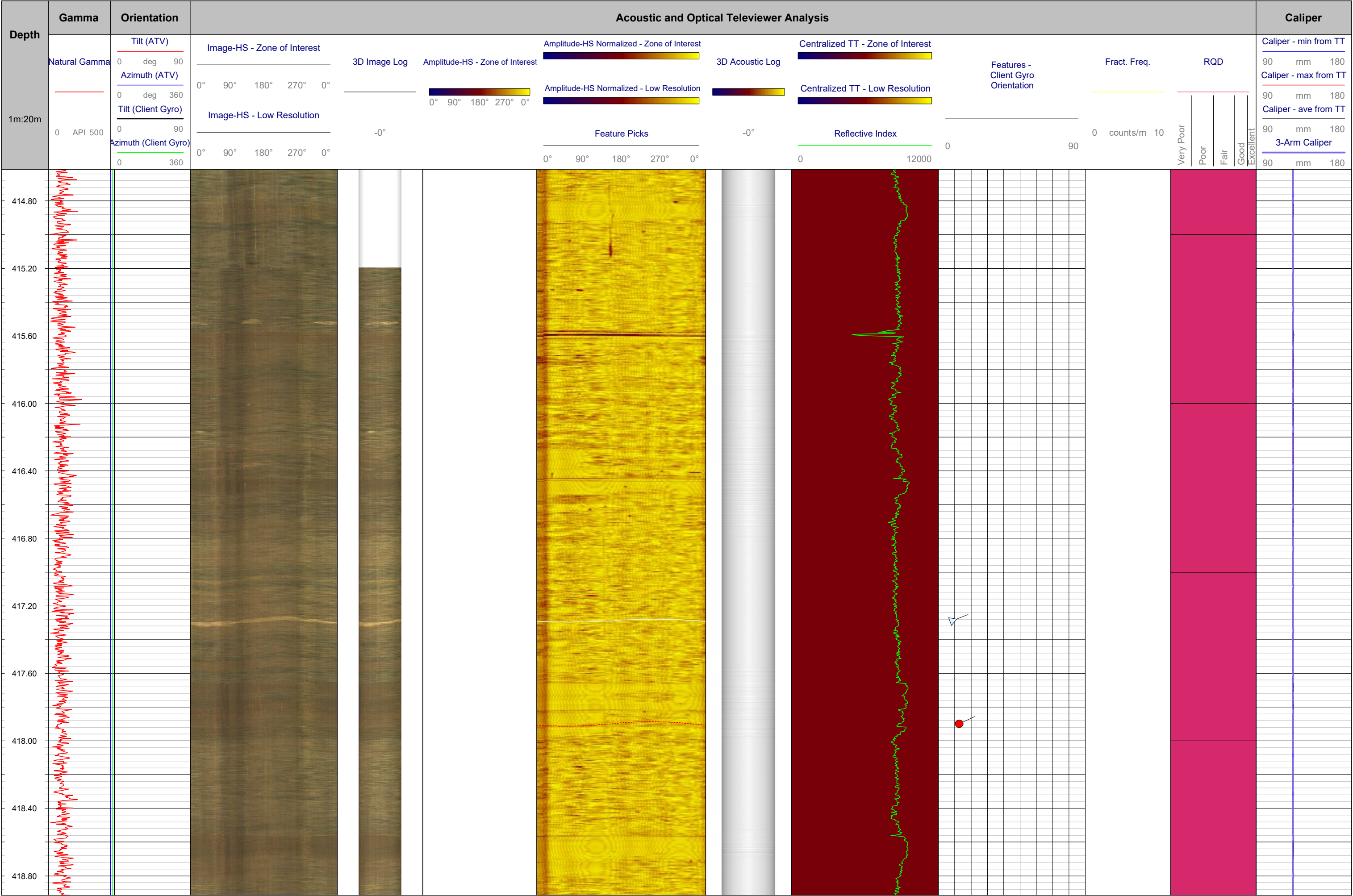


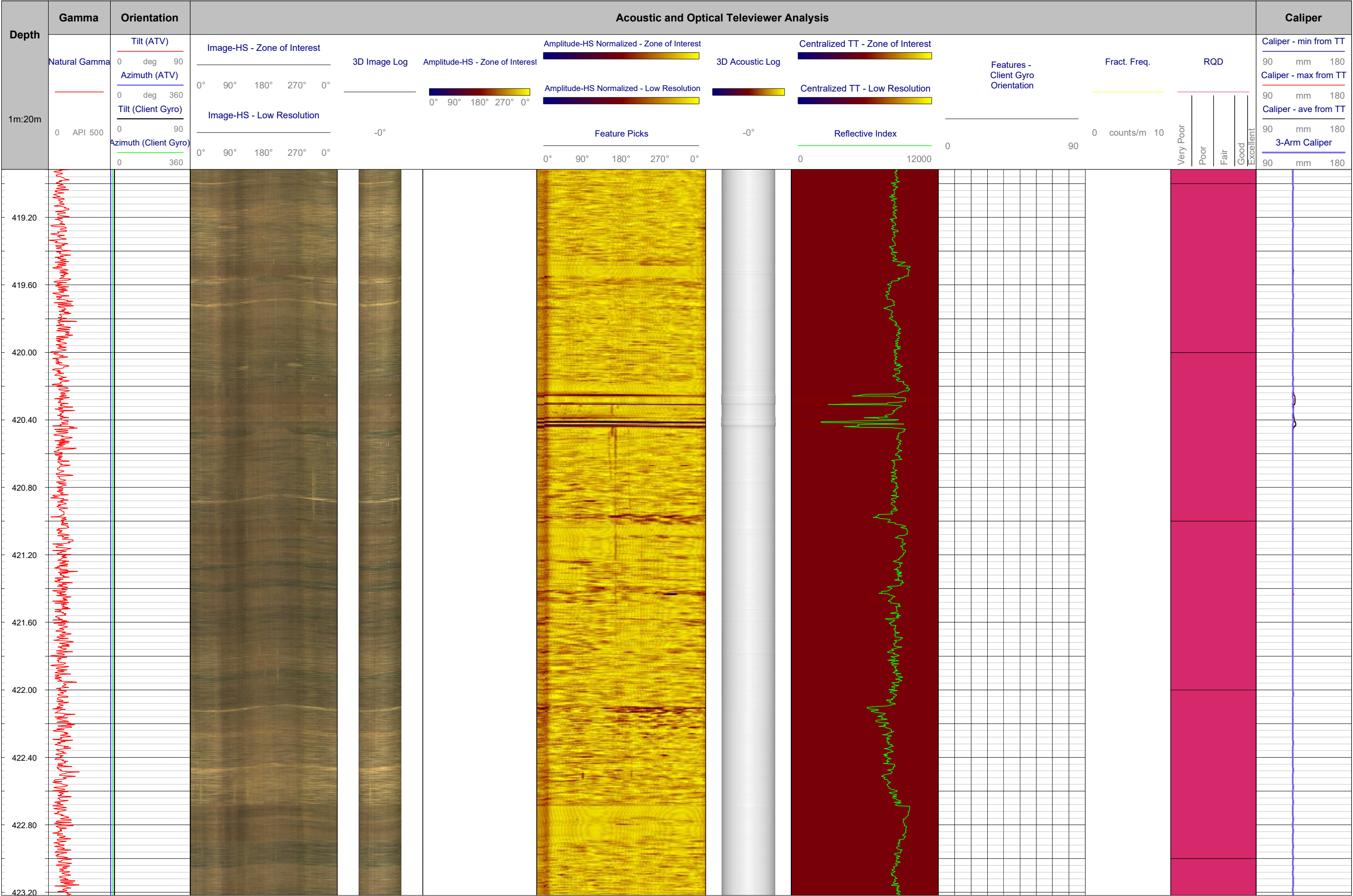


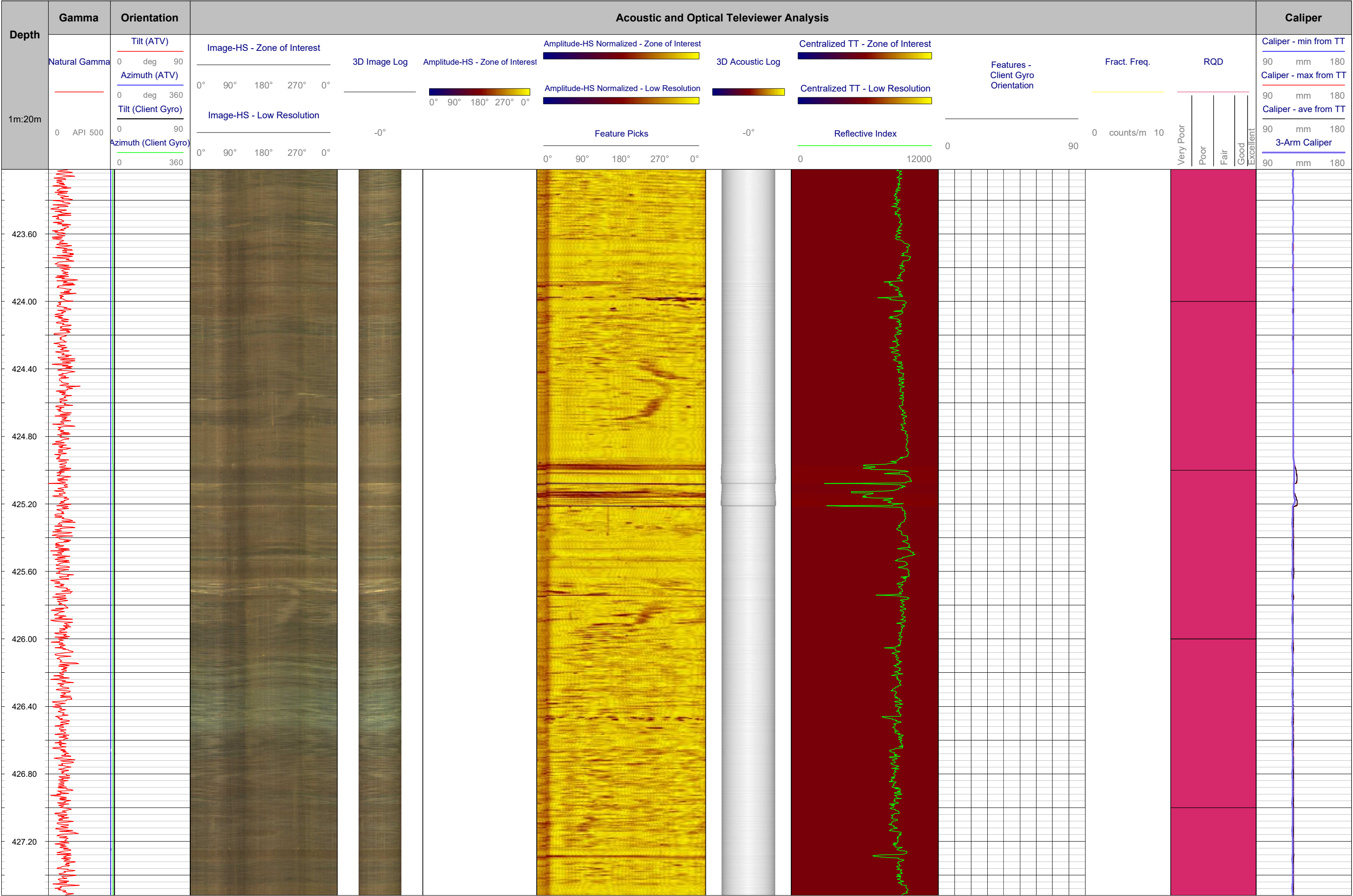


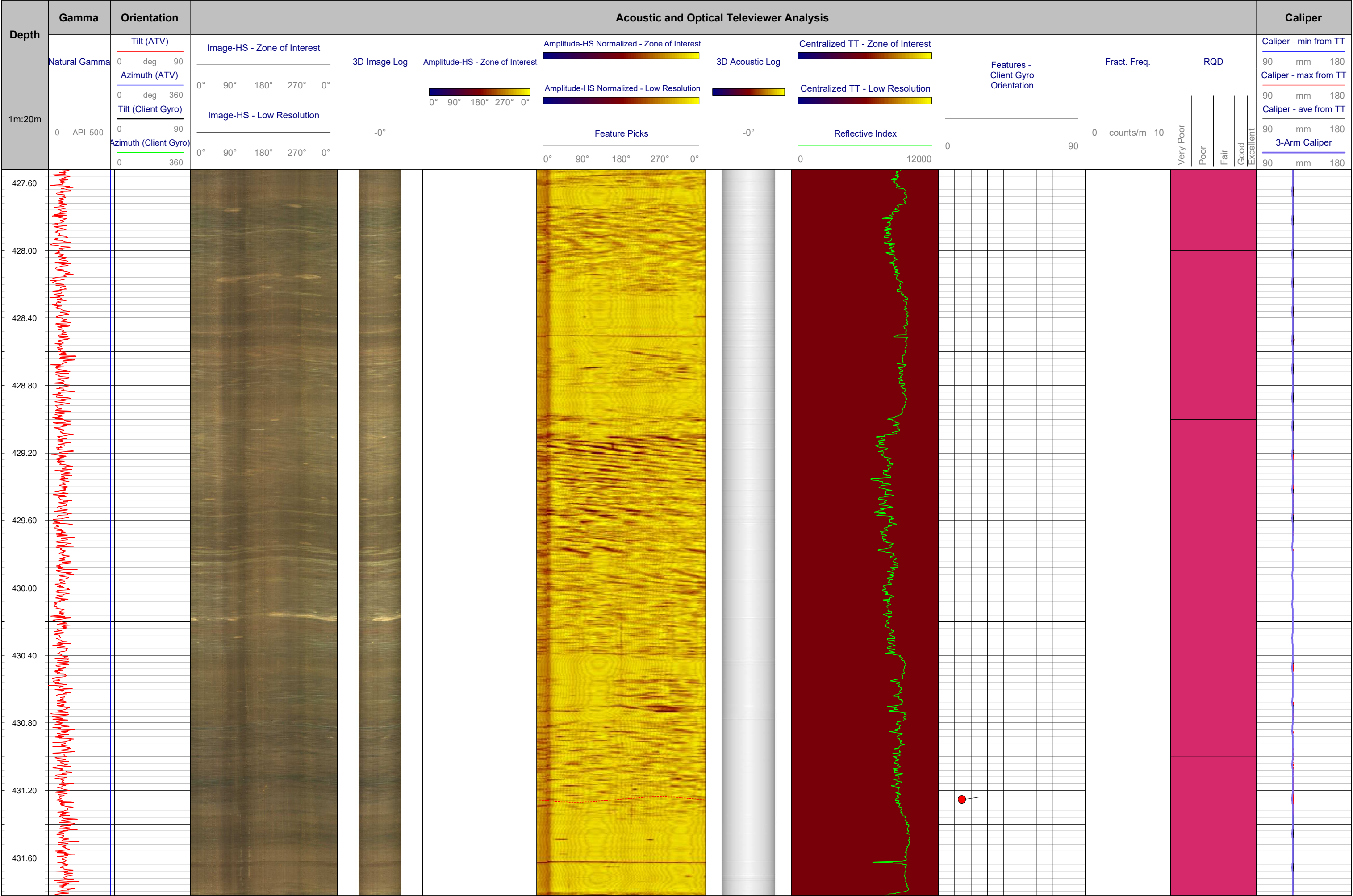


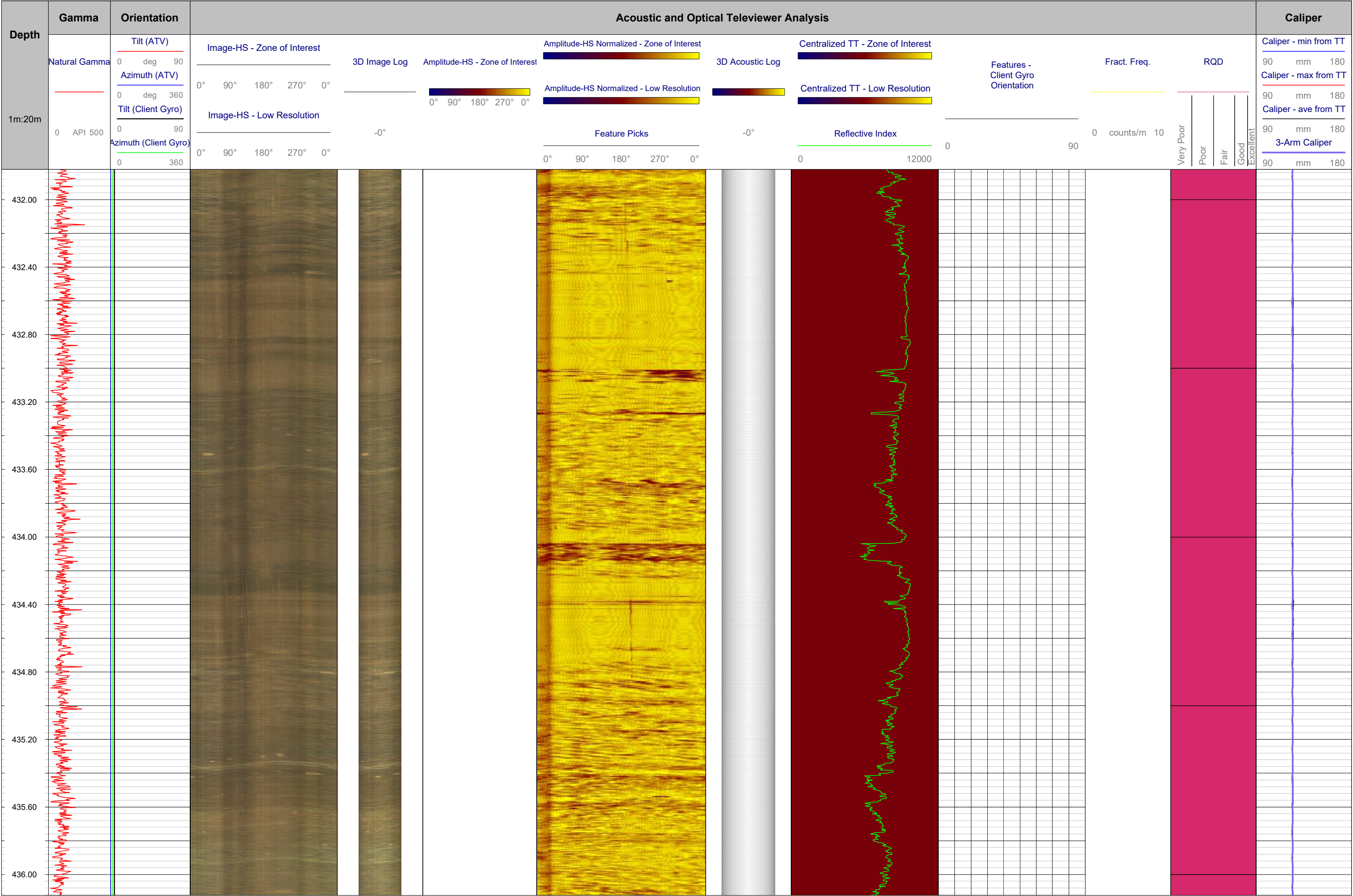


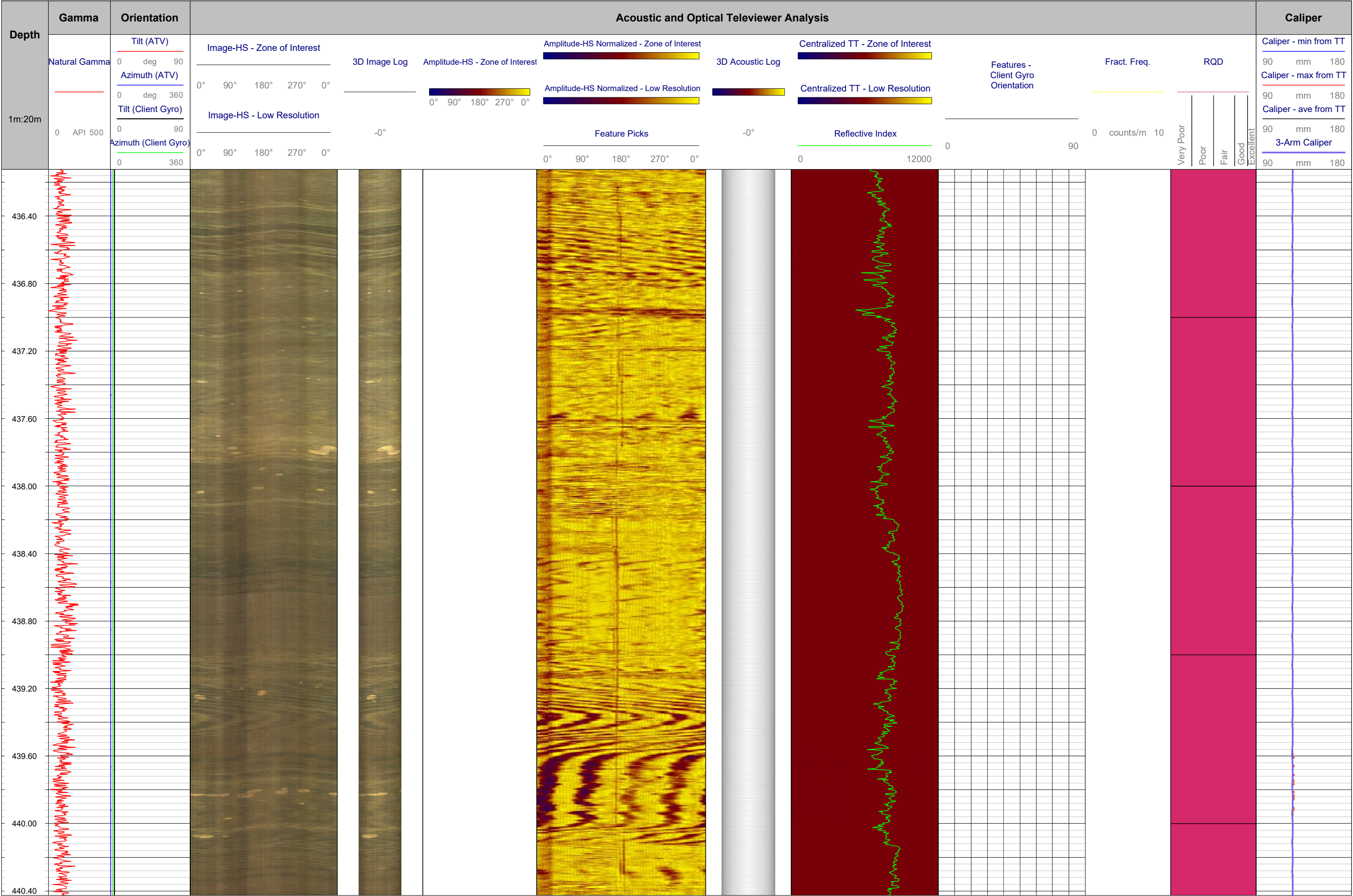


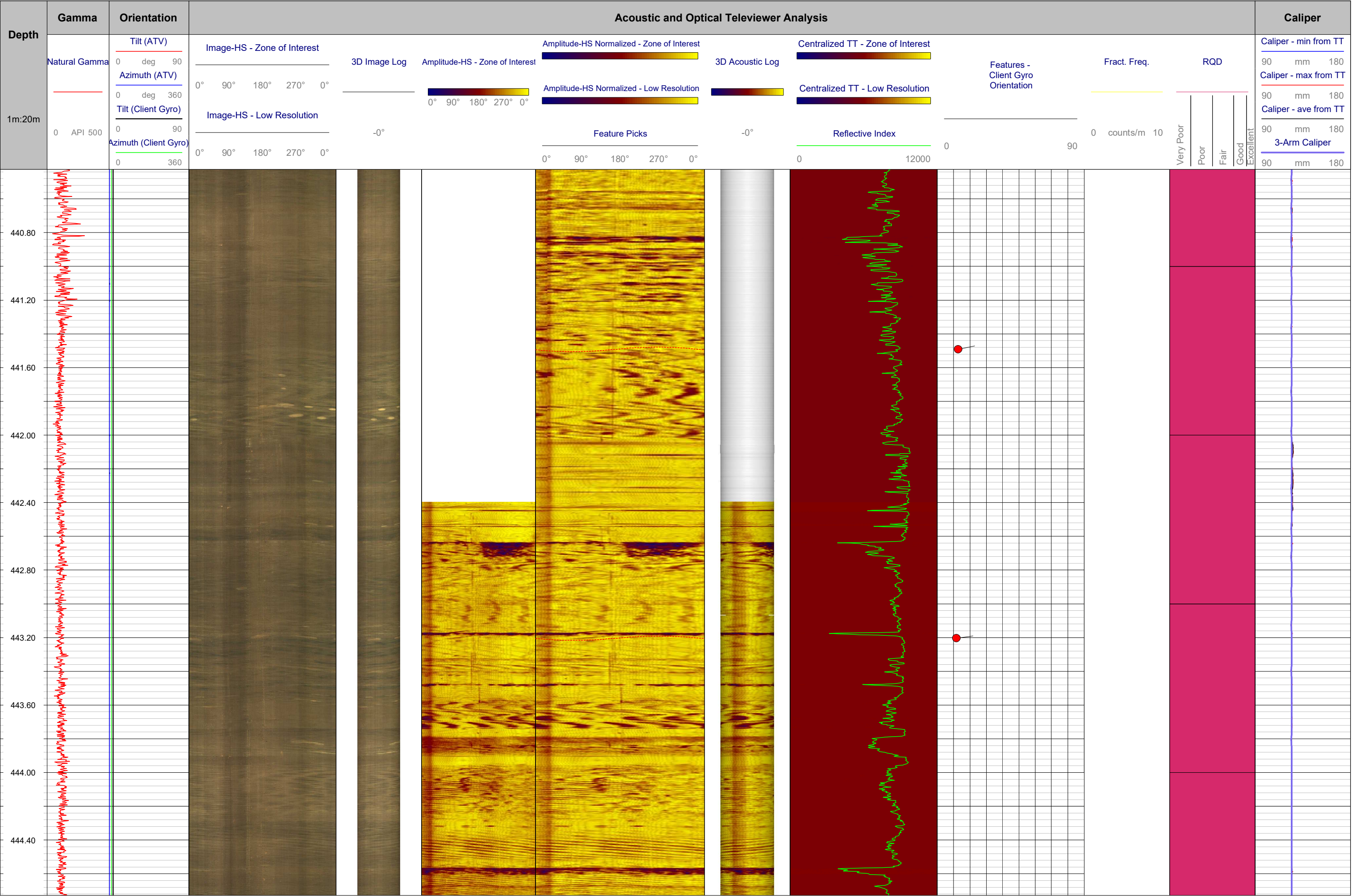


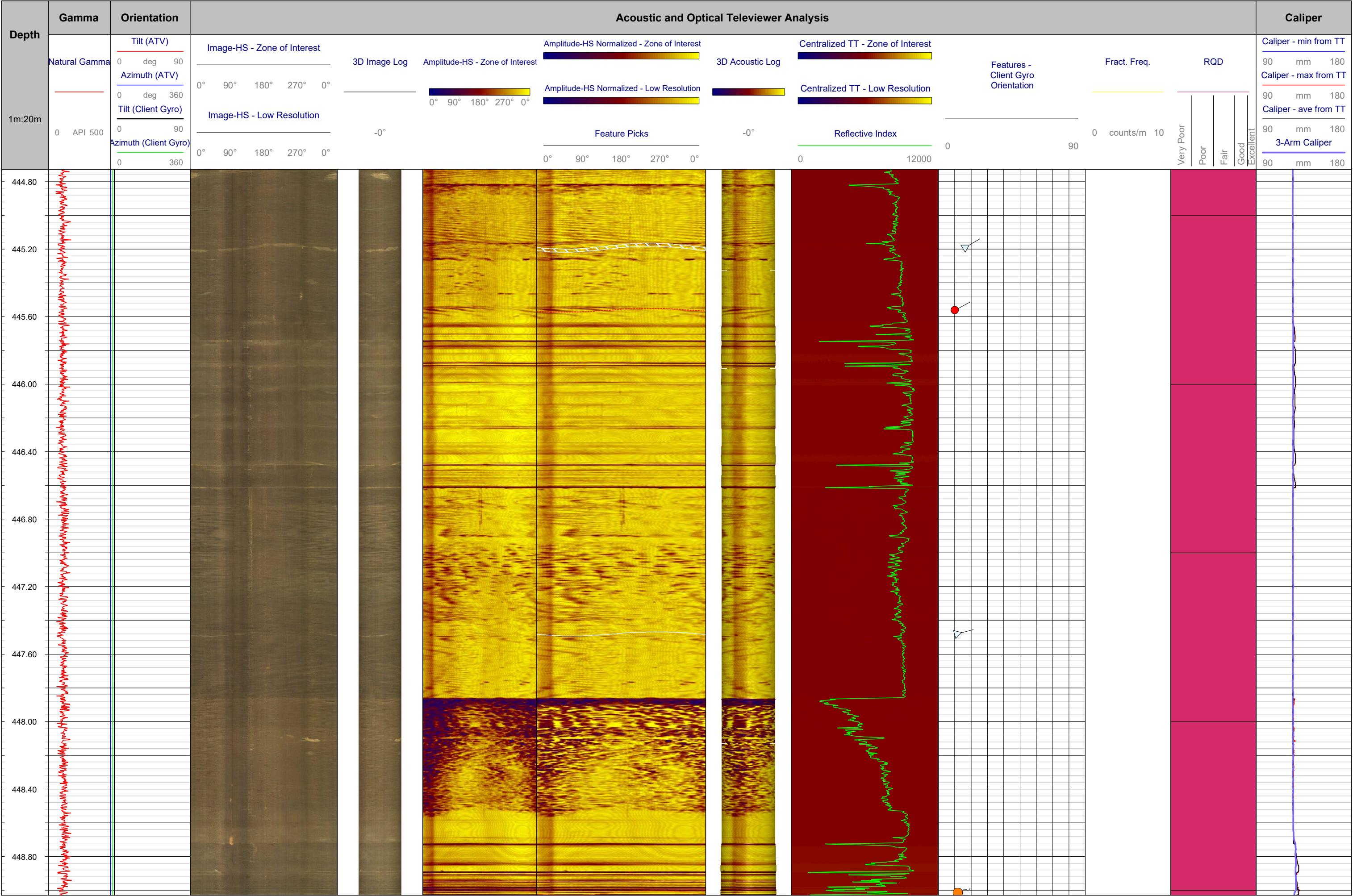


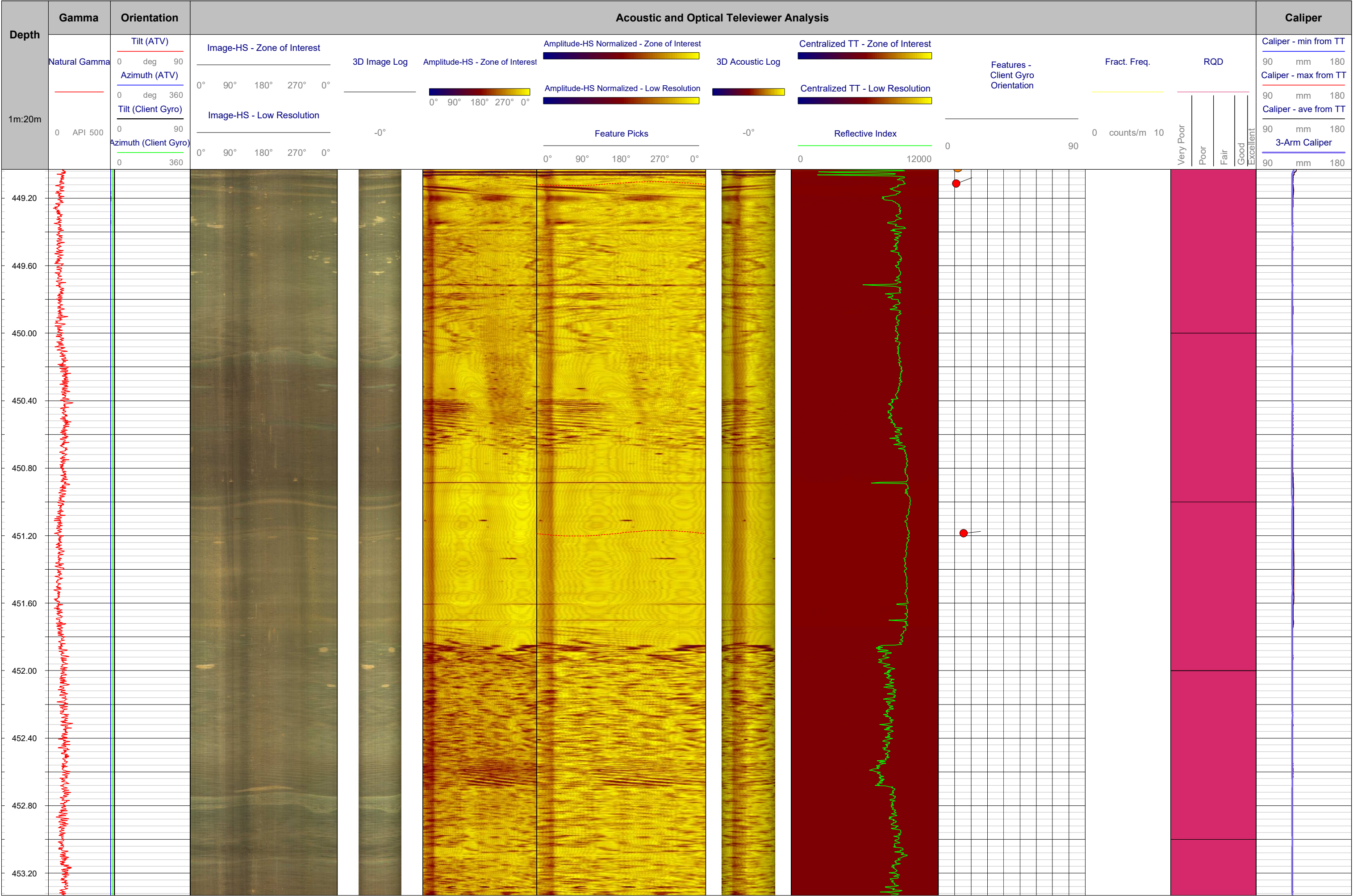


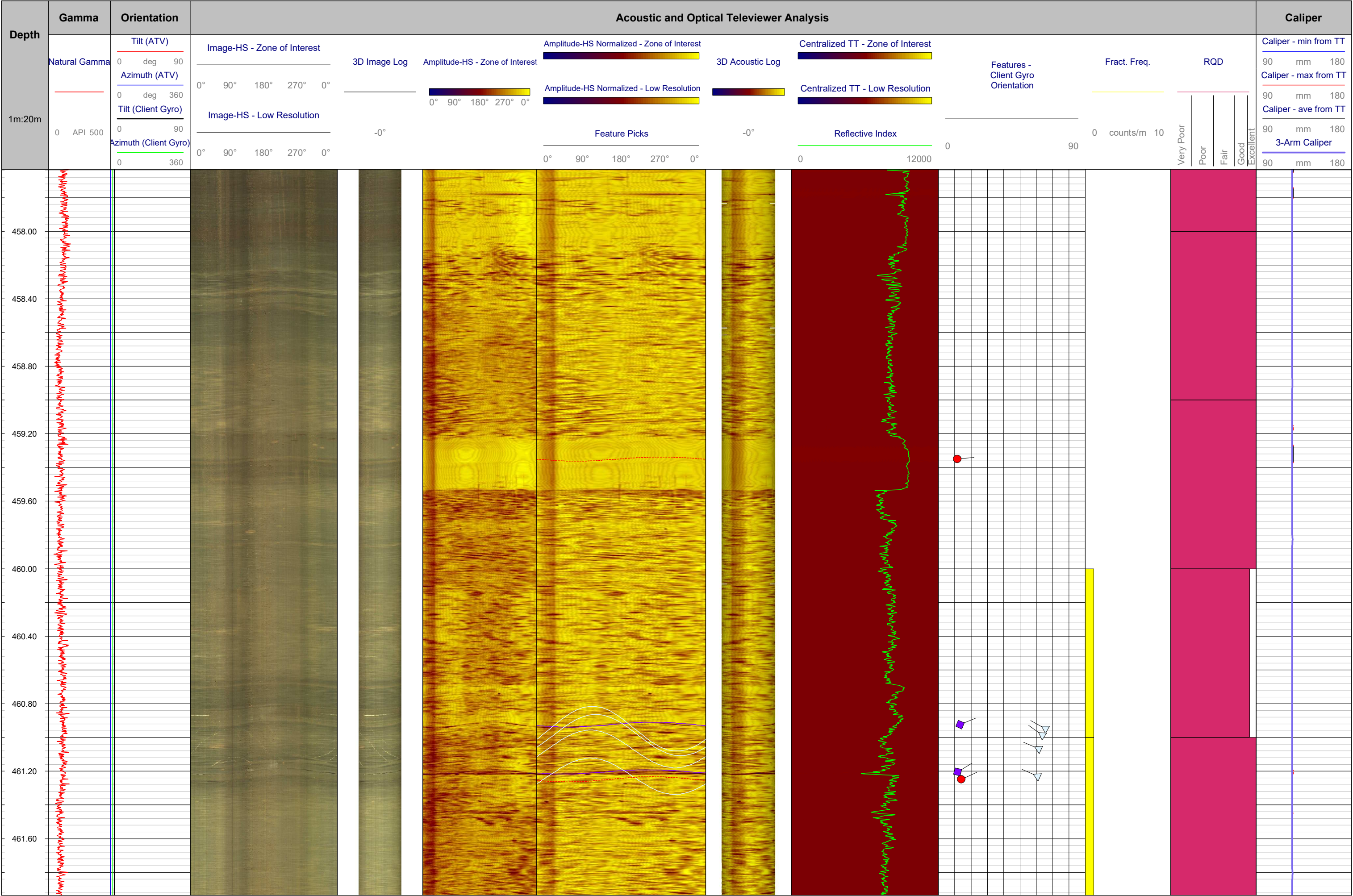


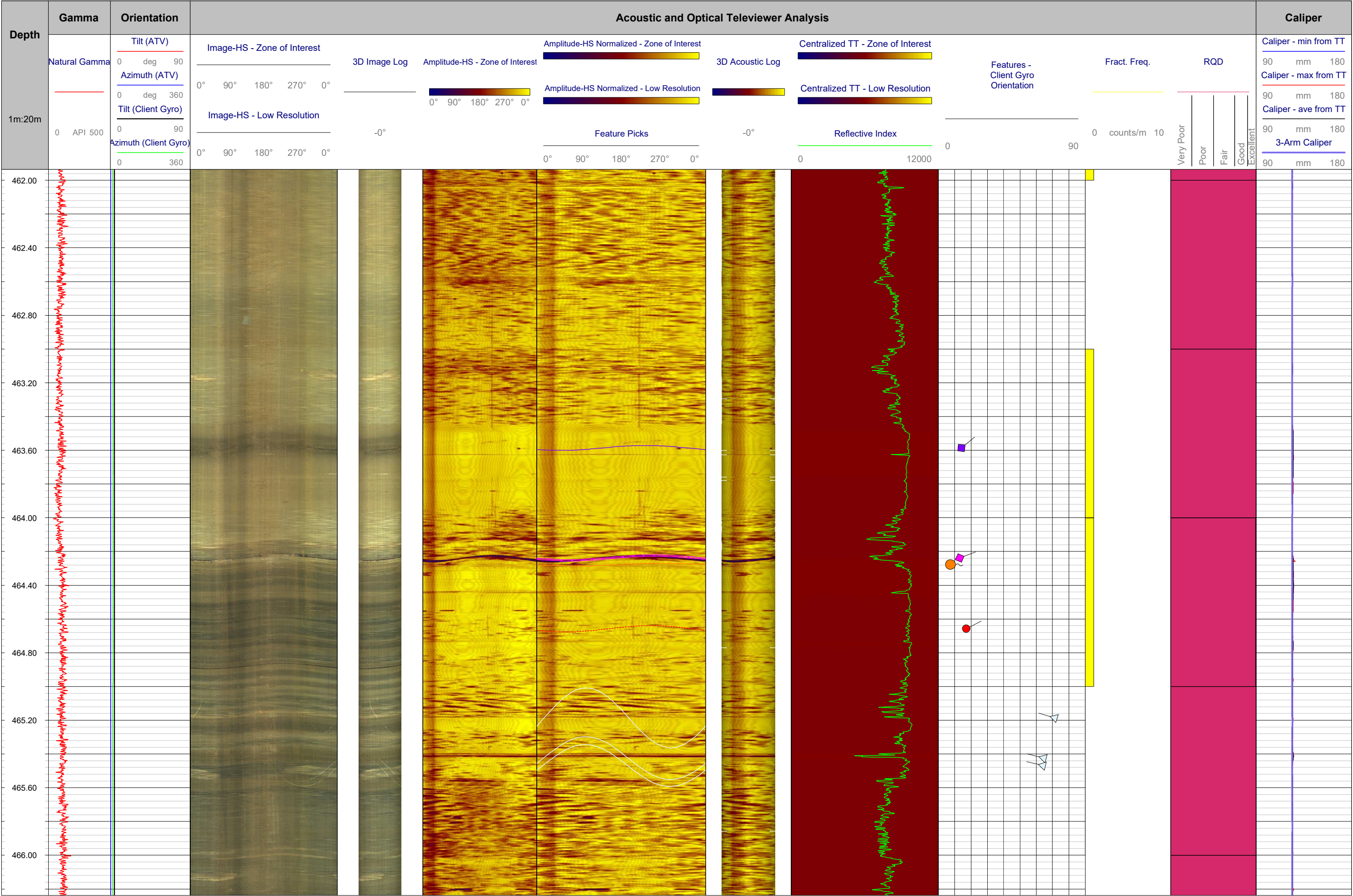


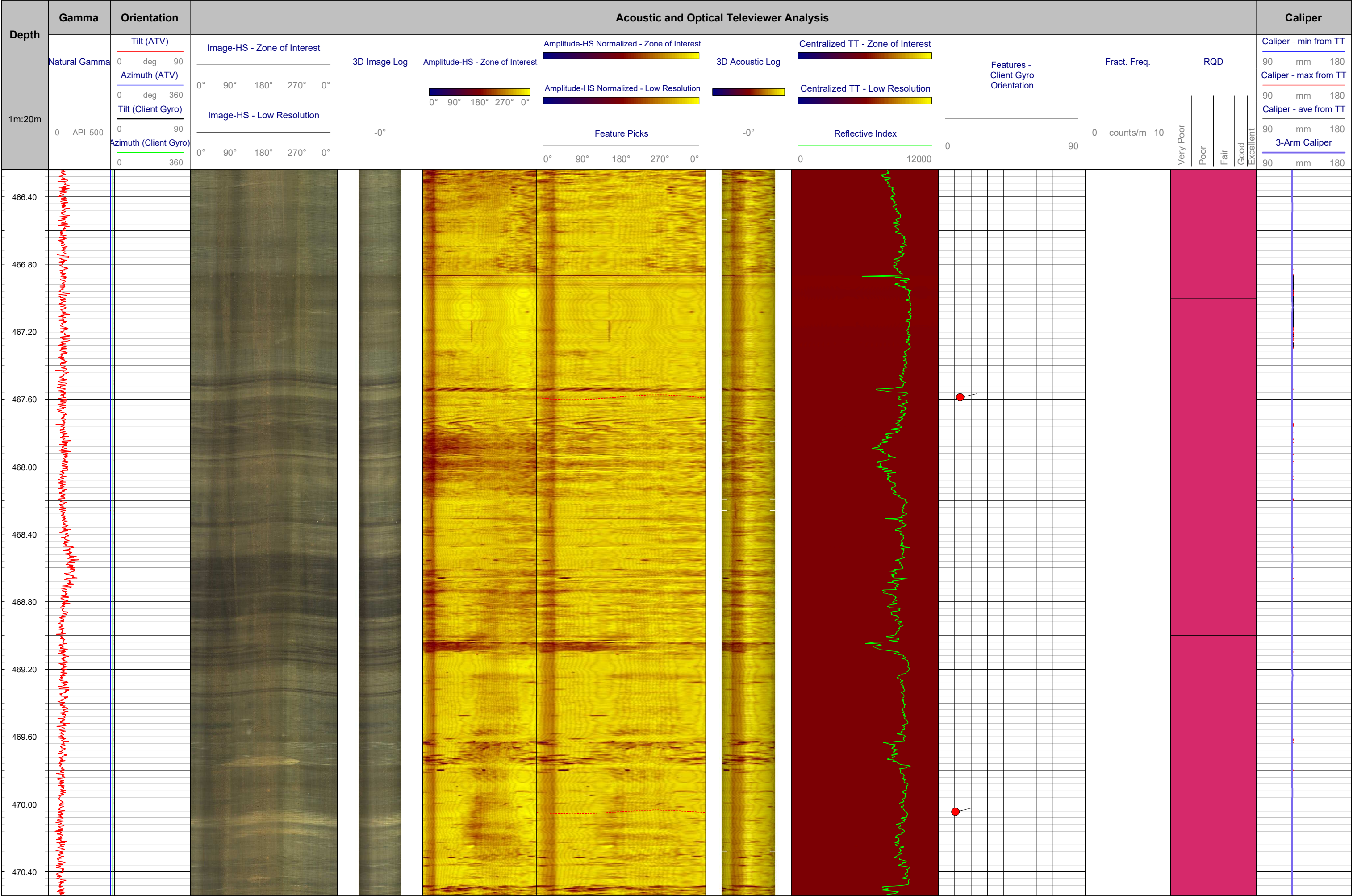


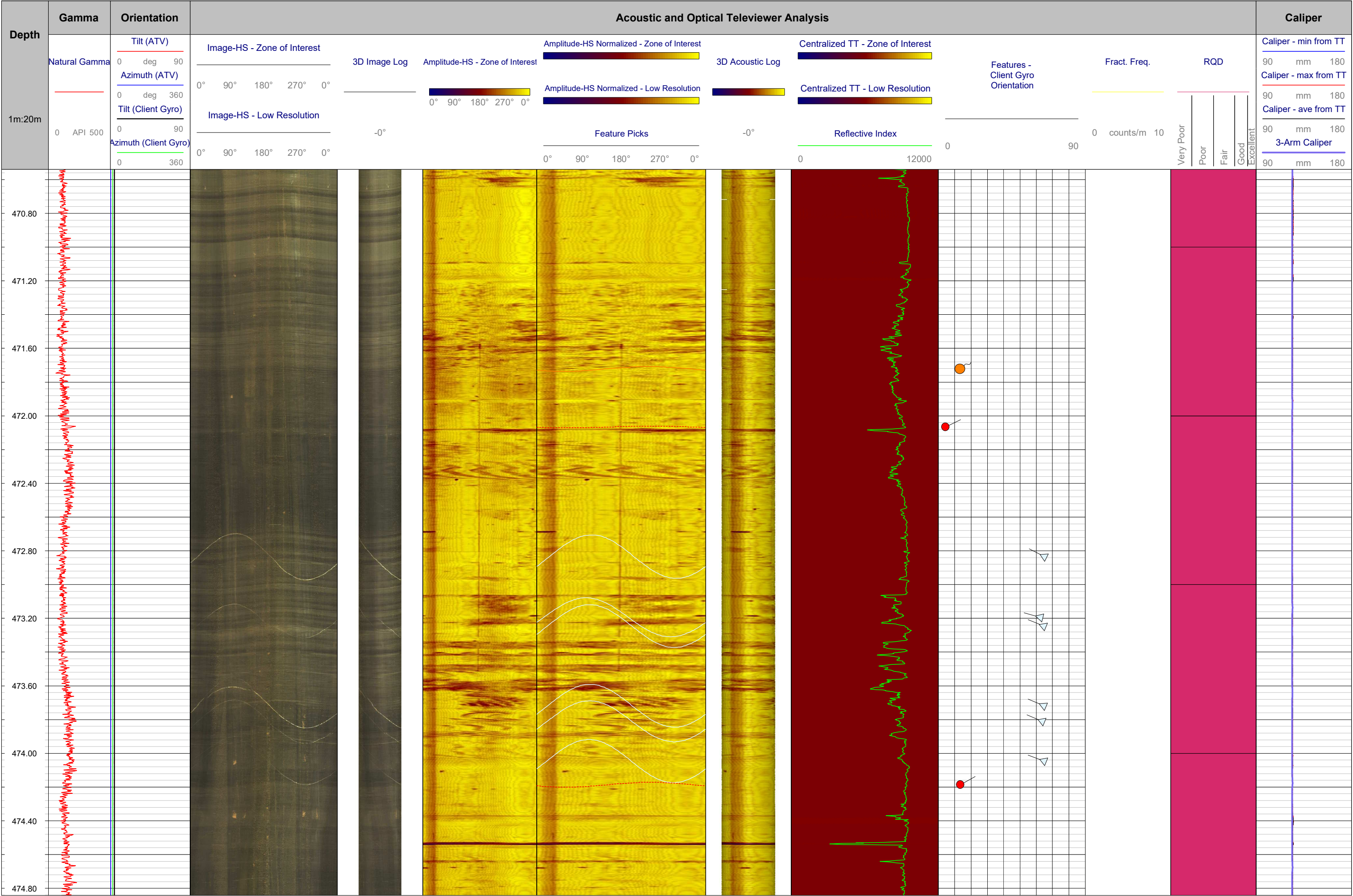


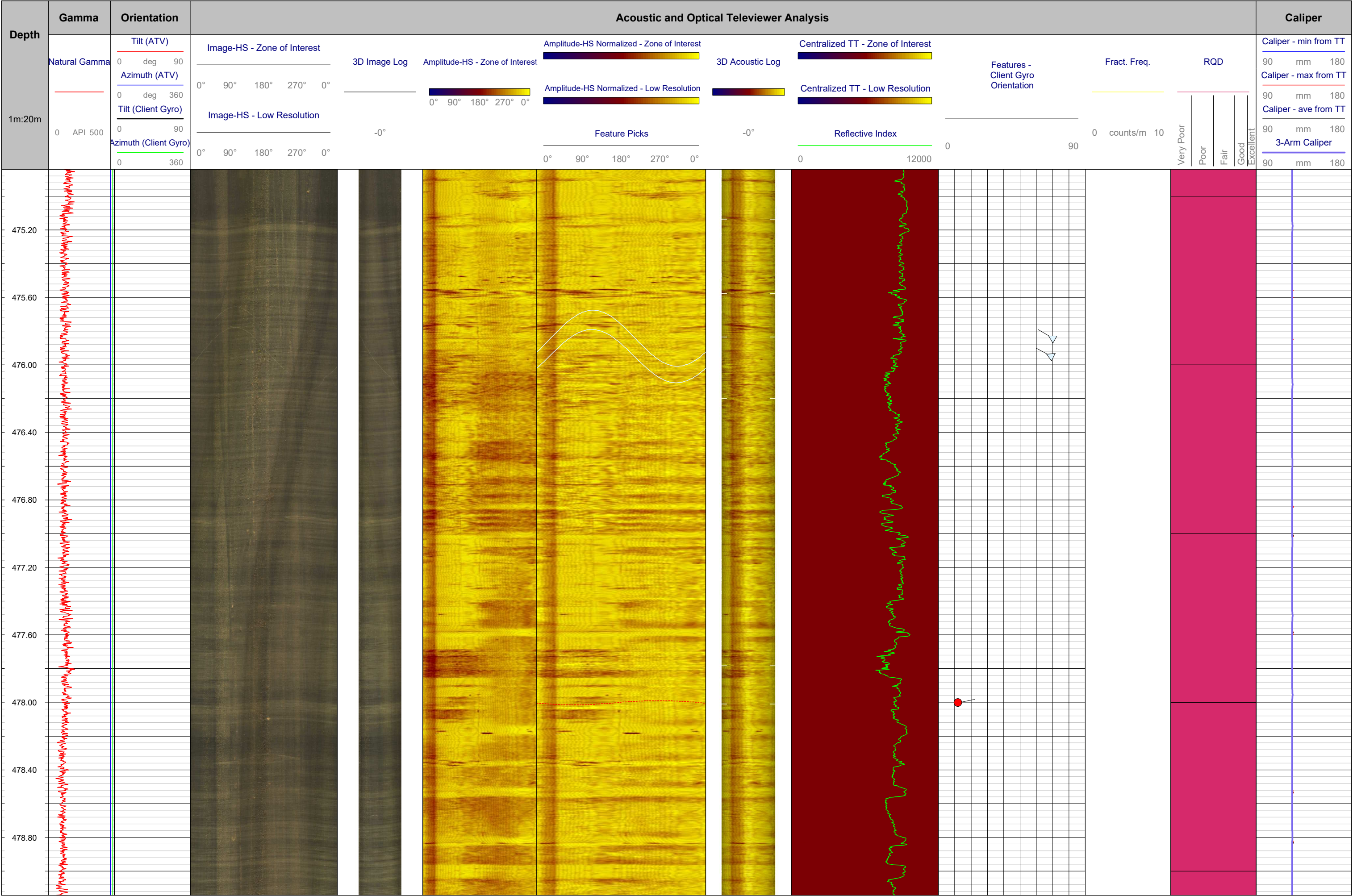


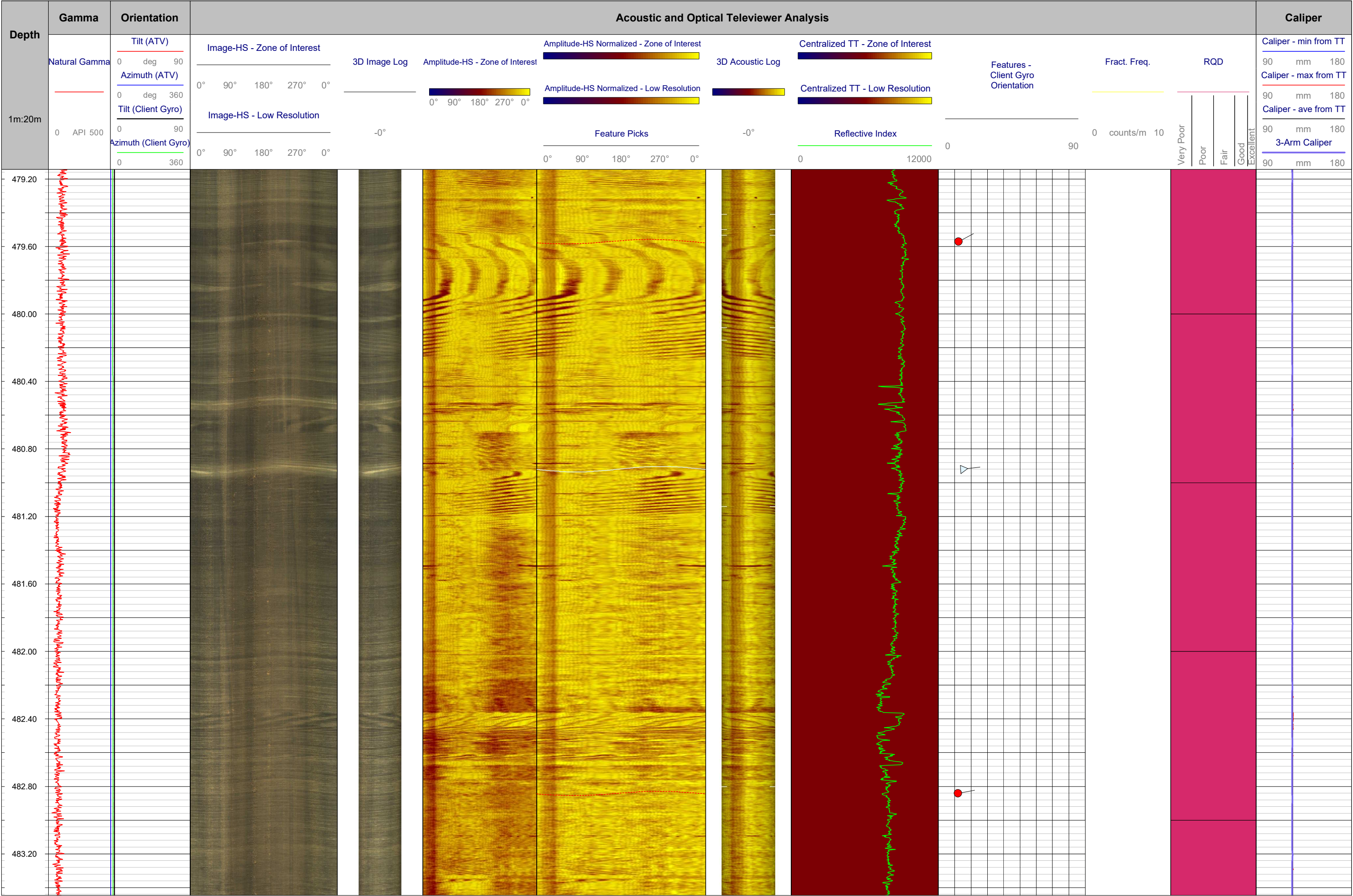


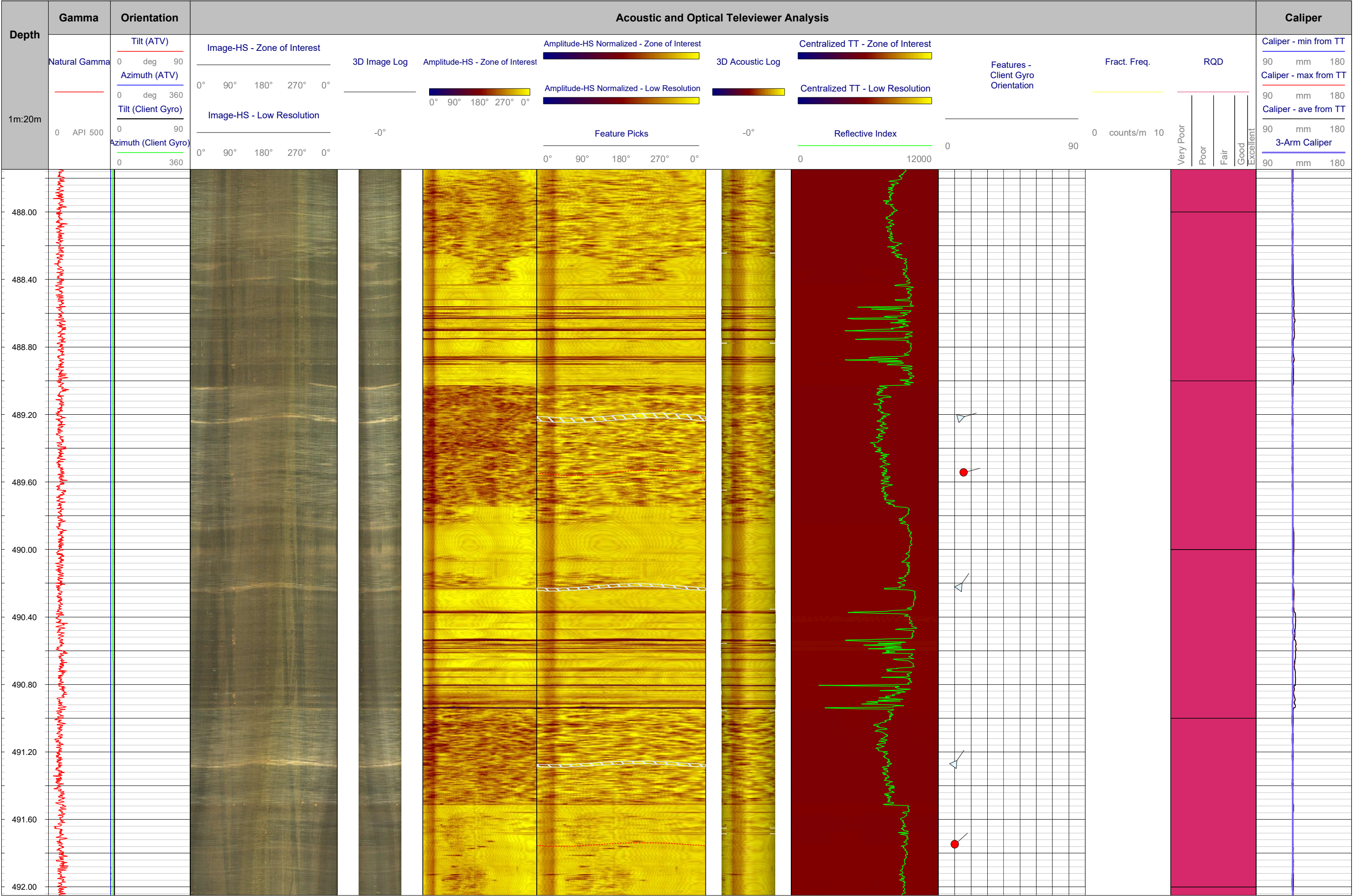


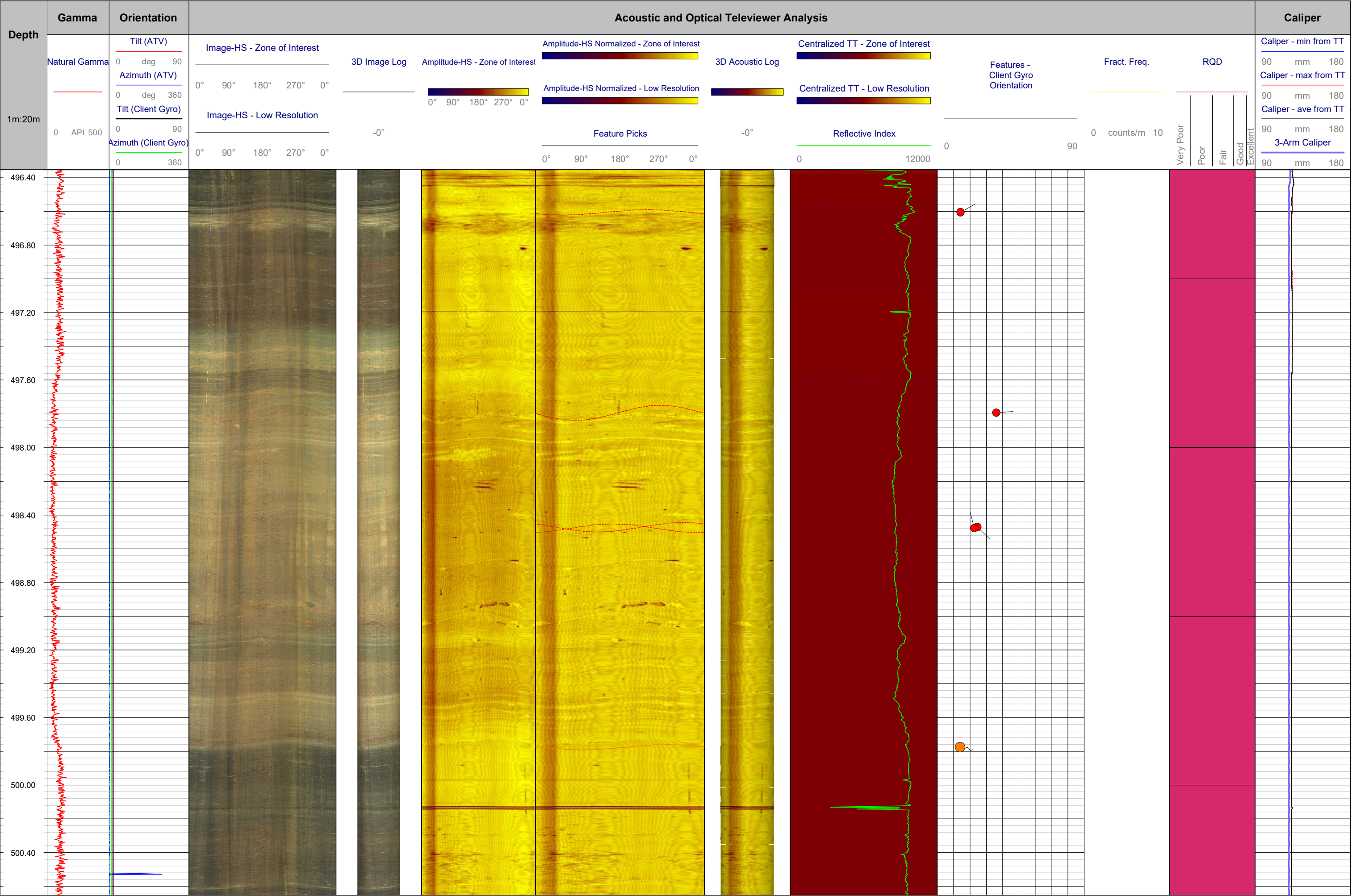


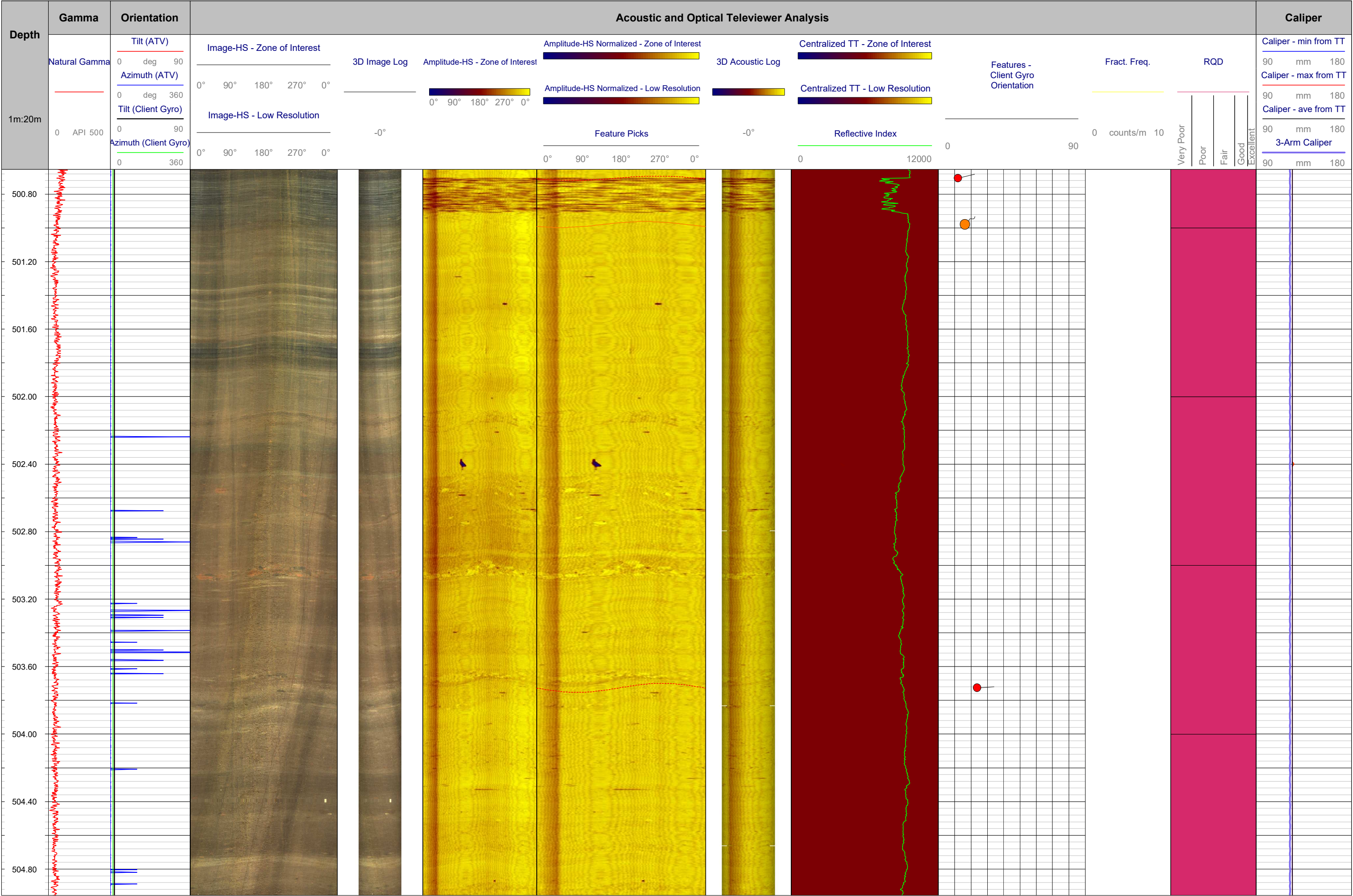


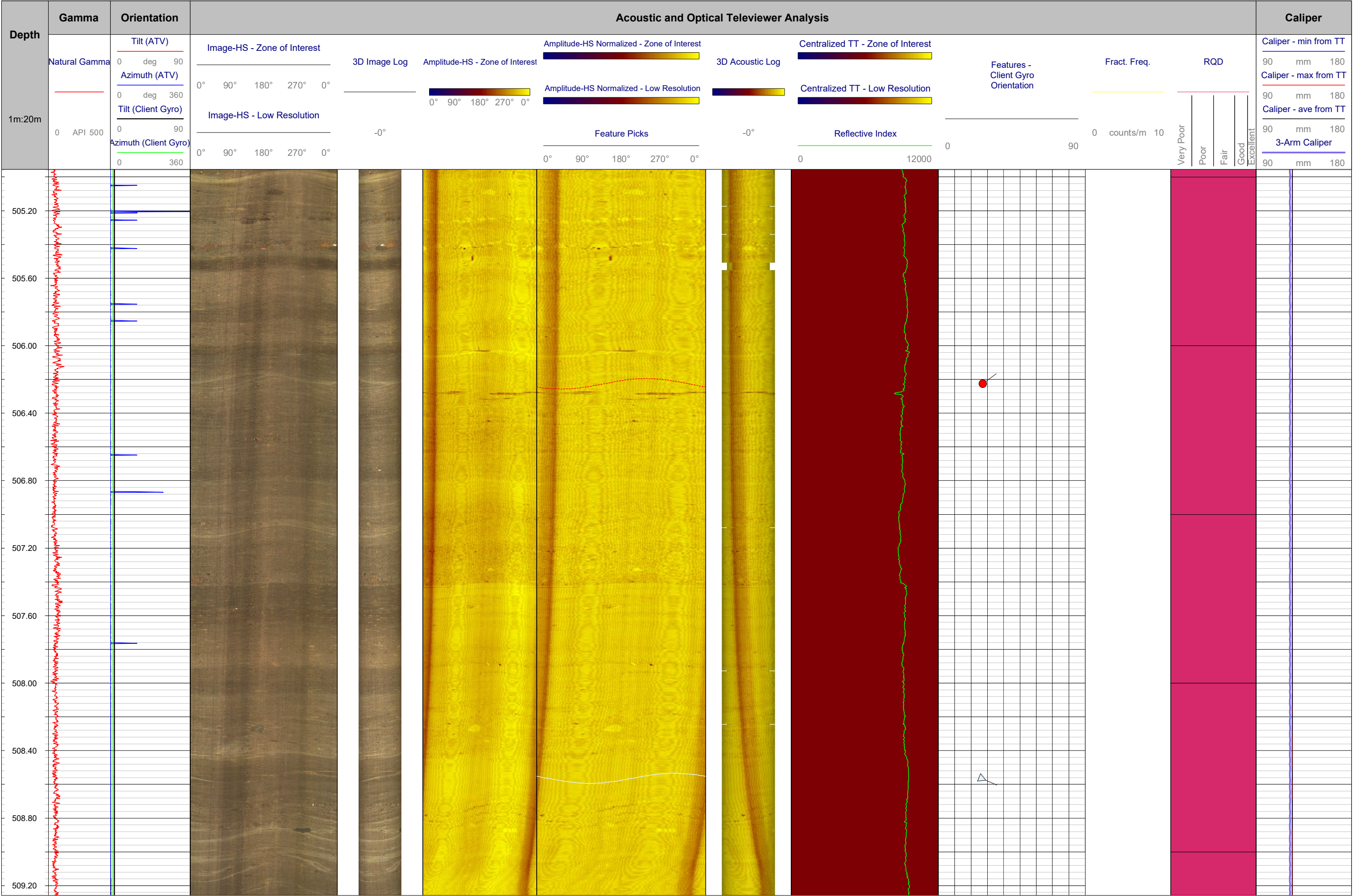


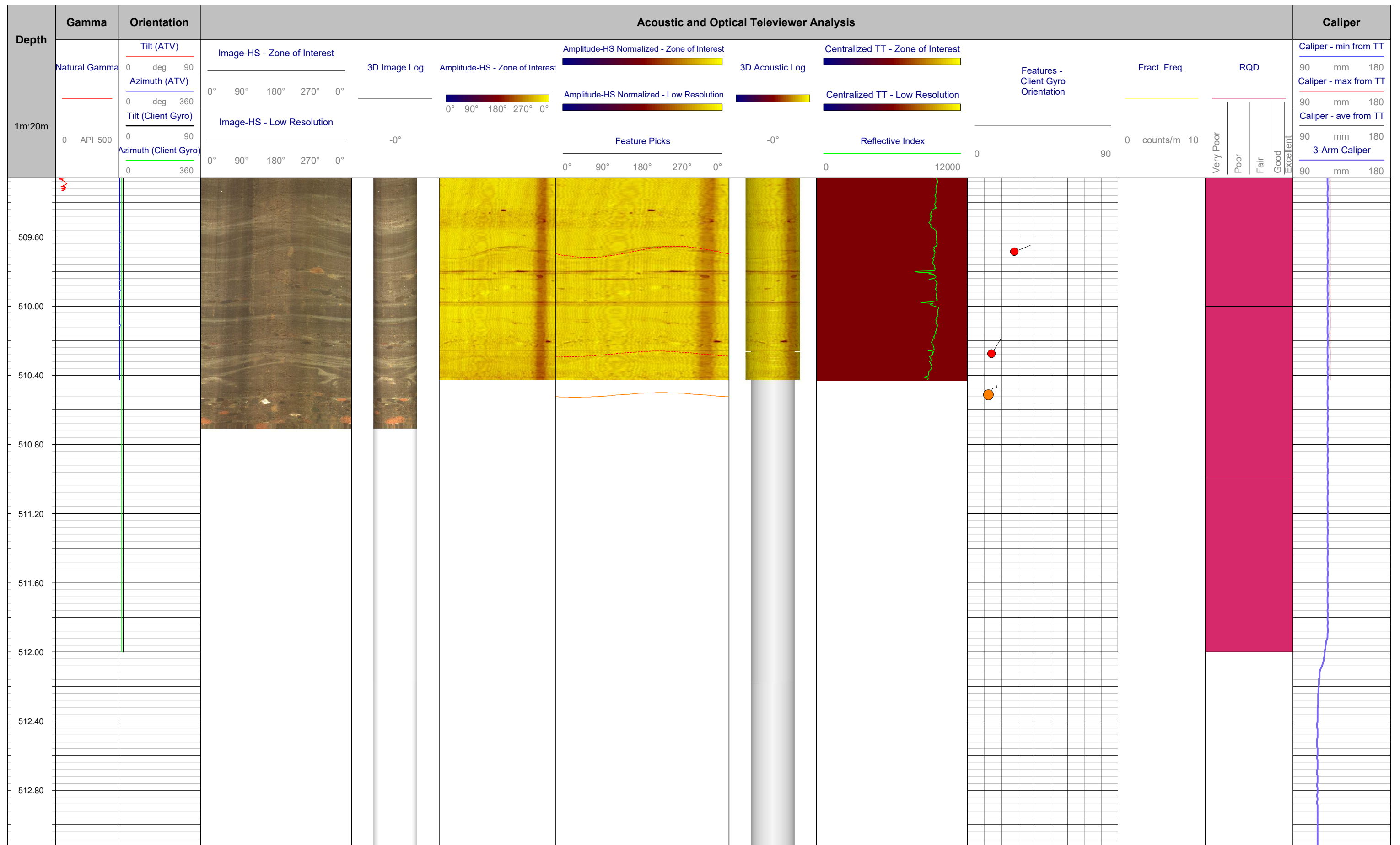












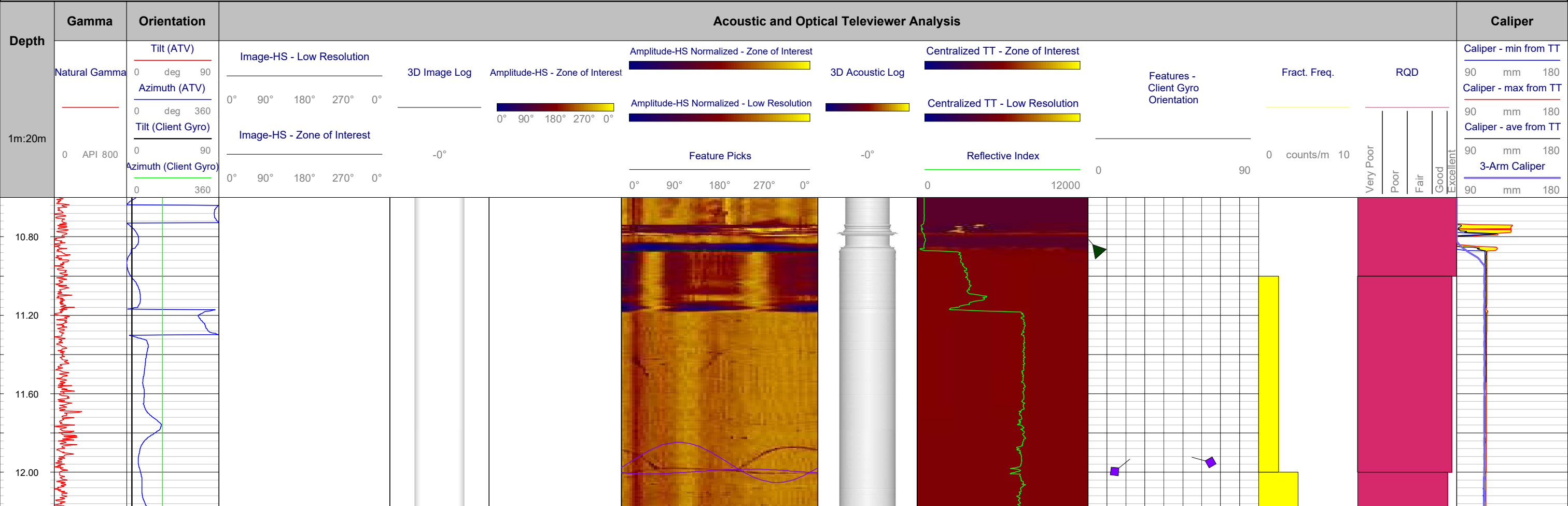
ACOUSTIC AND OPTICAL TELEVIEWER PLOT

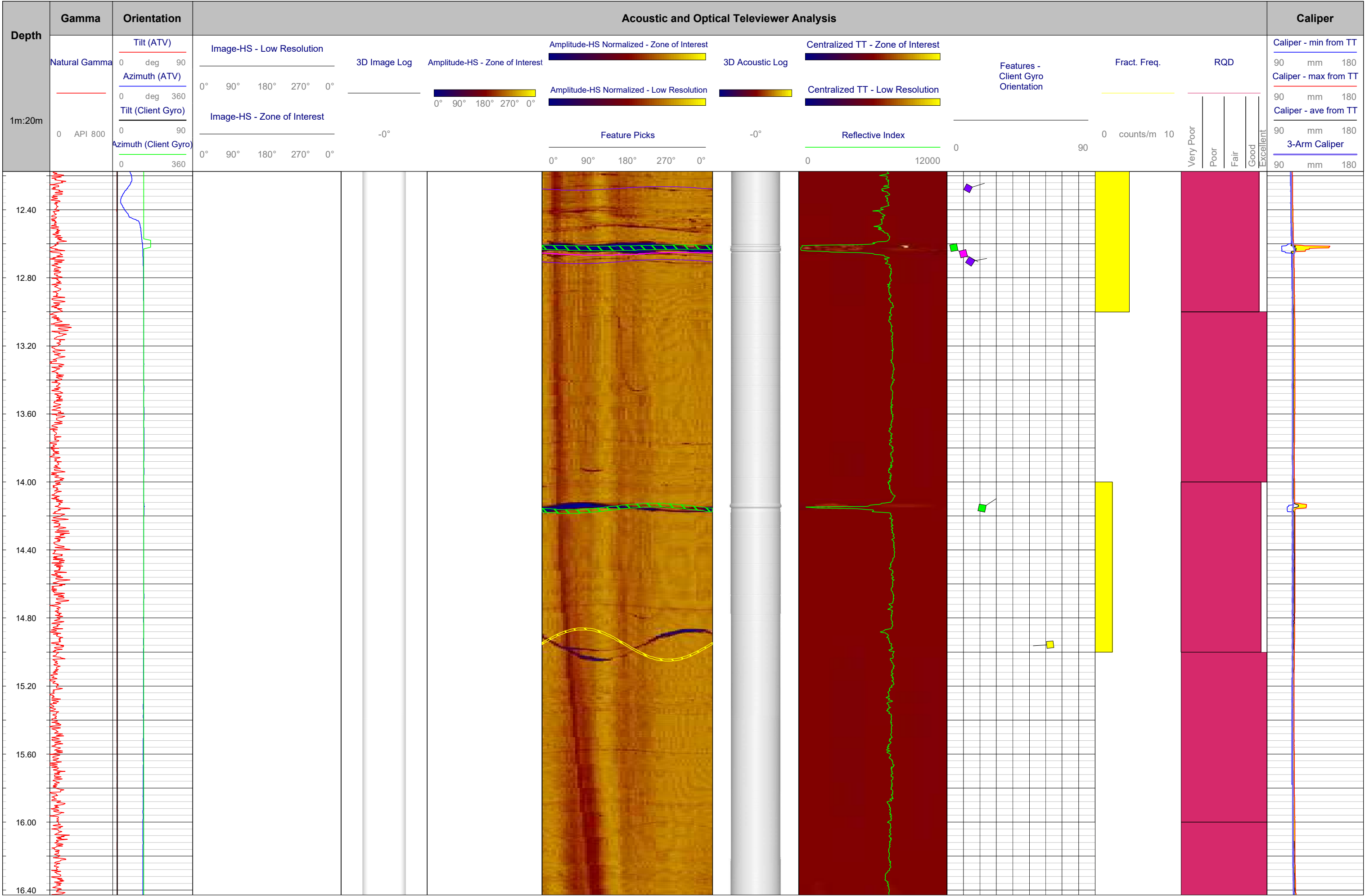


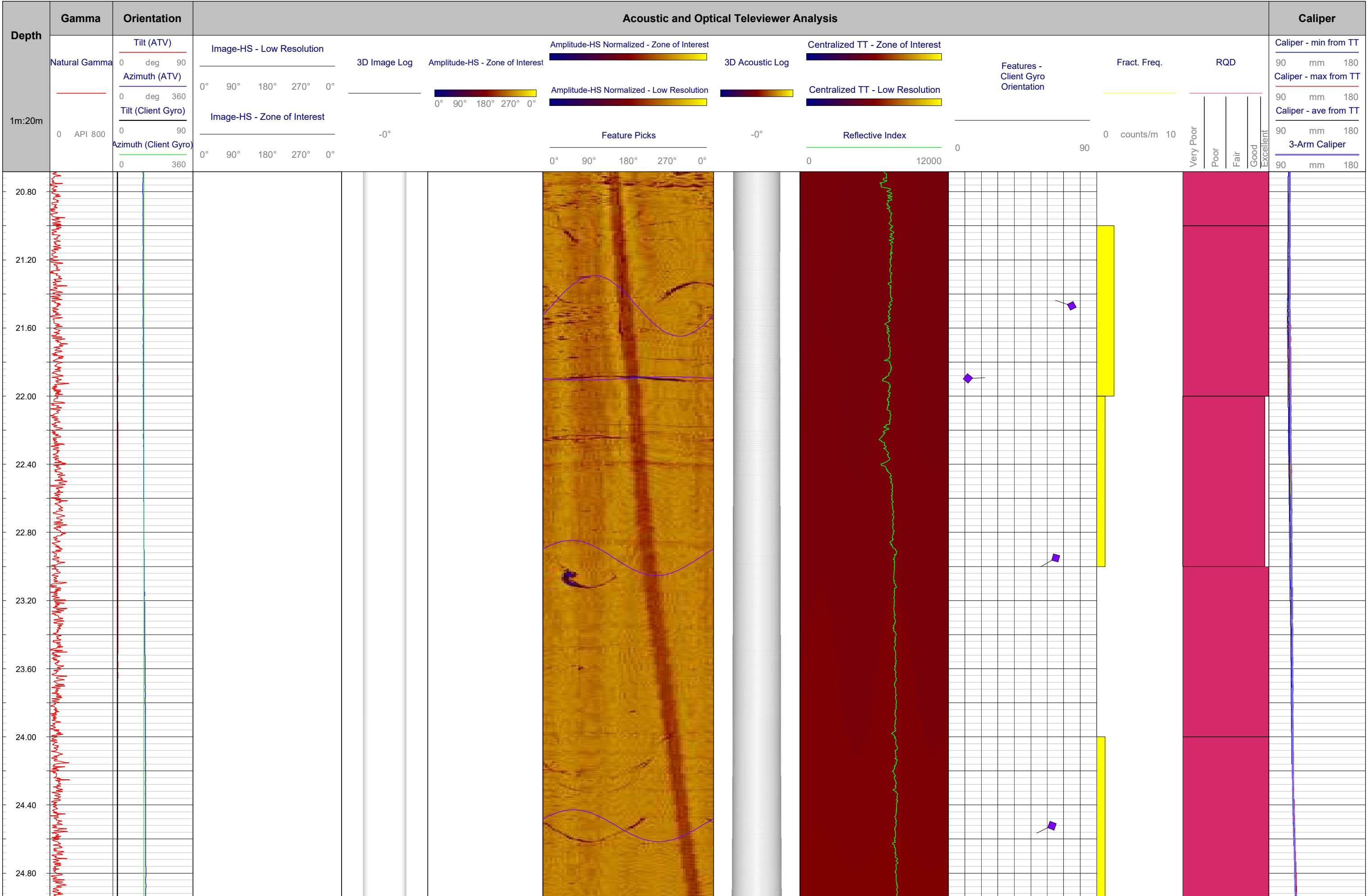
Company:	Kinterra	Total Depth:	706.00 m	UTM X (Easting):	---
Project:	White Pine	Surveyed Depth:	703.50 m	UTM Y (Northing):	---
Hole ID:	WP585	Hole Diameter:	96.00 mm	UTM Z (Elevation):	---
Acquisition date(s):	Mar 13 & 14, 2024	Bit Size:	HQ	Location:	White Pine, MI
Field Personnel:	Z. Roselle; R. Smith	Hole Type:	Diamond		
Data Analysts:	G. Garcia Lamberg; K. Smylie	Casing Depth:	10.87 m		
Survey Day(s):	2	Fluid Level:	---		

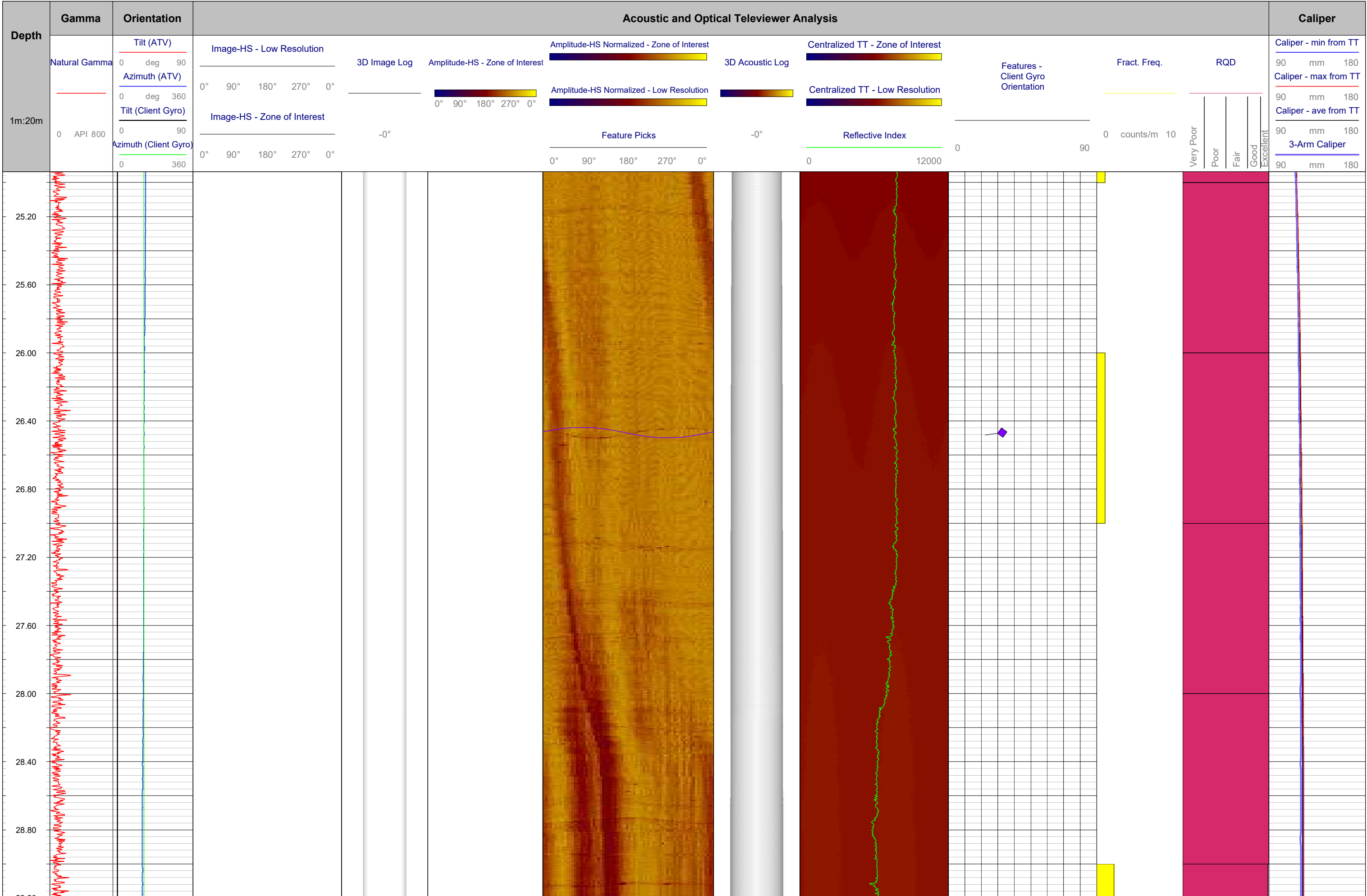
Probes:			Notes:
Manufacturer	Model	Serial	Zone of interest (608 m – 702 m) surveyed with a higher resolution. Final section of the OTV image (702 m – 703 m) surveyed with low resolution. Due to survey conditions, OTV acquired from 40 m to EOH. UTM coordinates not provided. Client Gyro extended to EOH.
ALT	QL OBI-2G Optical Televiewer	174009	
ALT	QLABI40GR	201705	
M. Sopris	2CAA 3-Arm Caliper	4262	

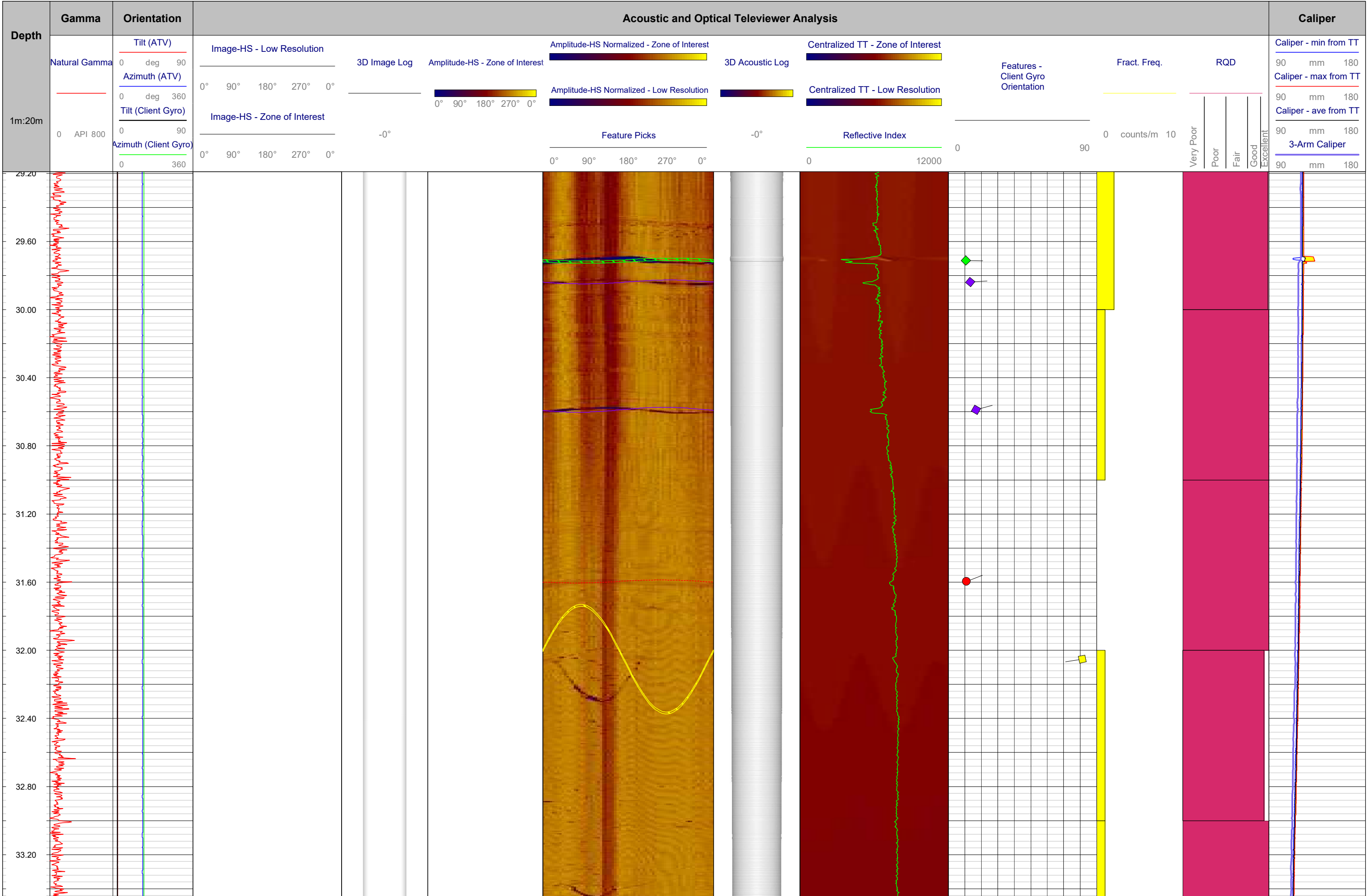
LEGEND - STRUCTURE TYPE									
Btm of Casing	Fault Contact - Upper and lower fault planar contacts for larger fault structures or fault zones	Joint/Fracture - Wide Open (30mm+)	Joint/Fracture - Moderately Open (10-30mm)	Joint/Fracture - Open (1-10mm)					
Joint/Fracture - Tight (0-1mm)	Joint/Fracture - Filled	Bedding/ Banding/ Foliation	Vein	Contact					

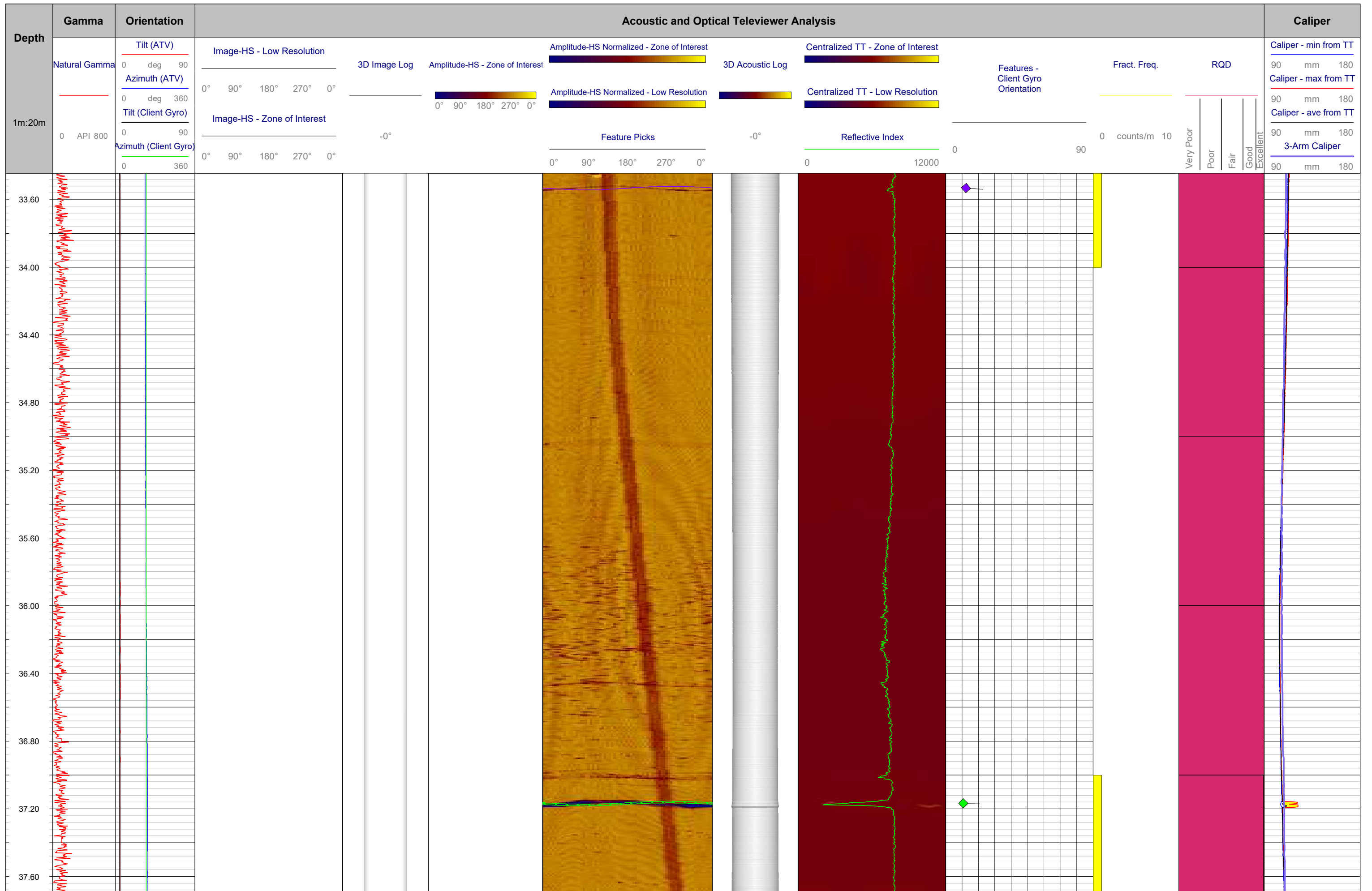


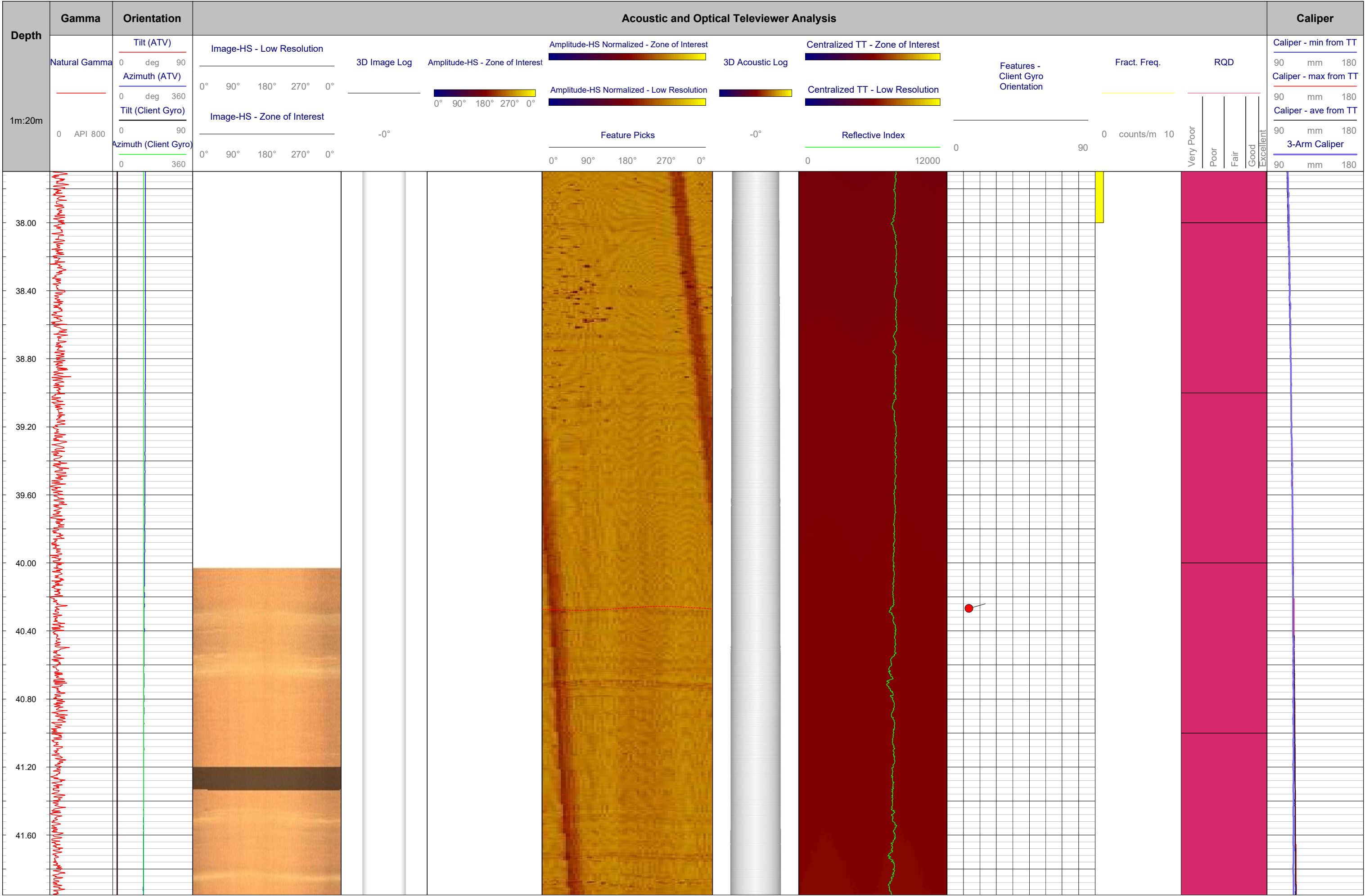


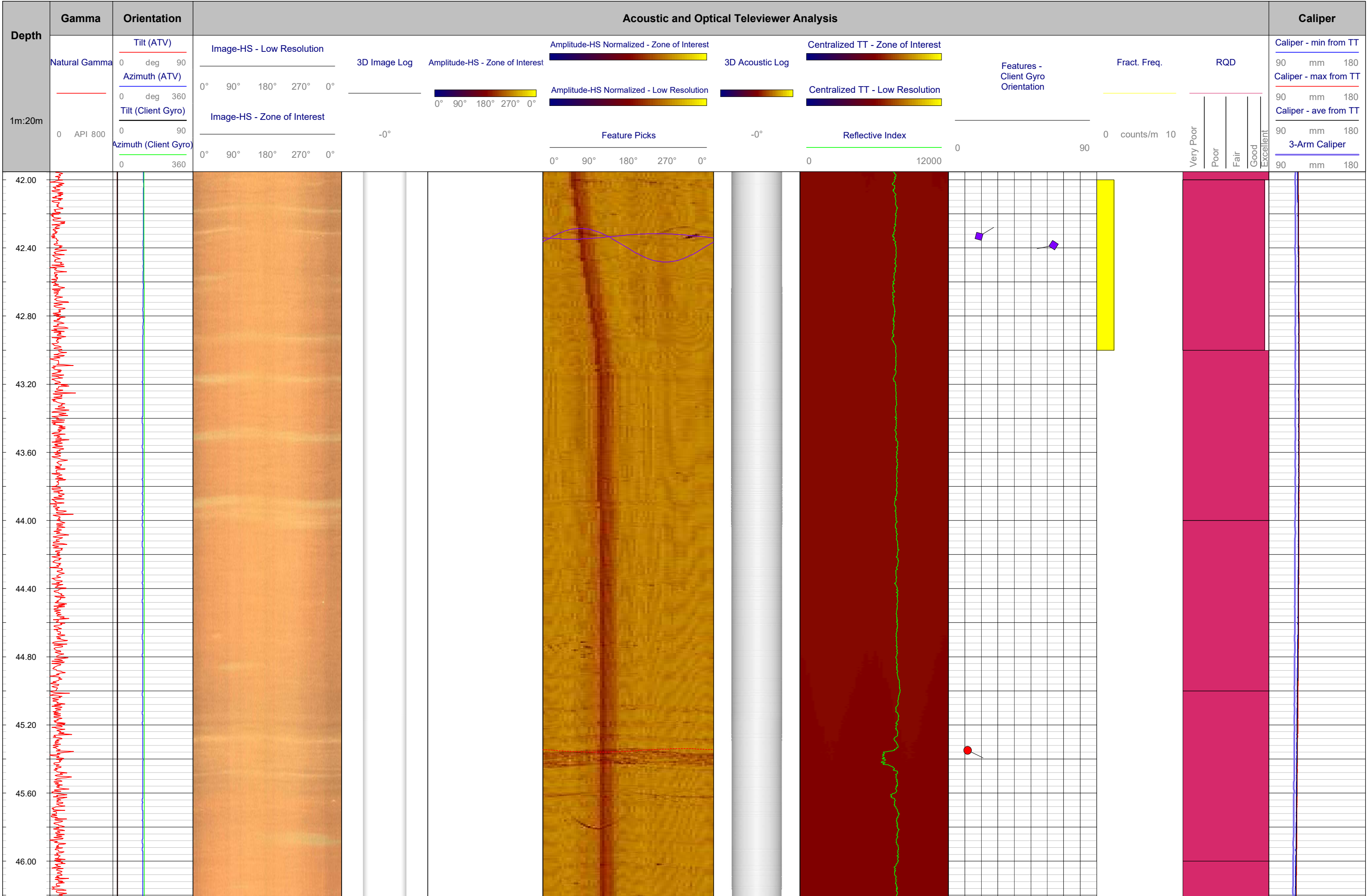


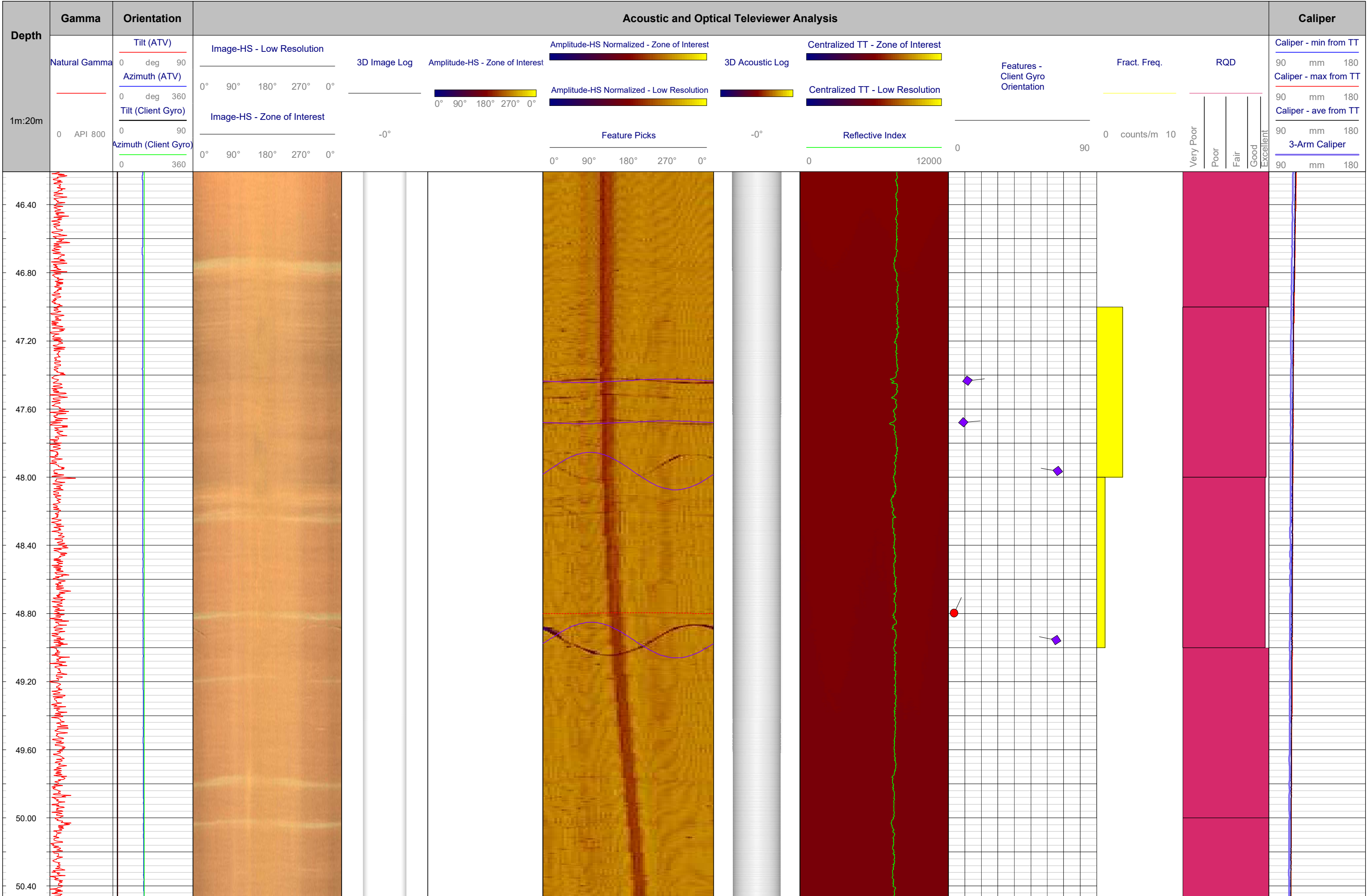


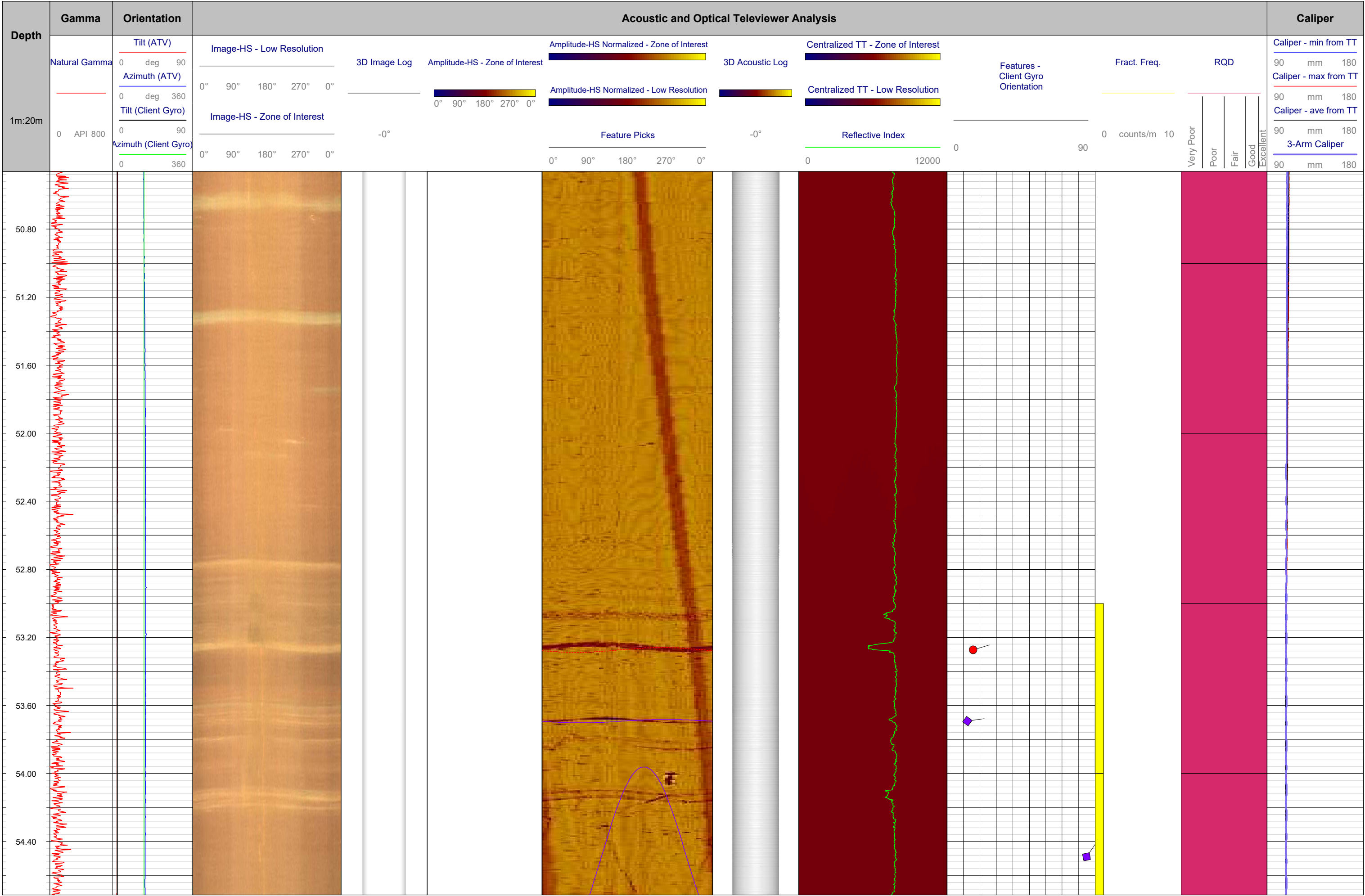


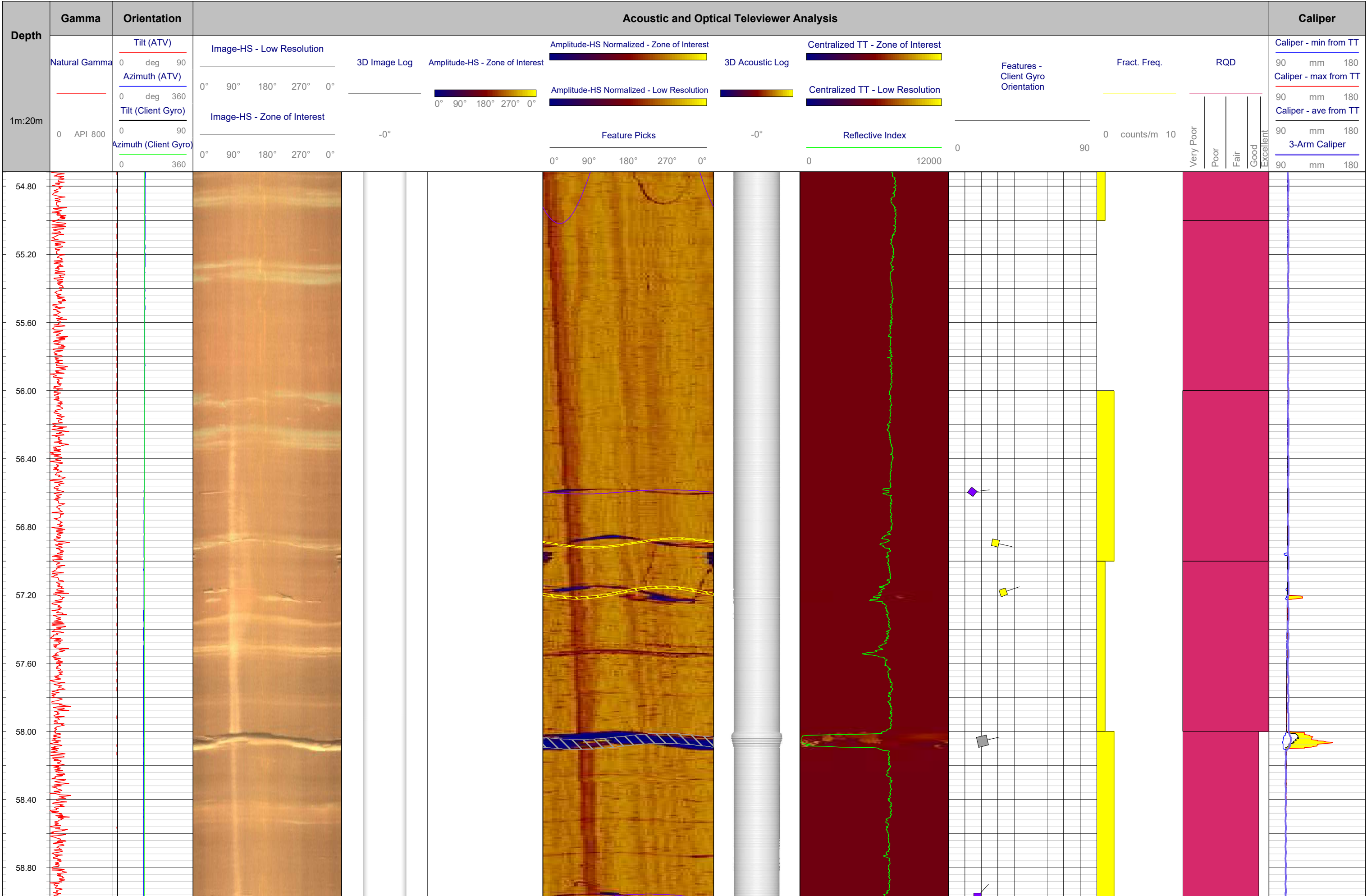


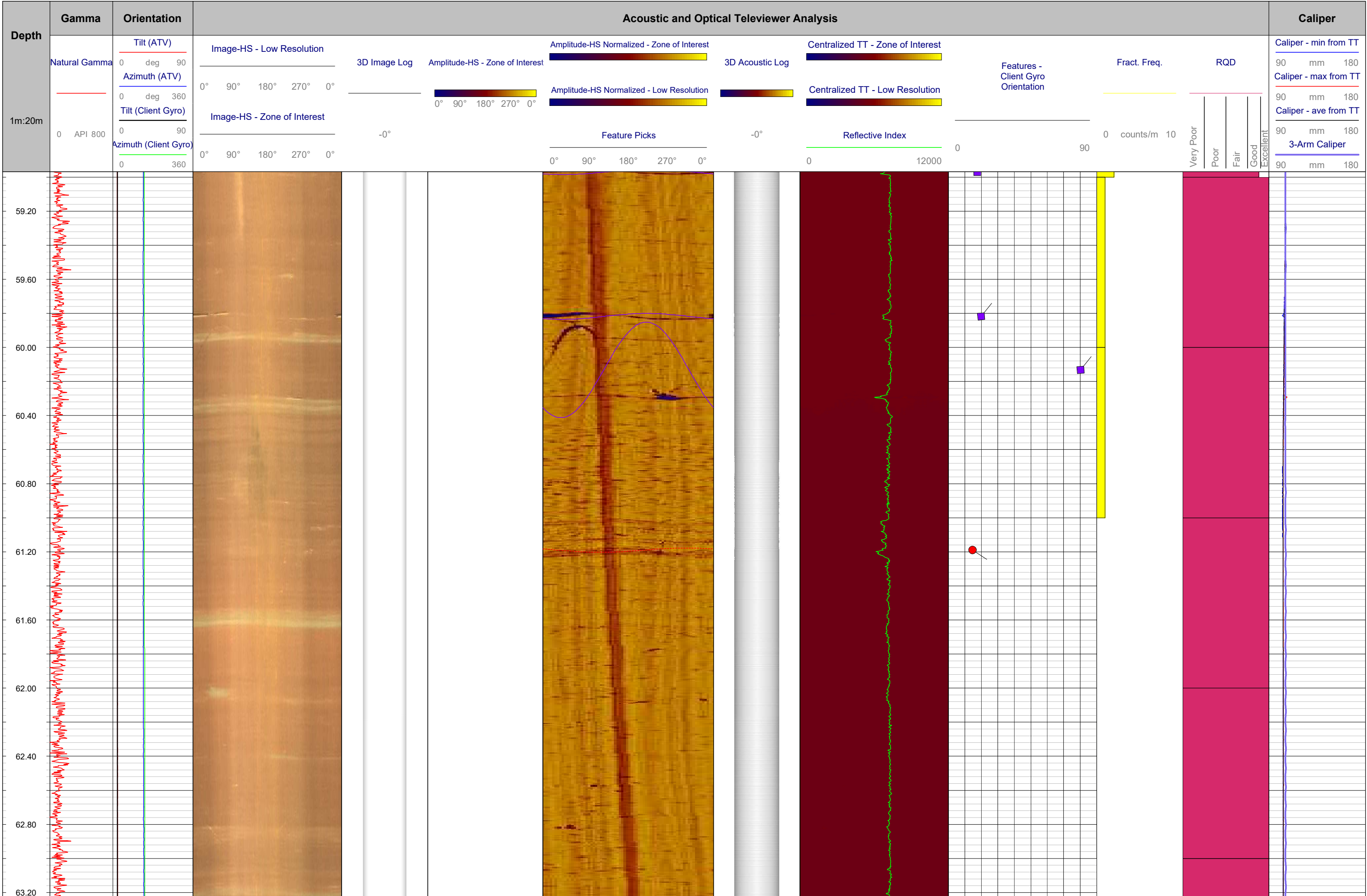


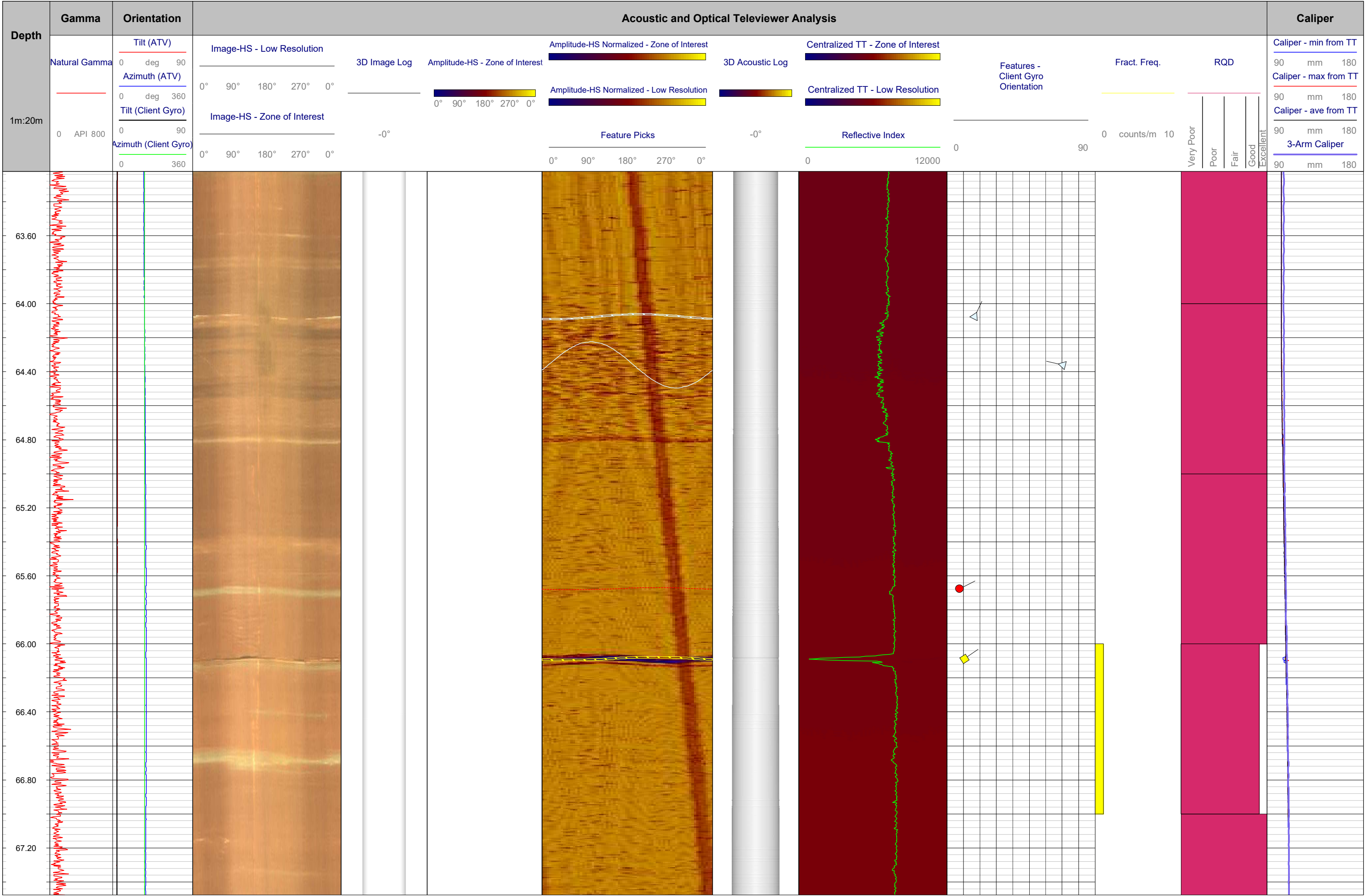


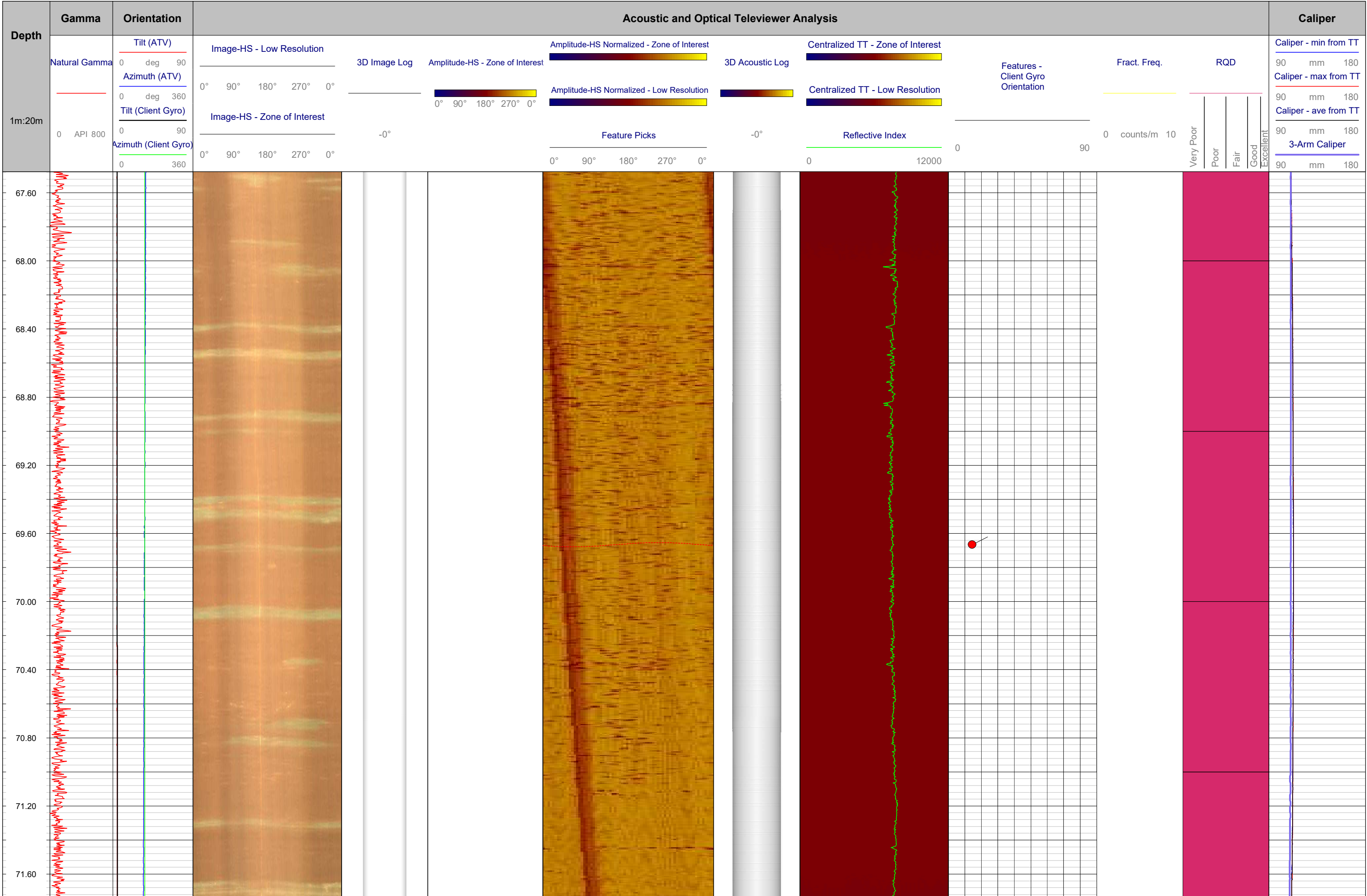


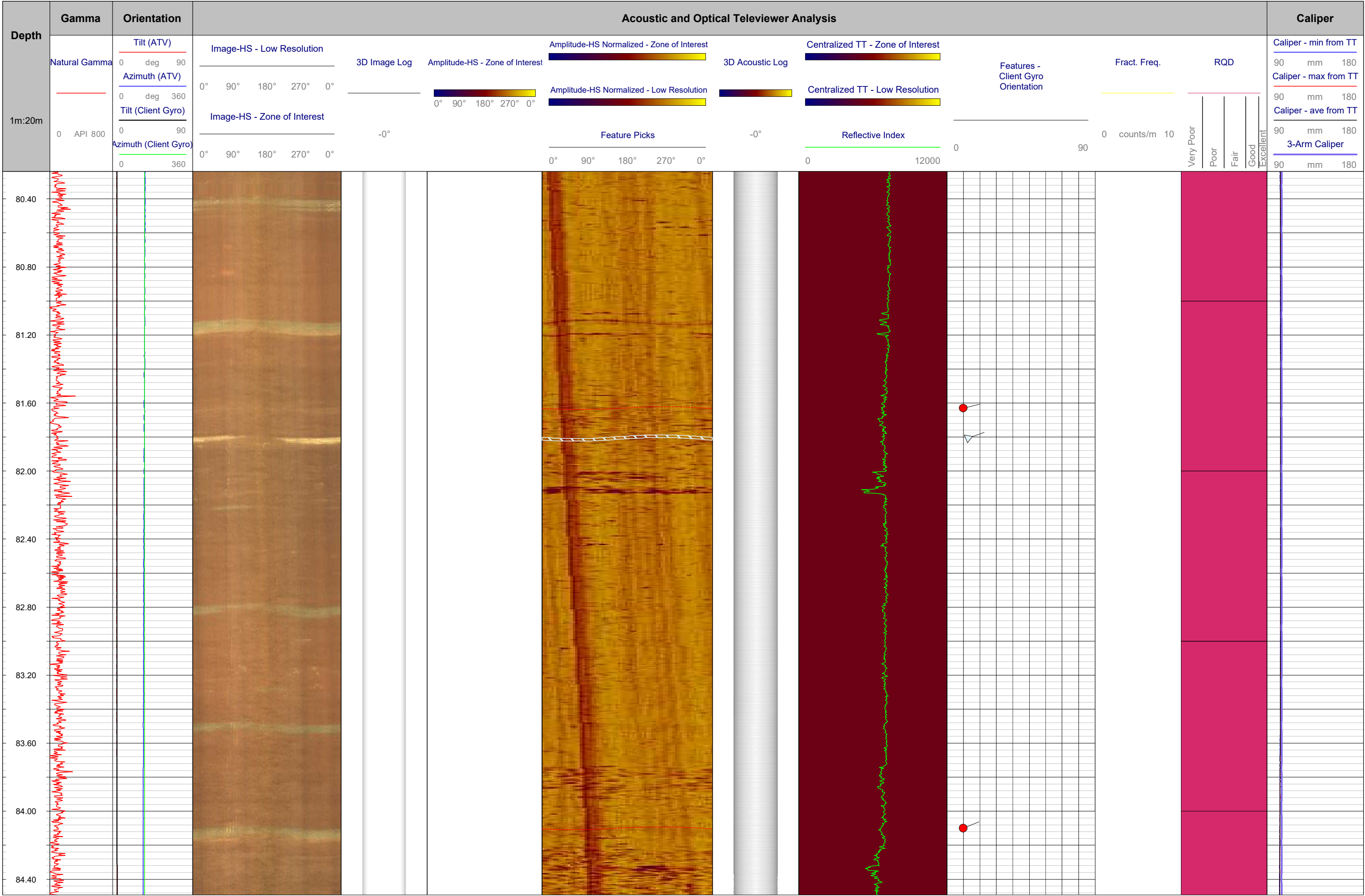


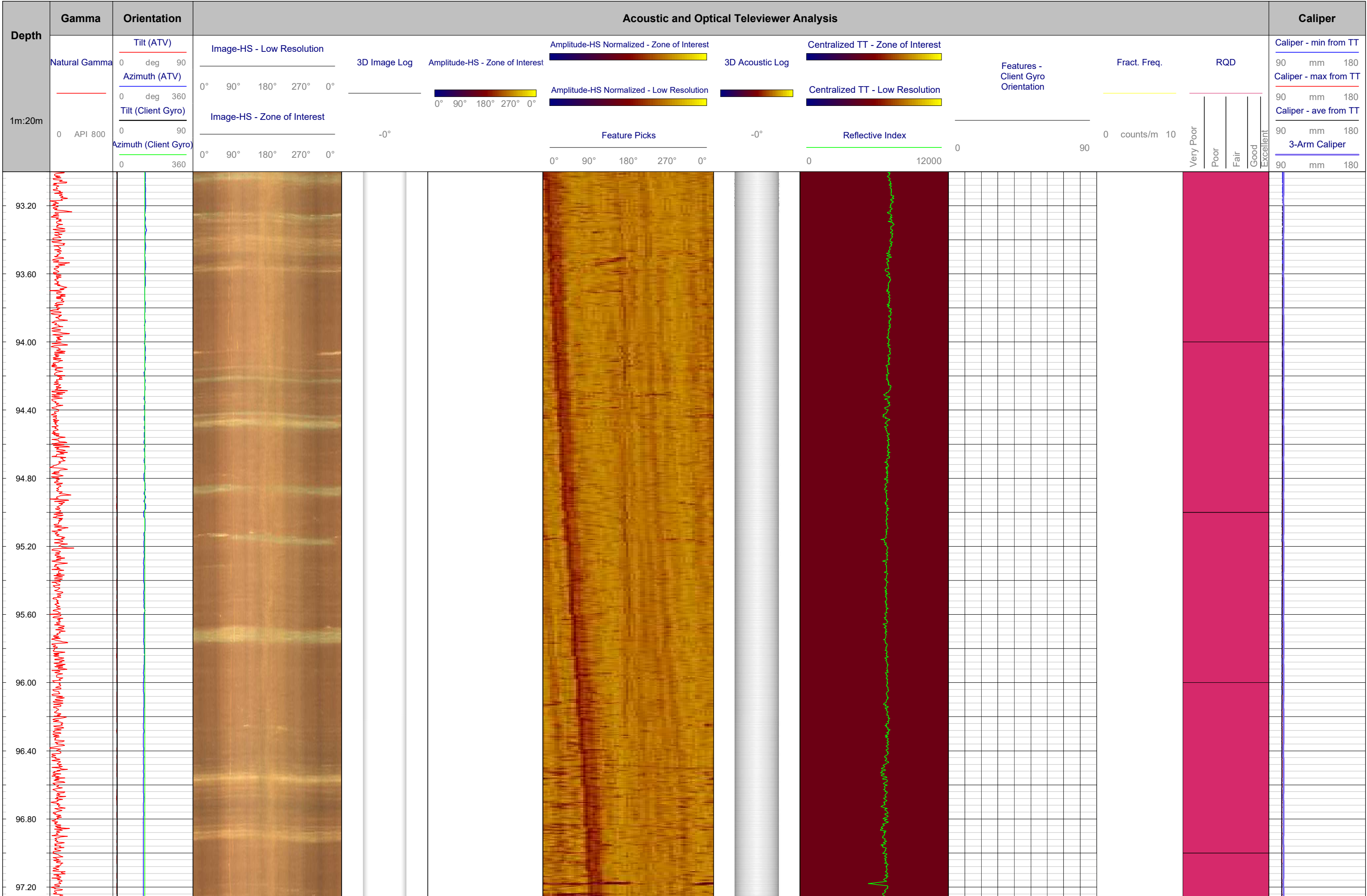


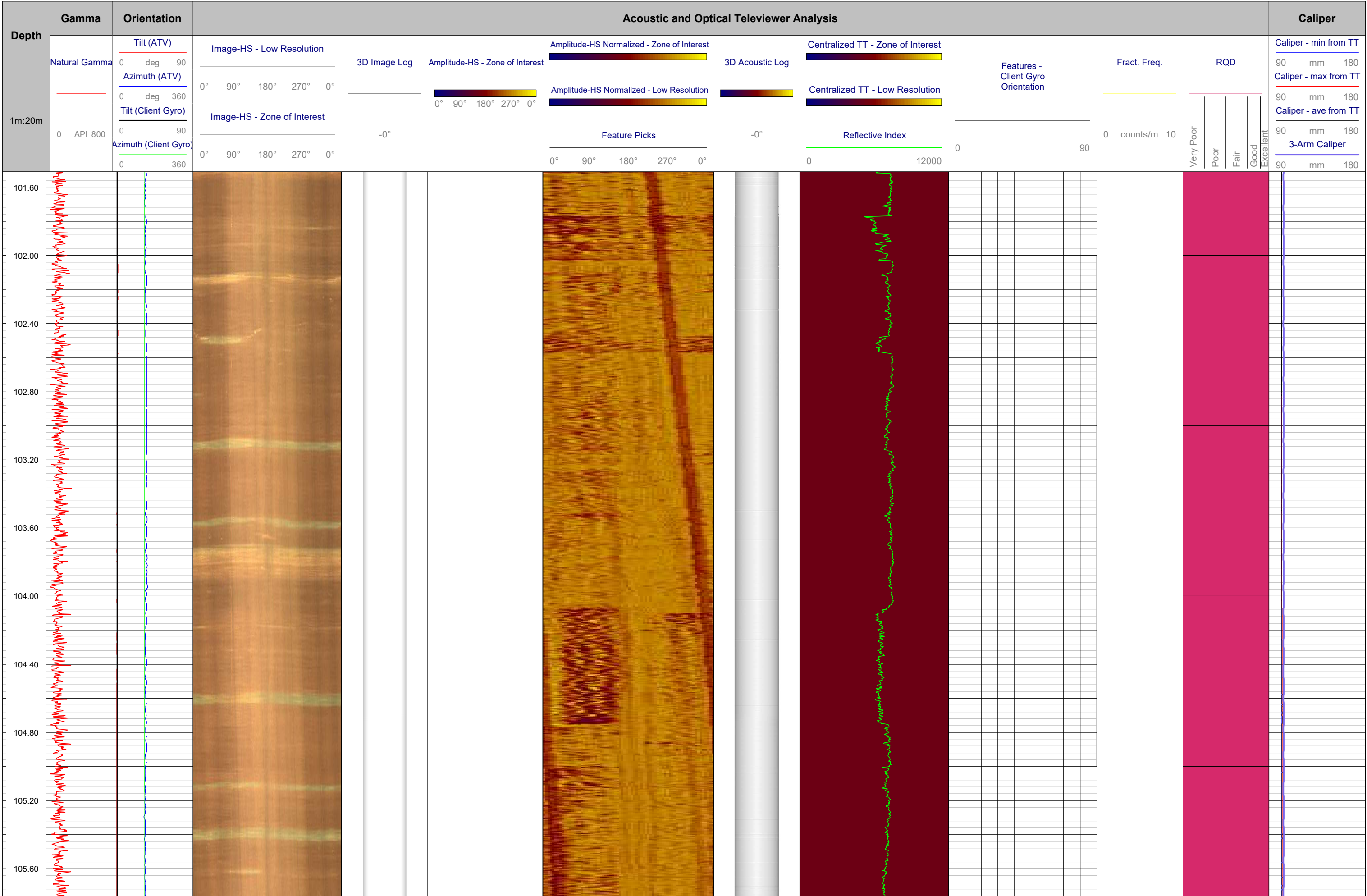


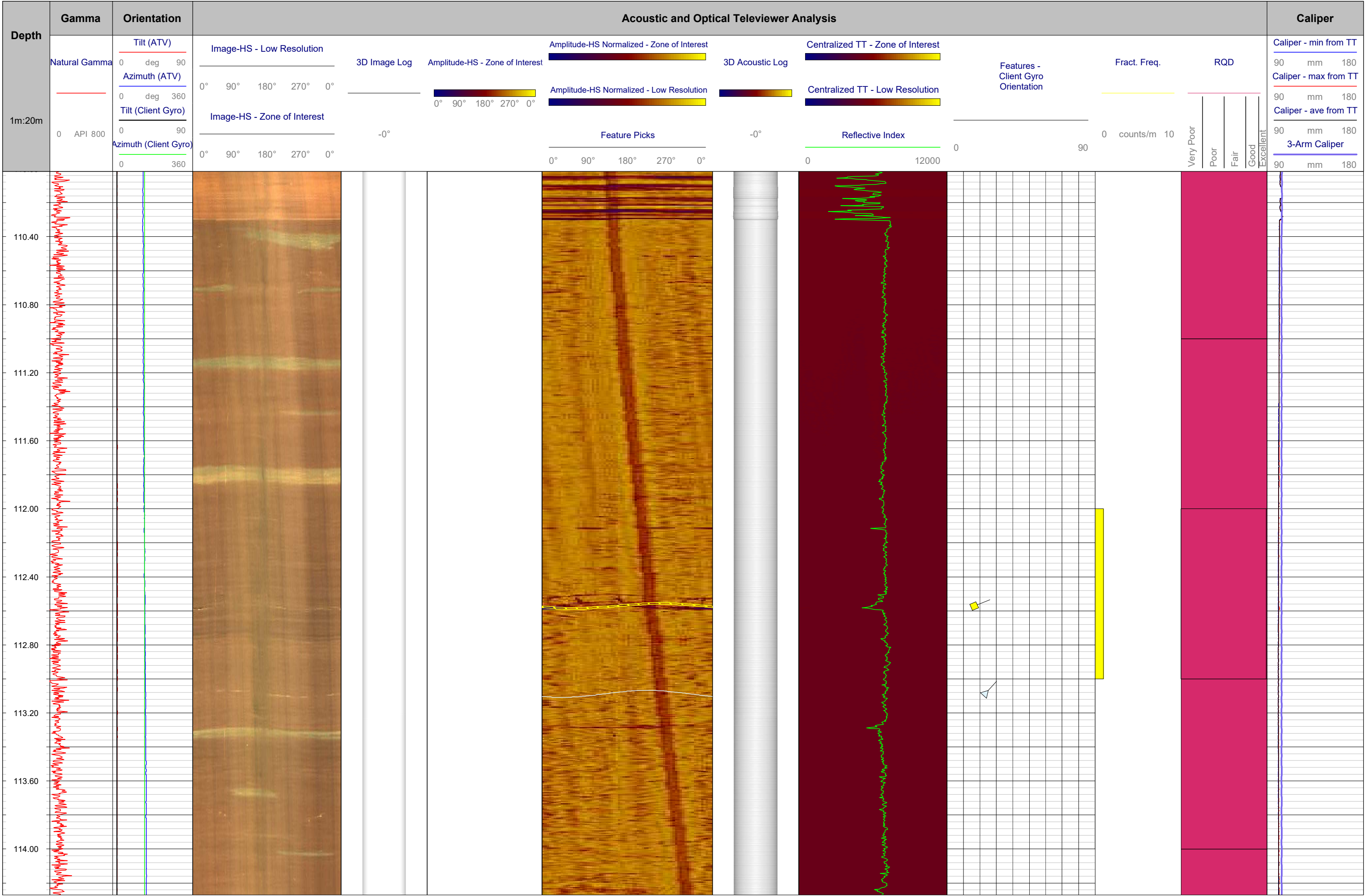


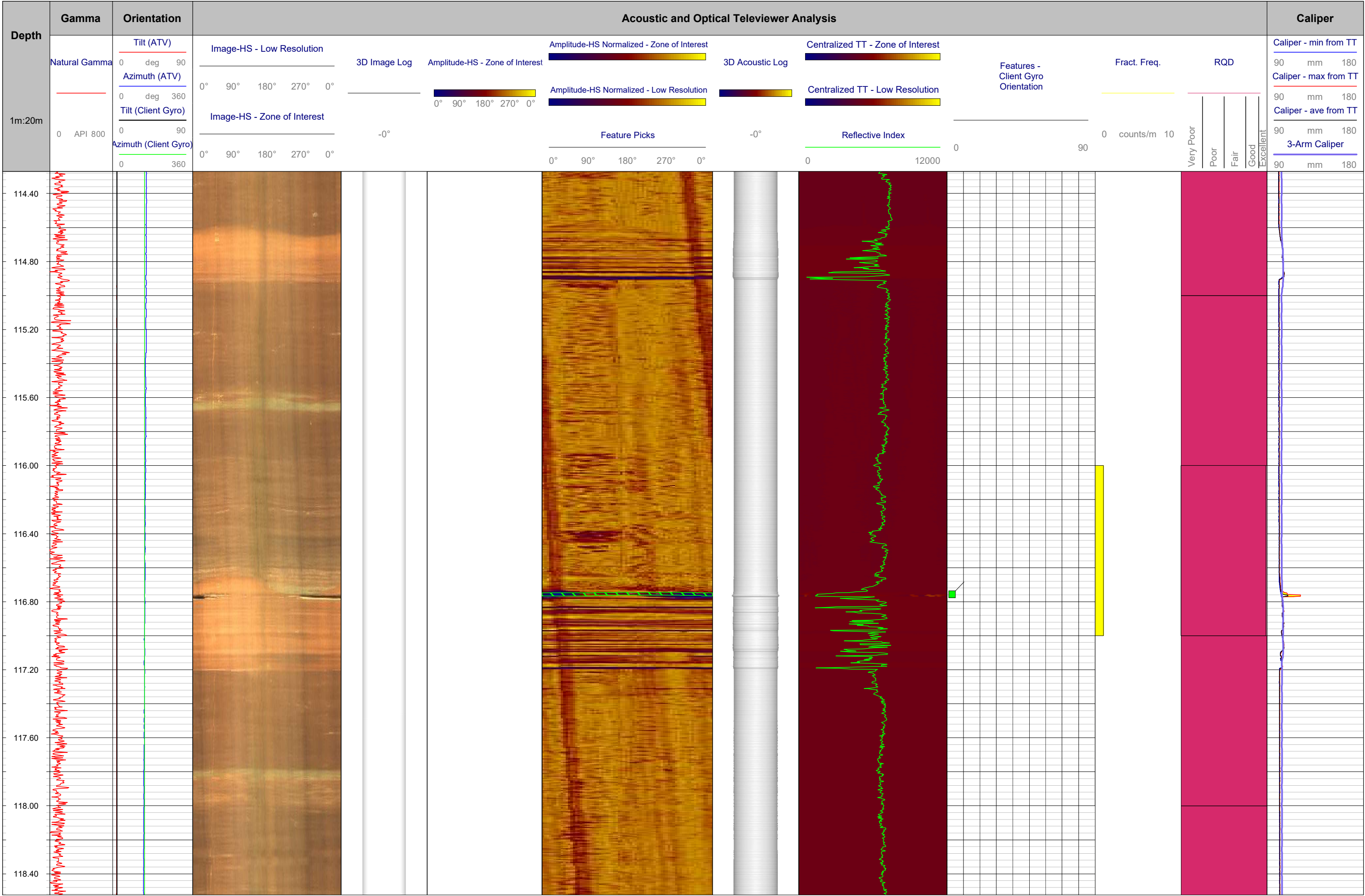


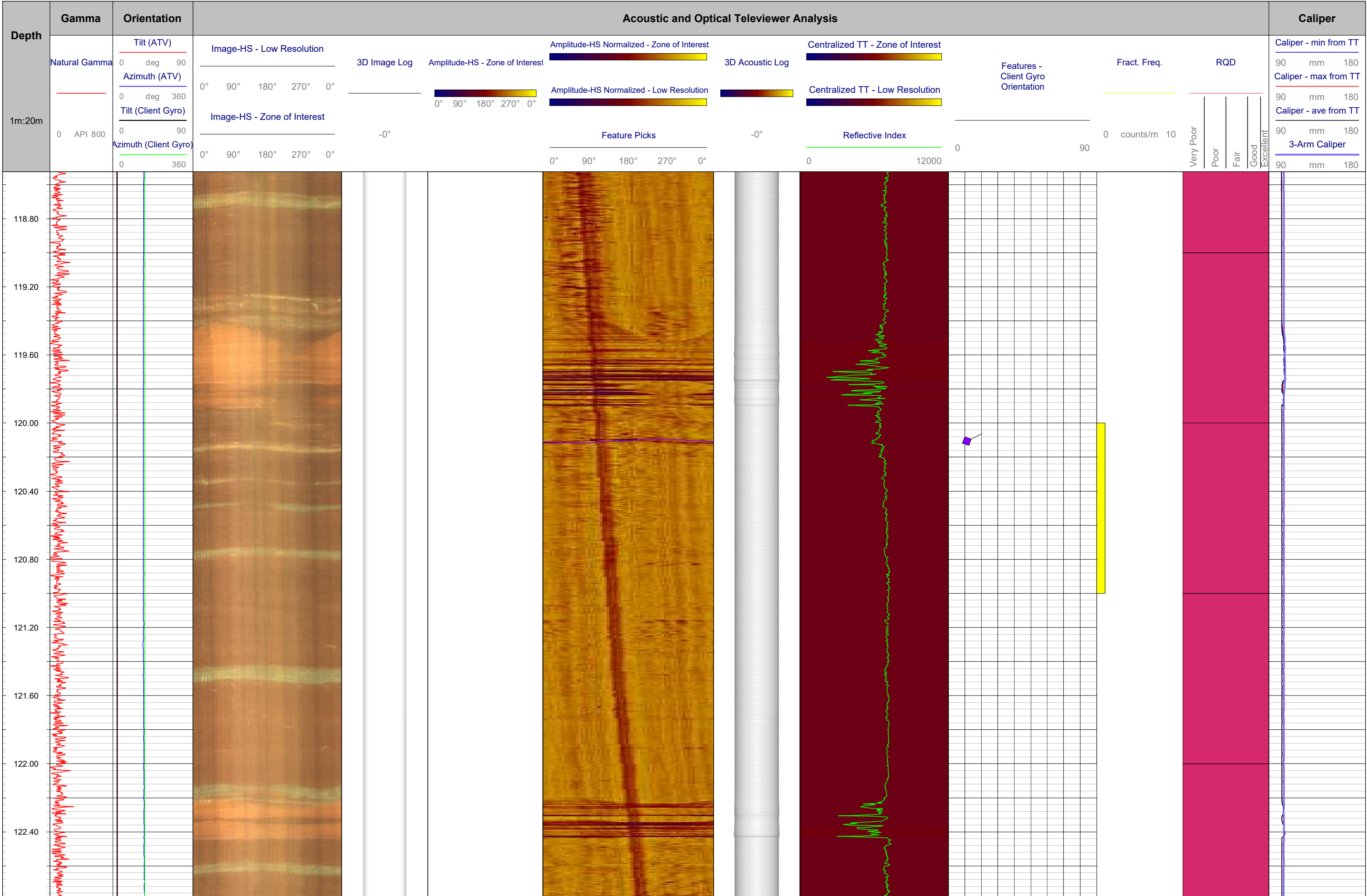


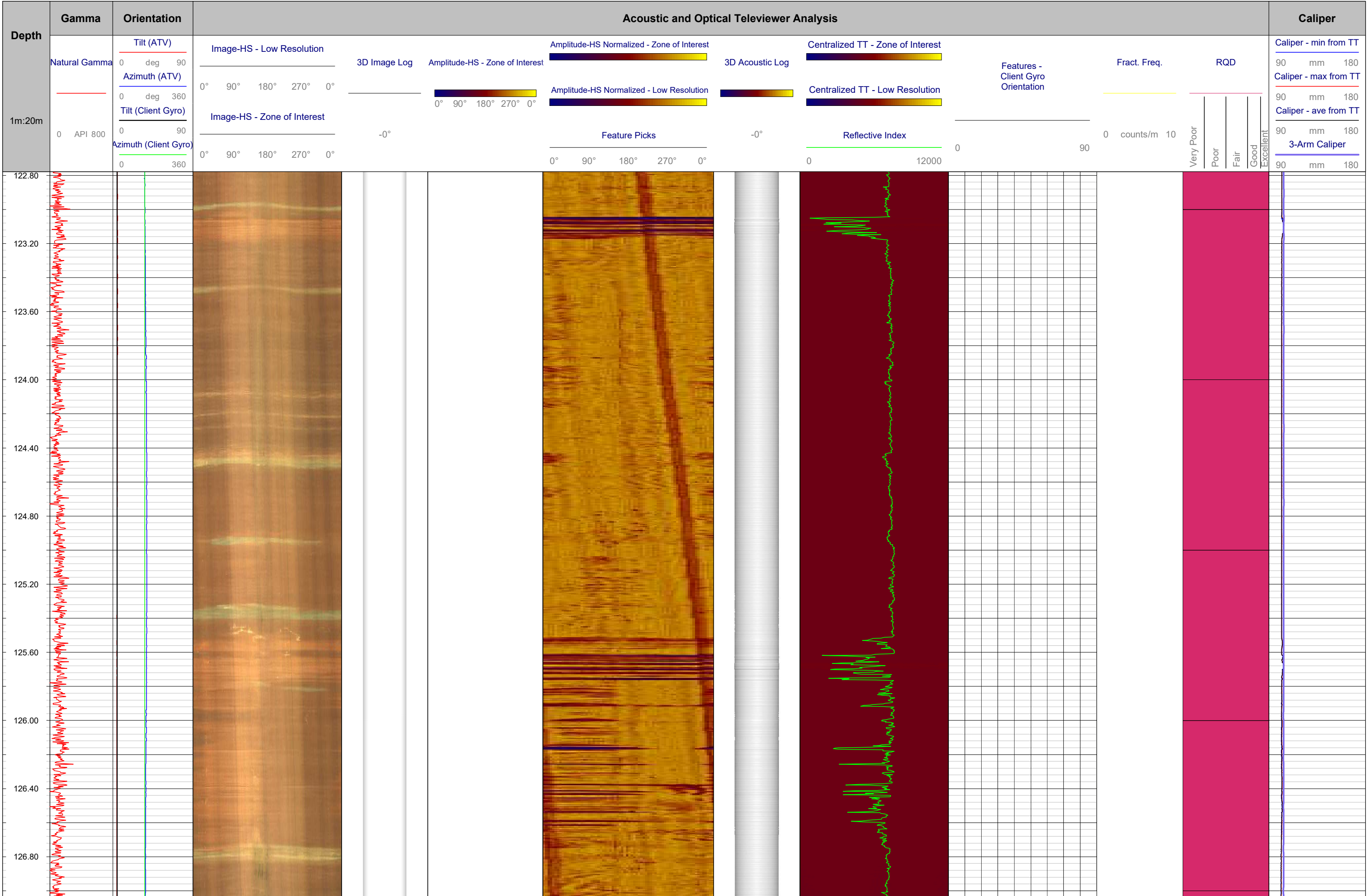


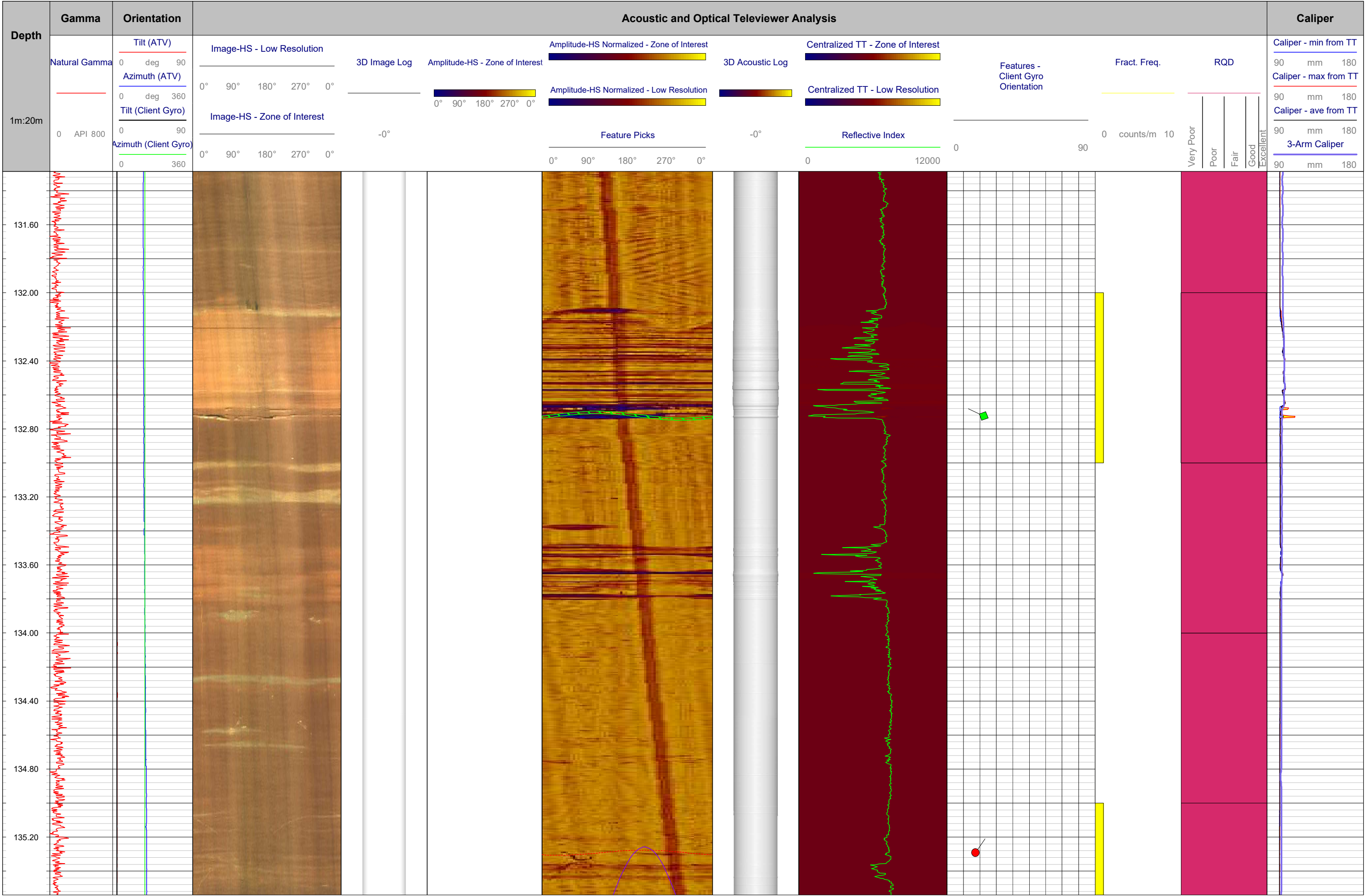


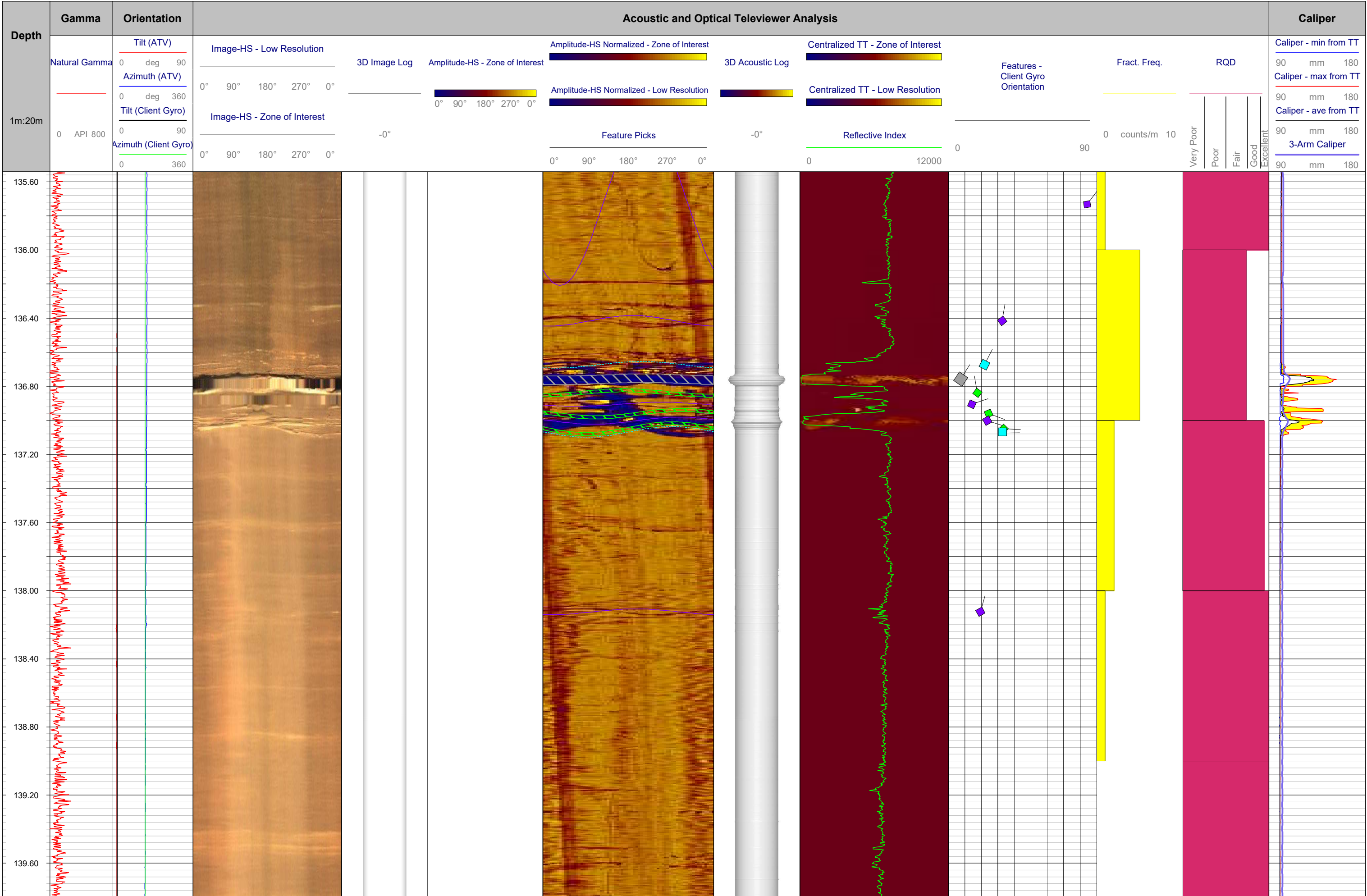


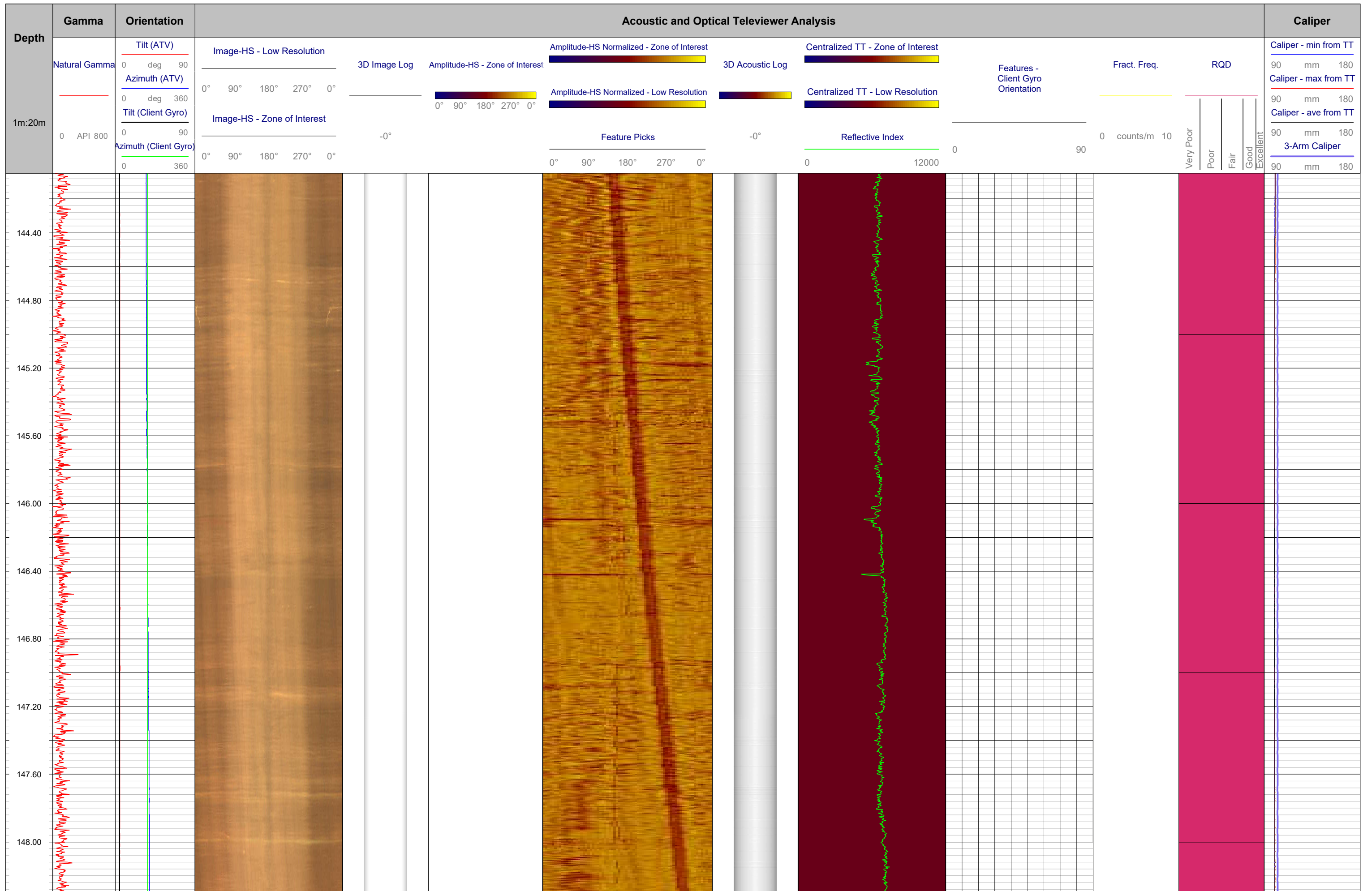


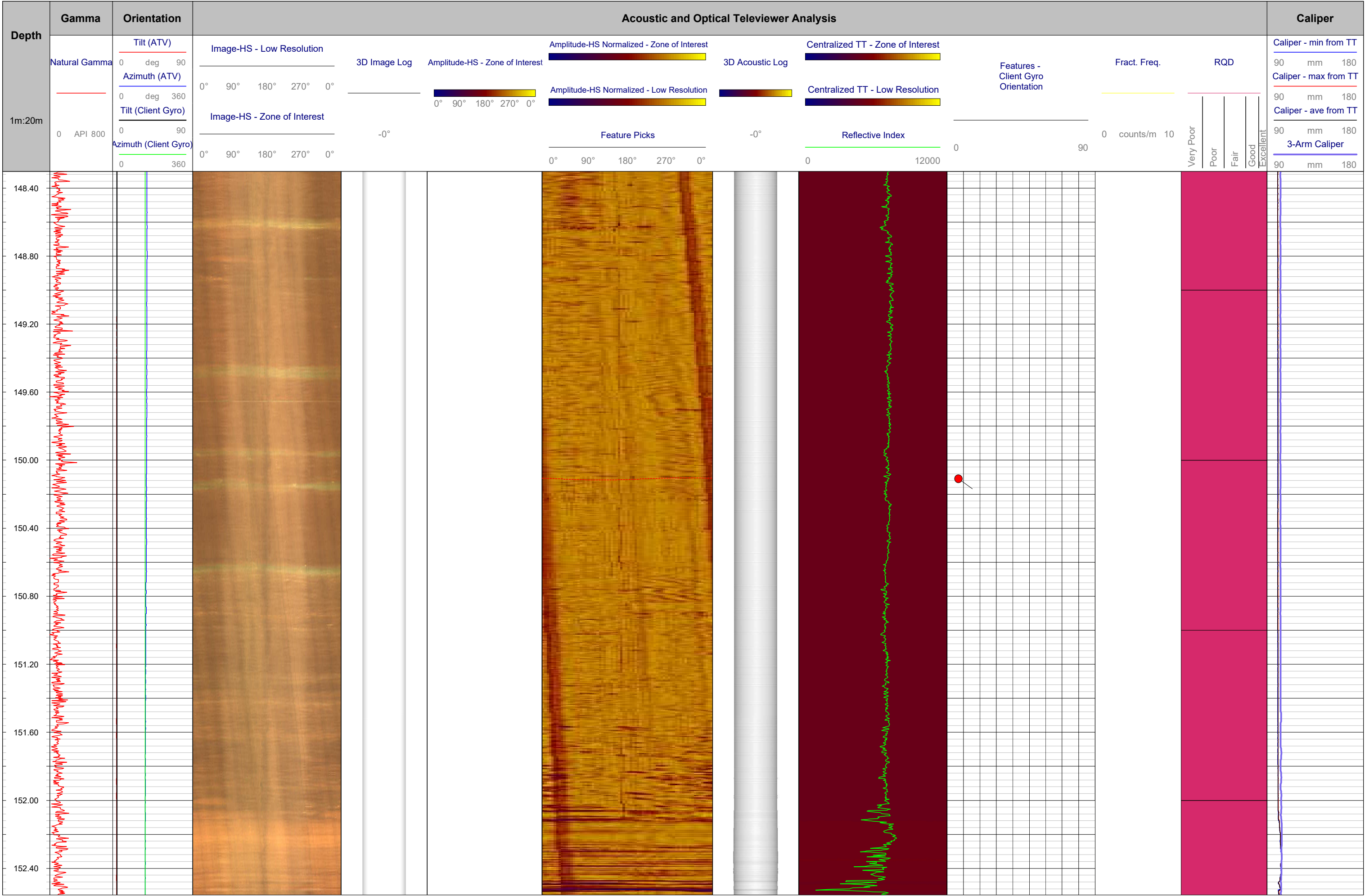


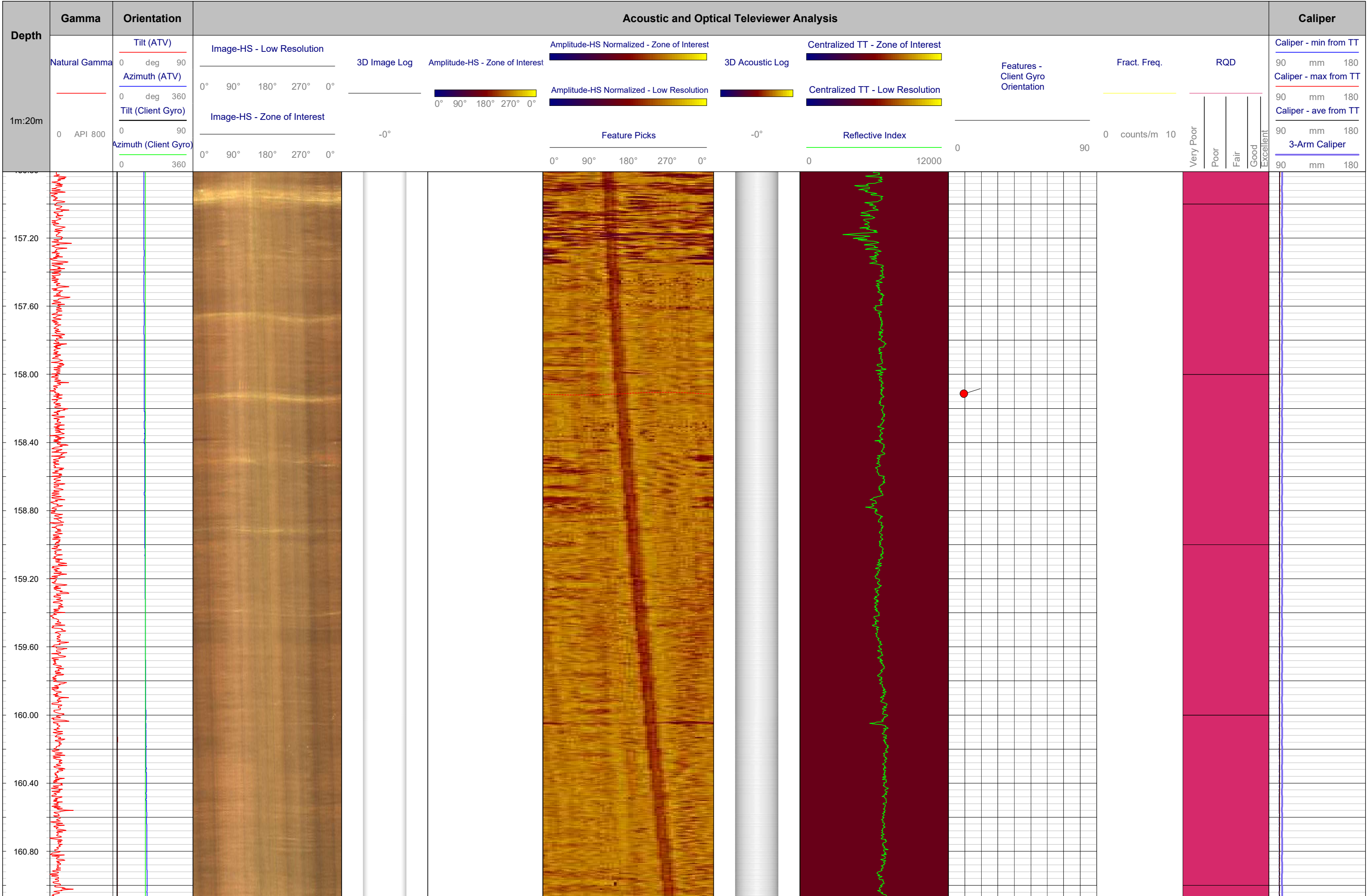


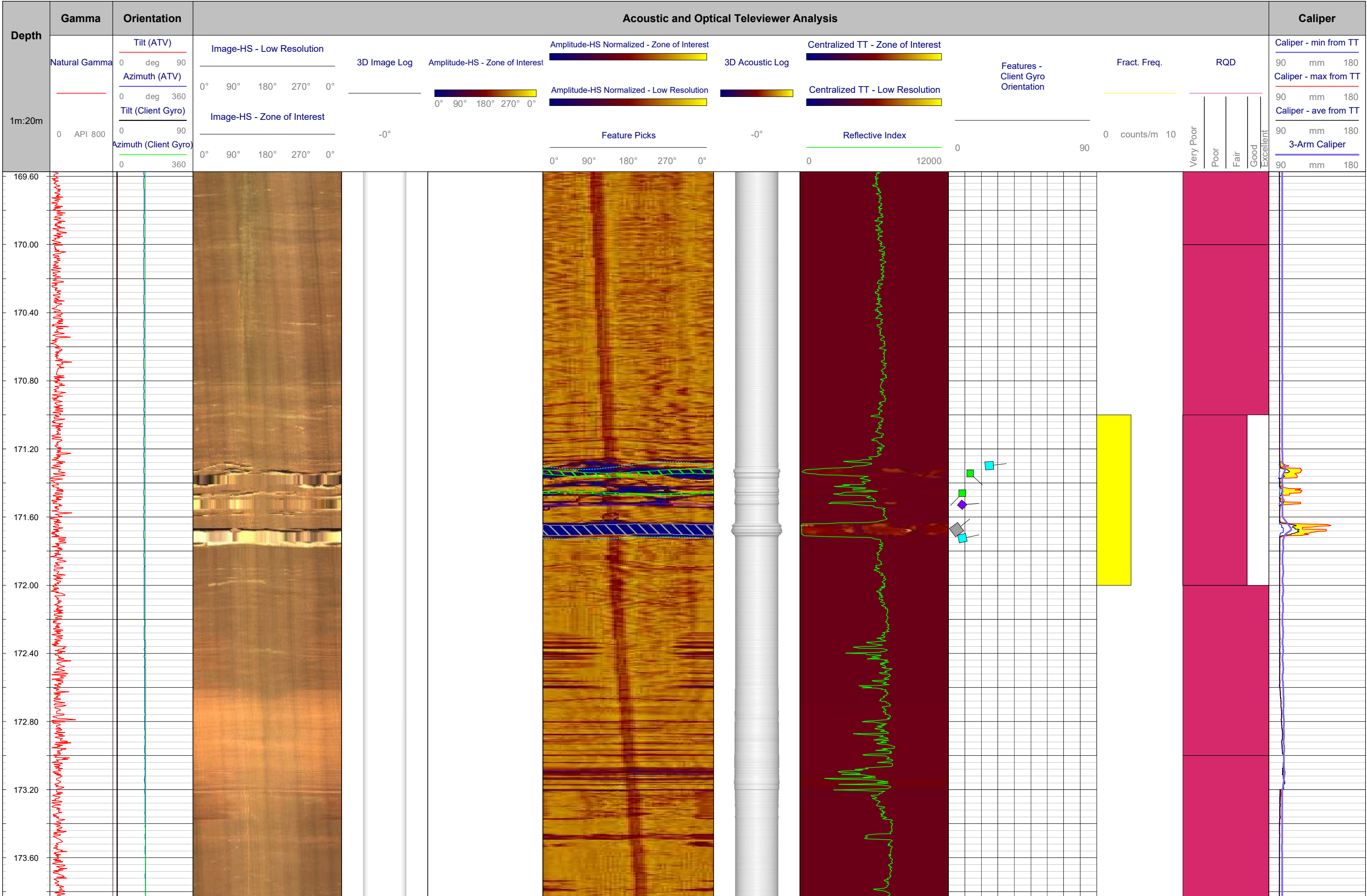


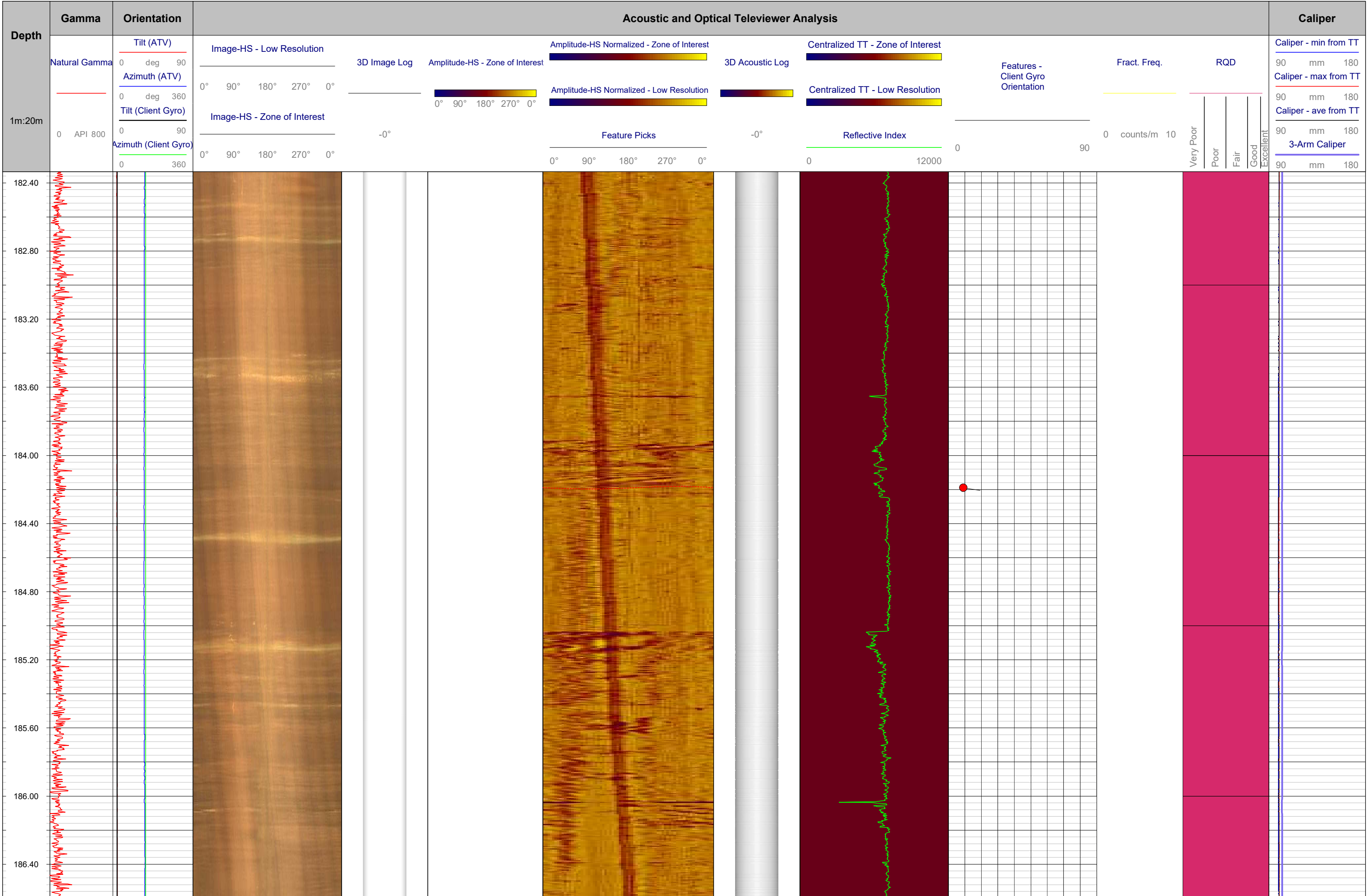


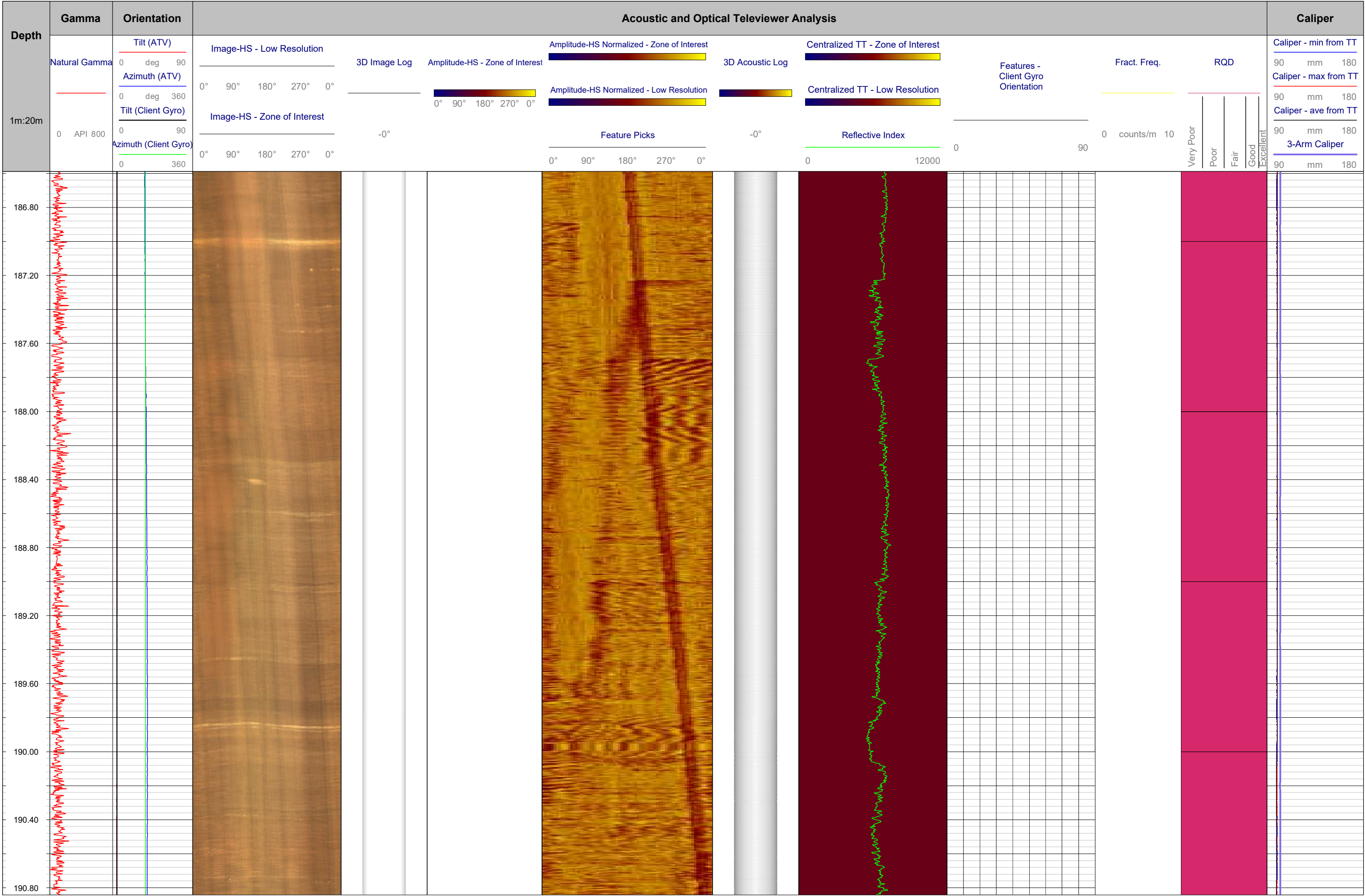


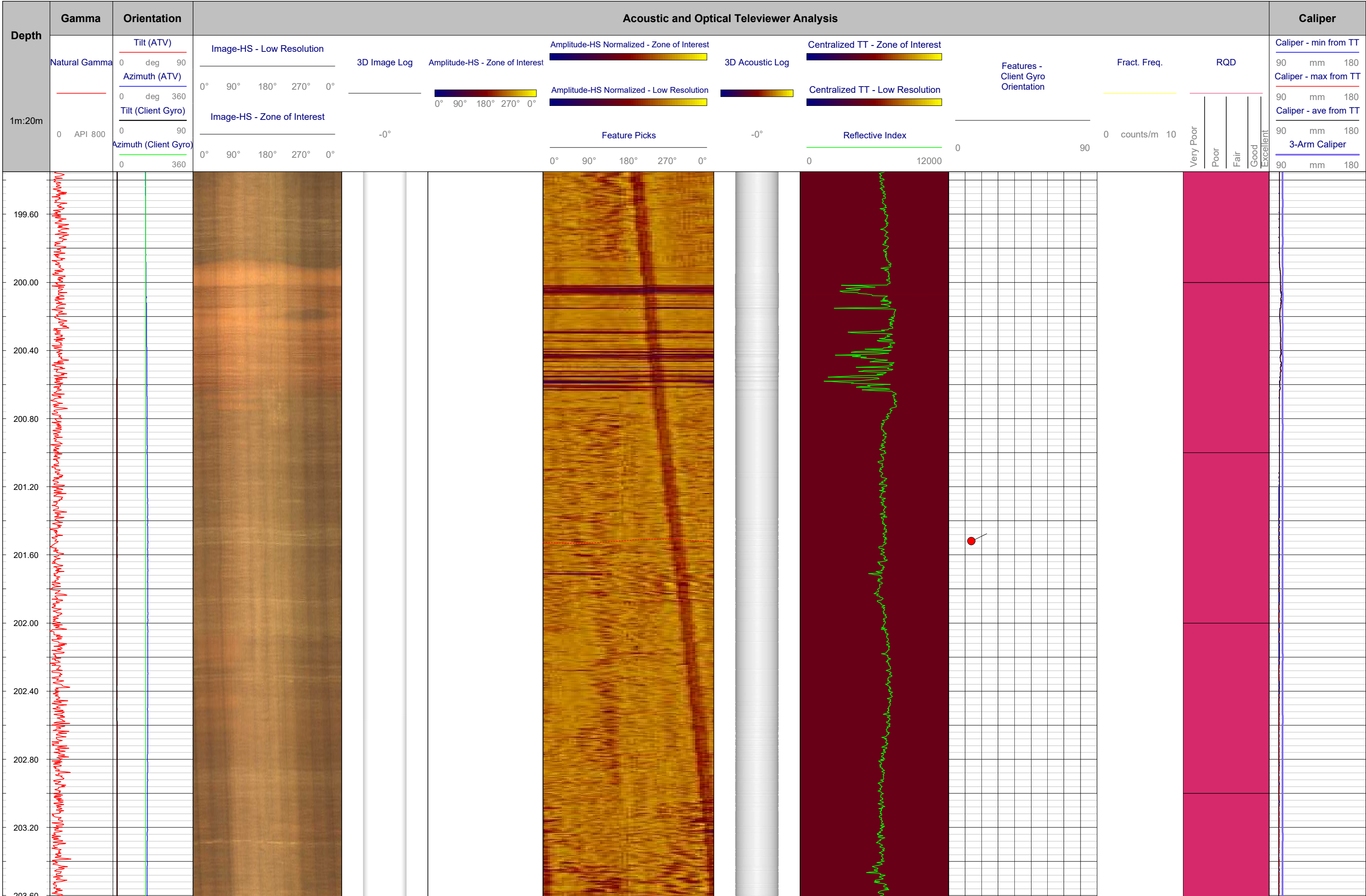


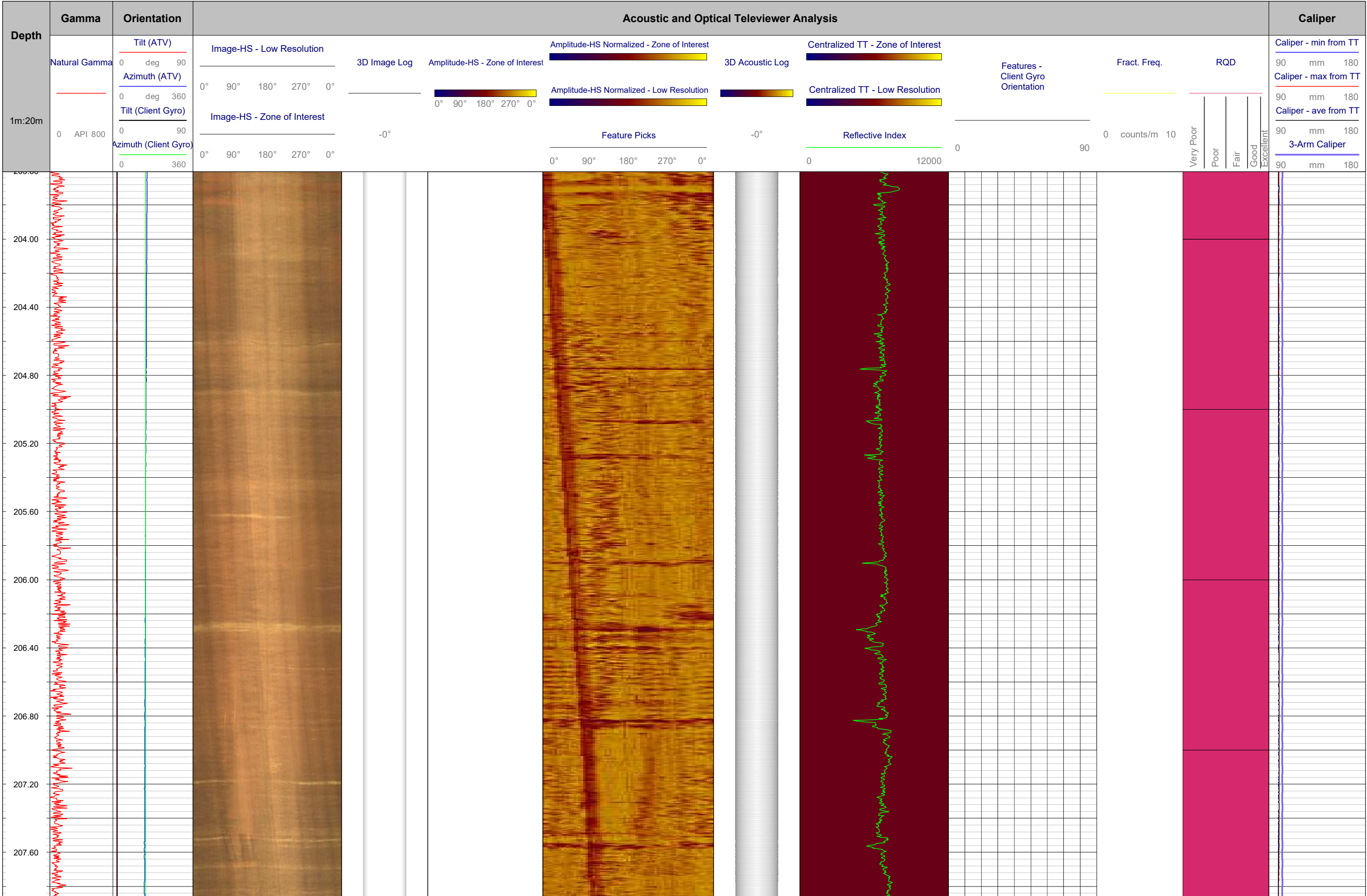


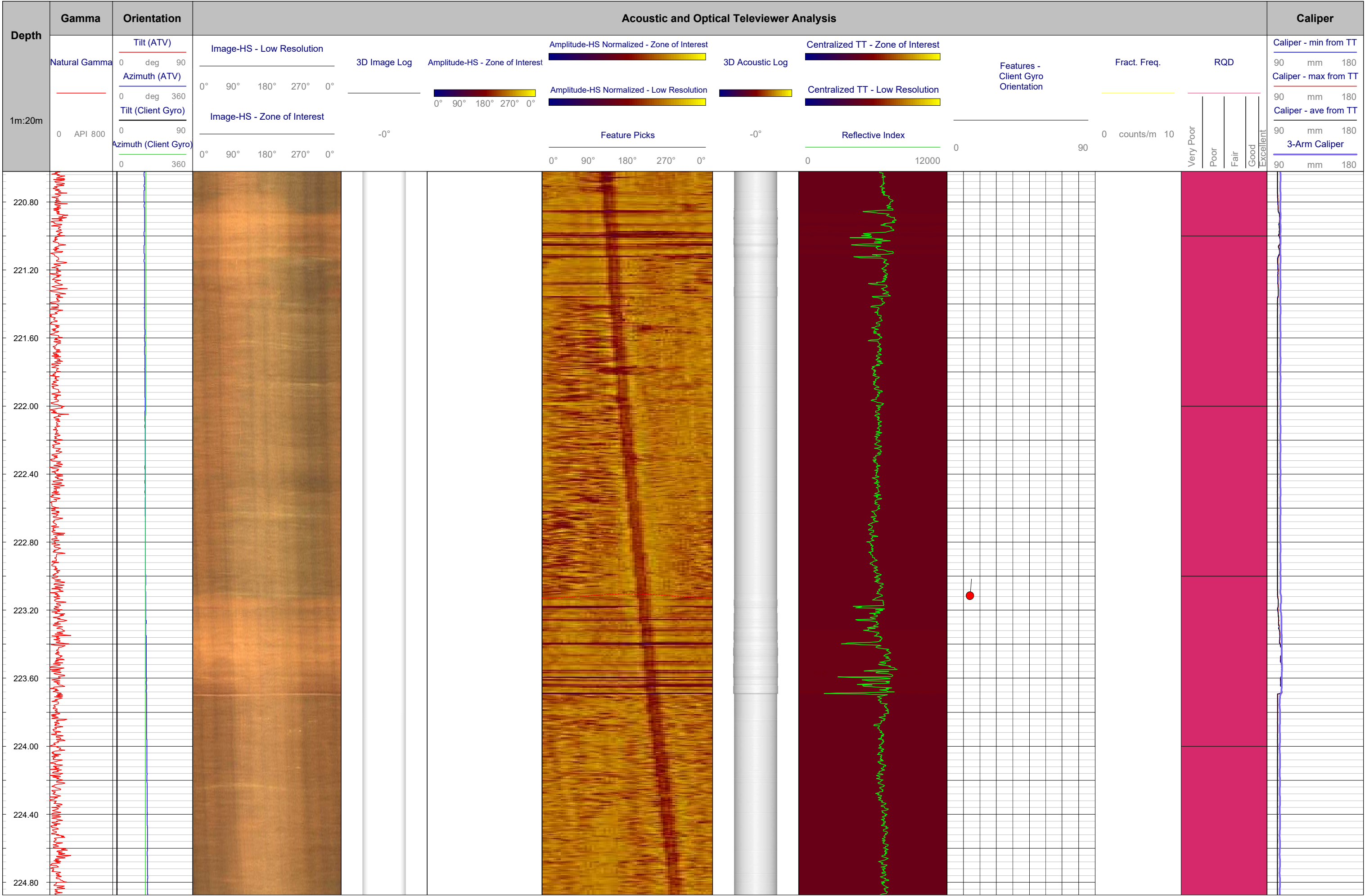


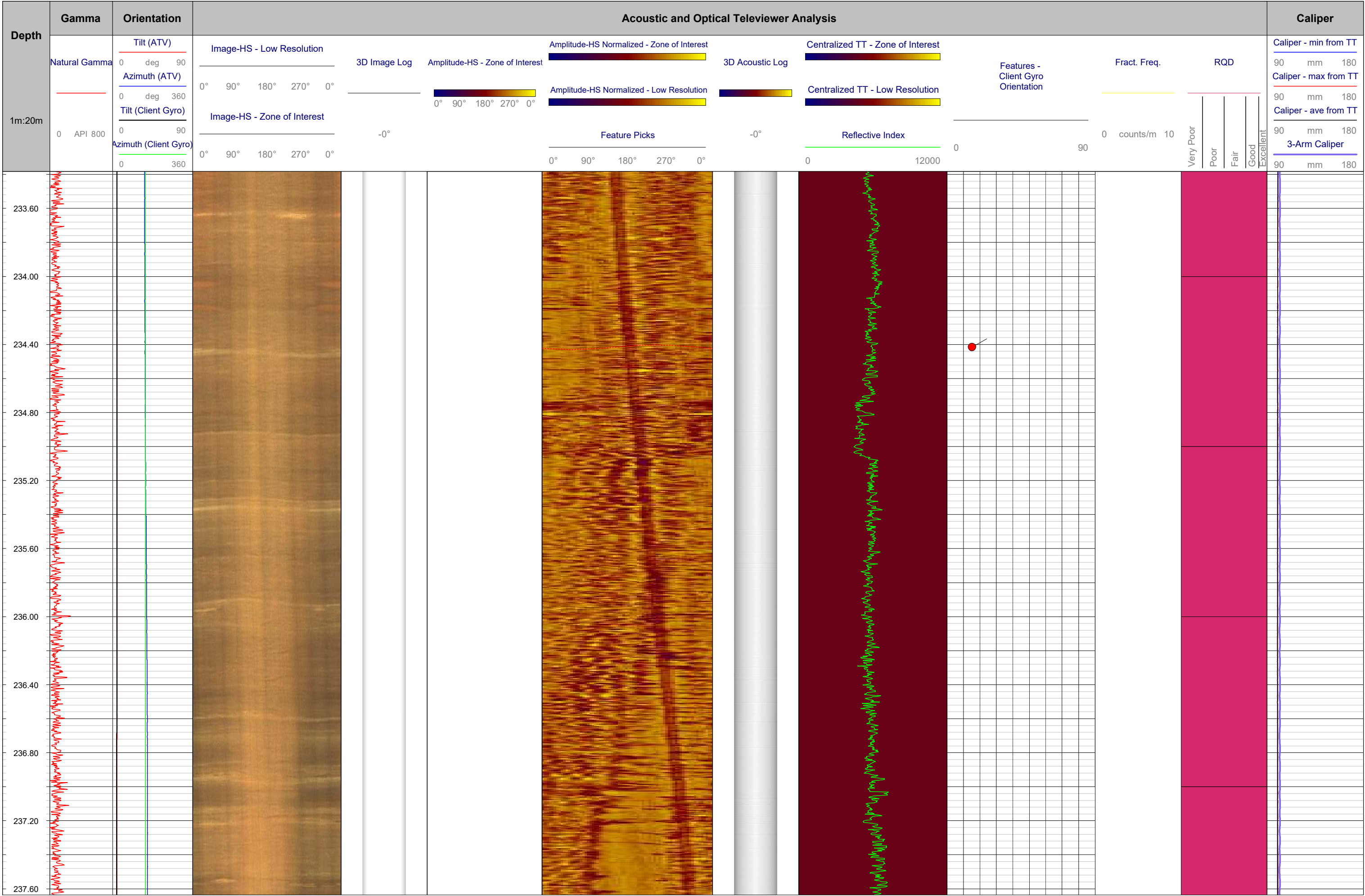


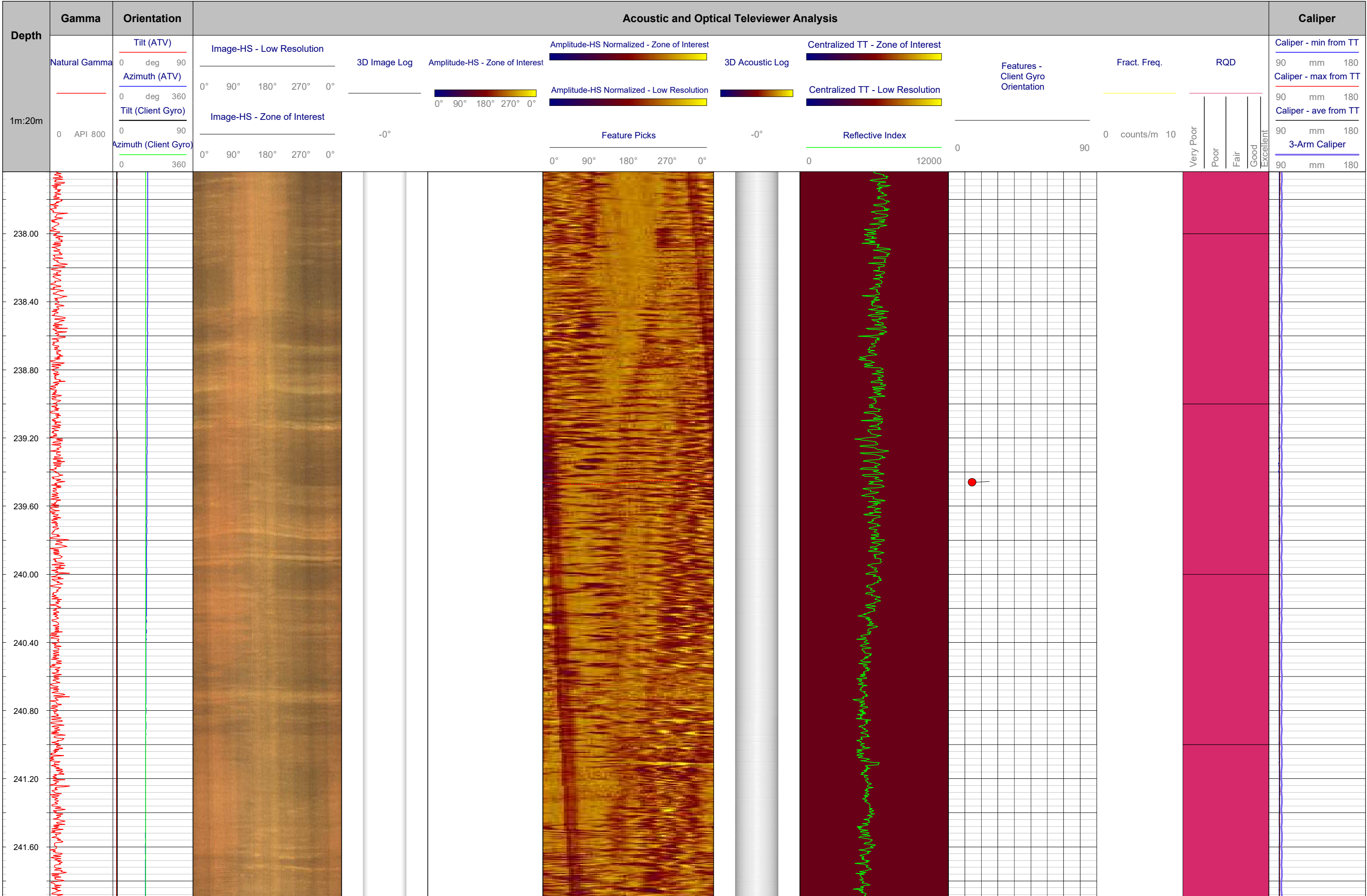


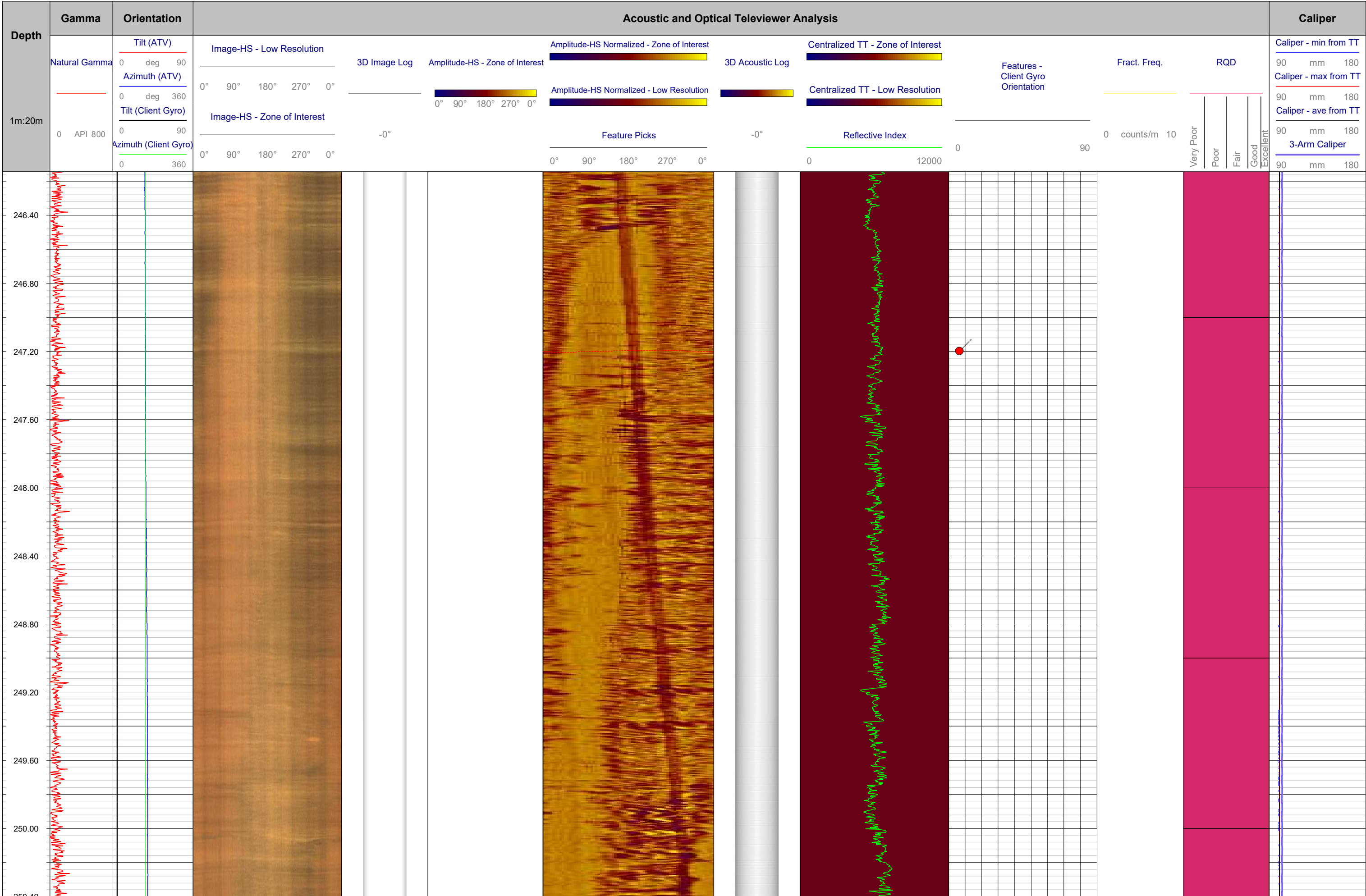


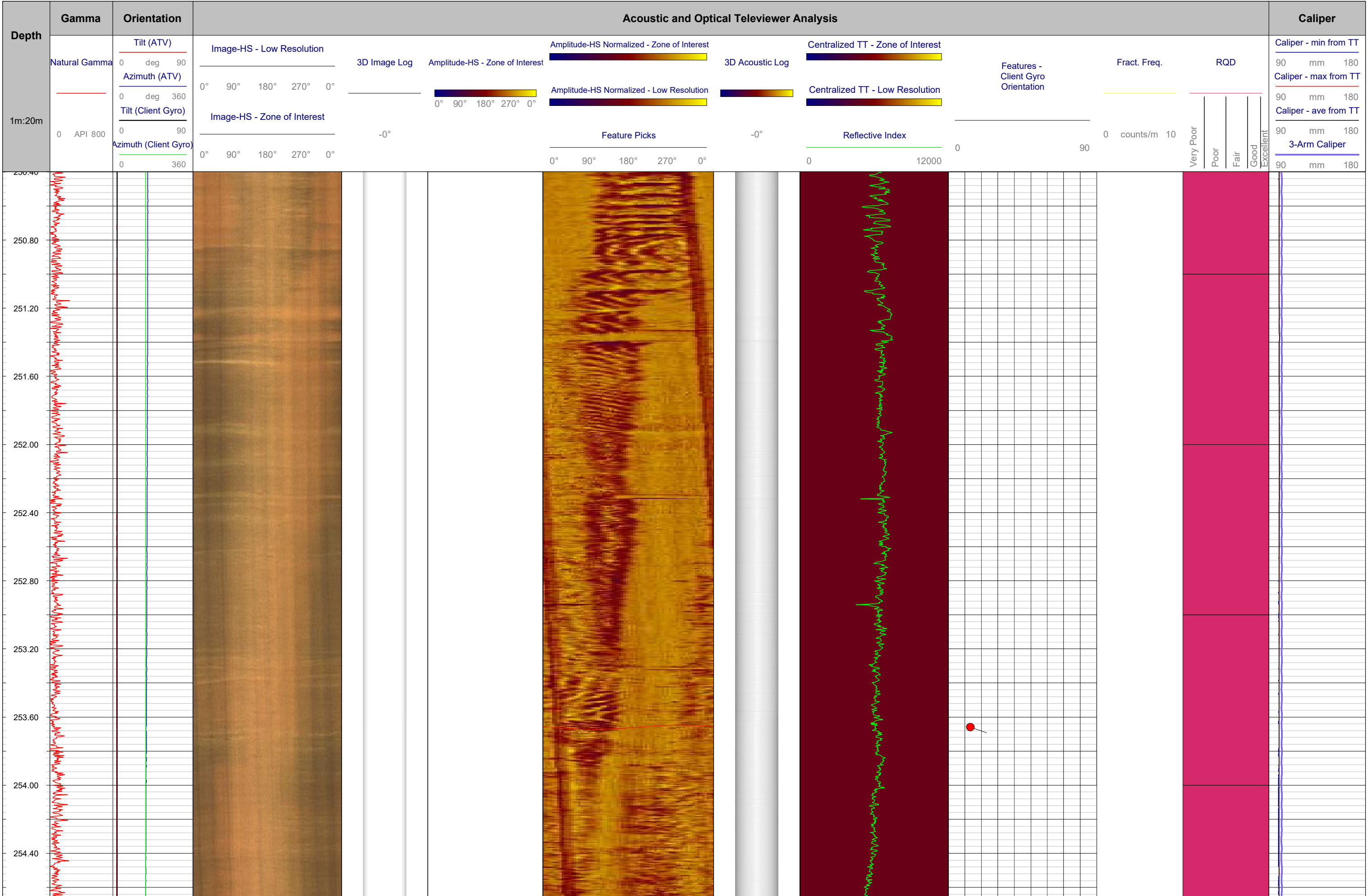


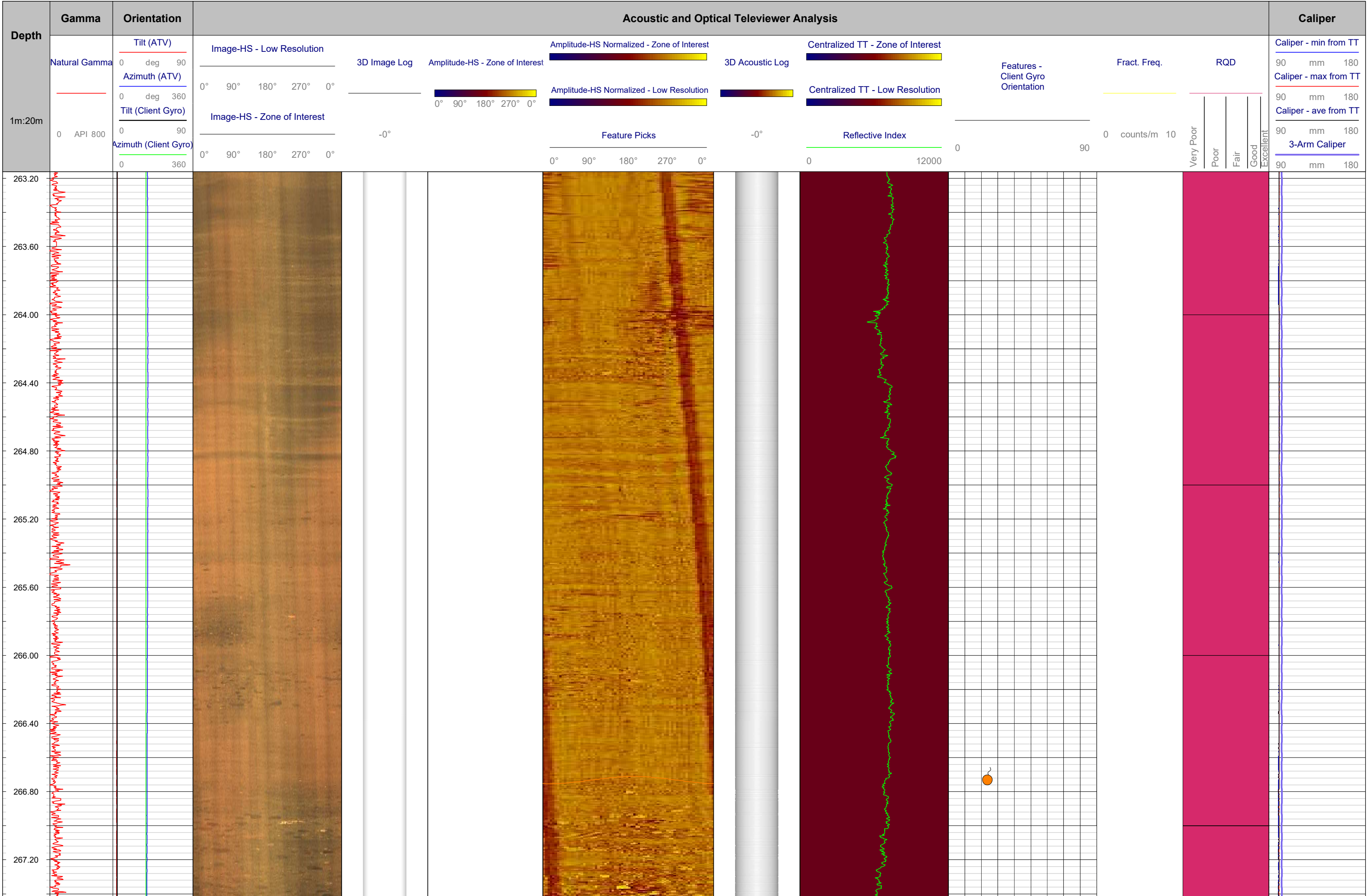


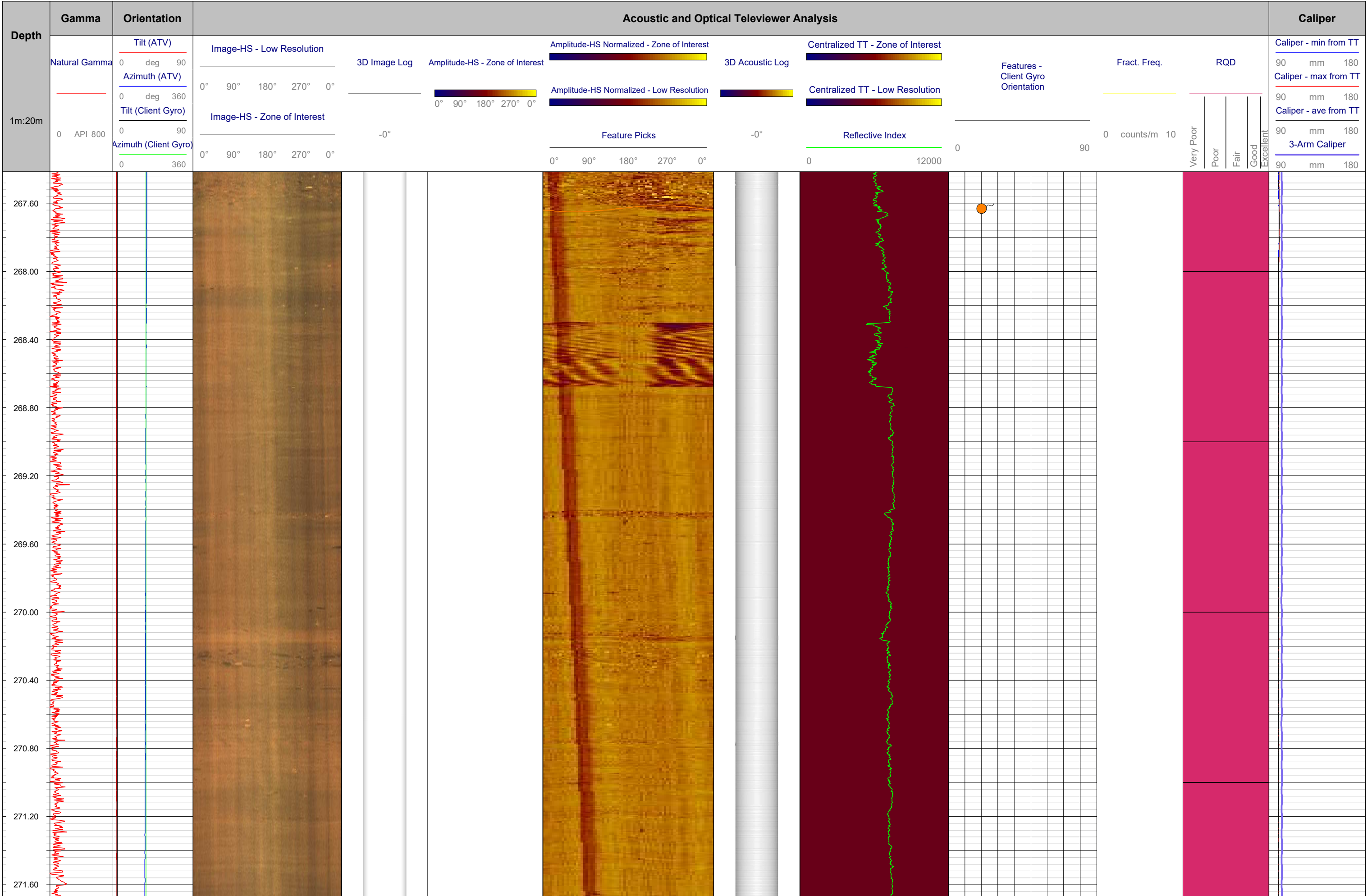


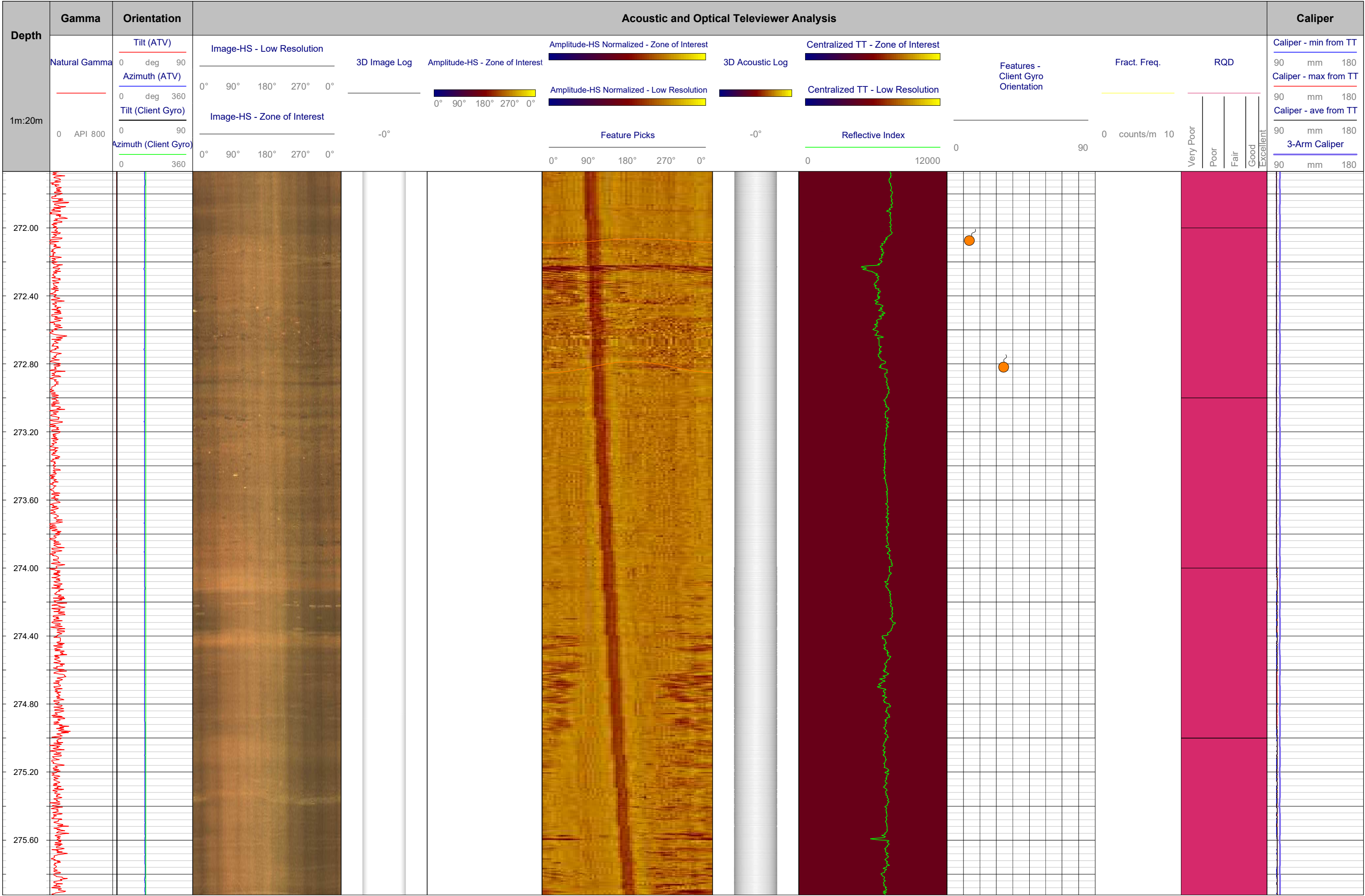


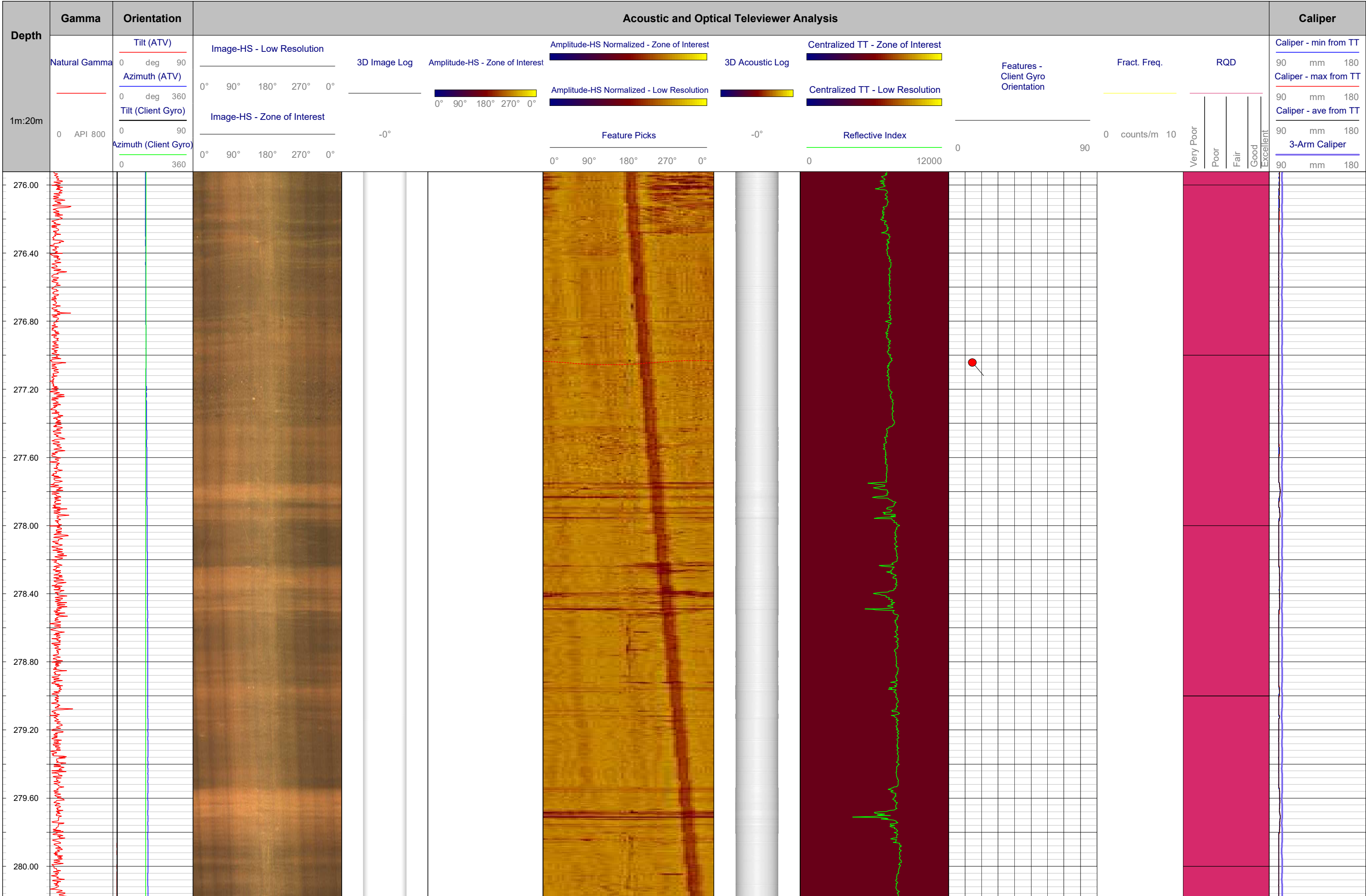


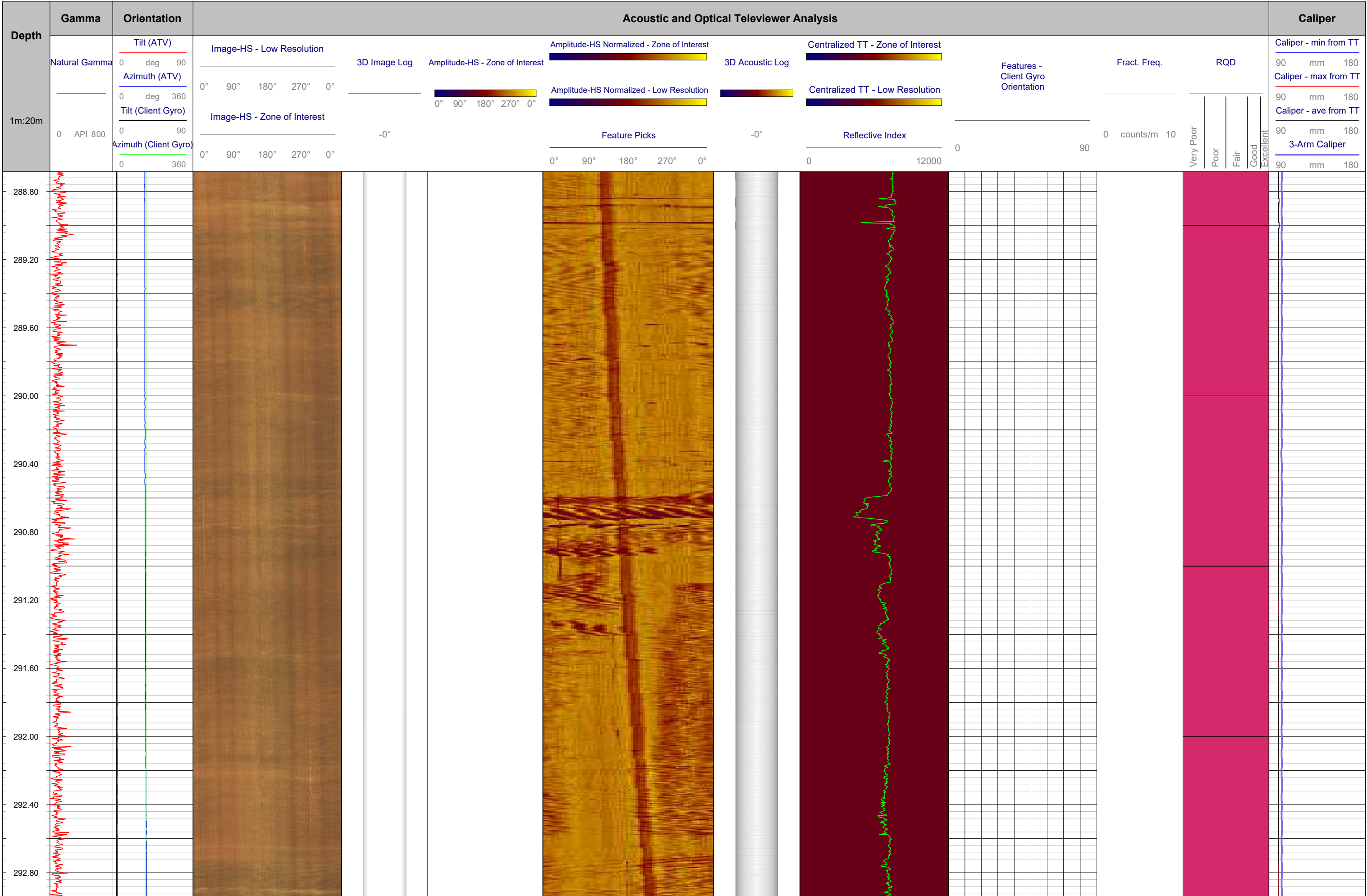


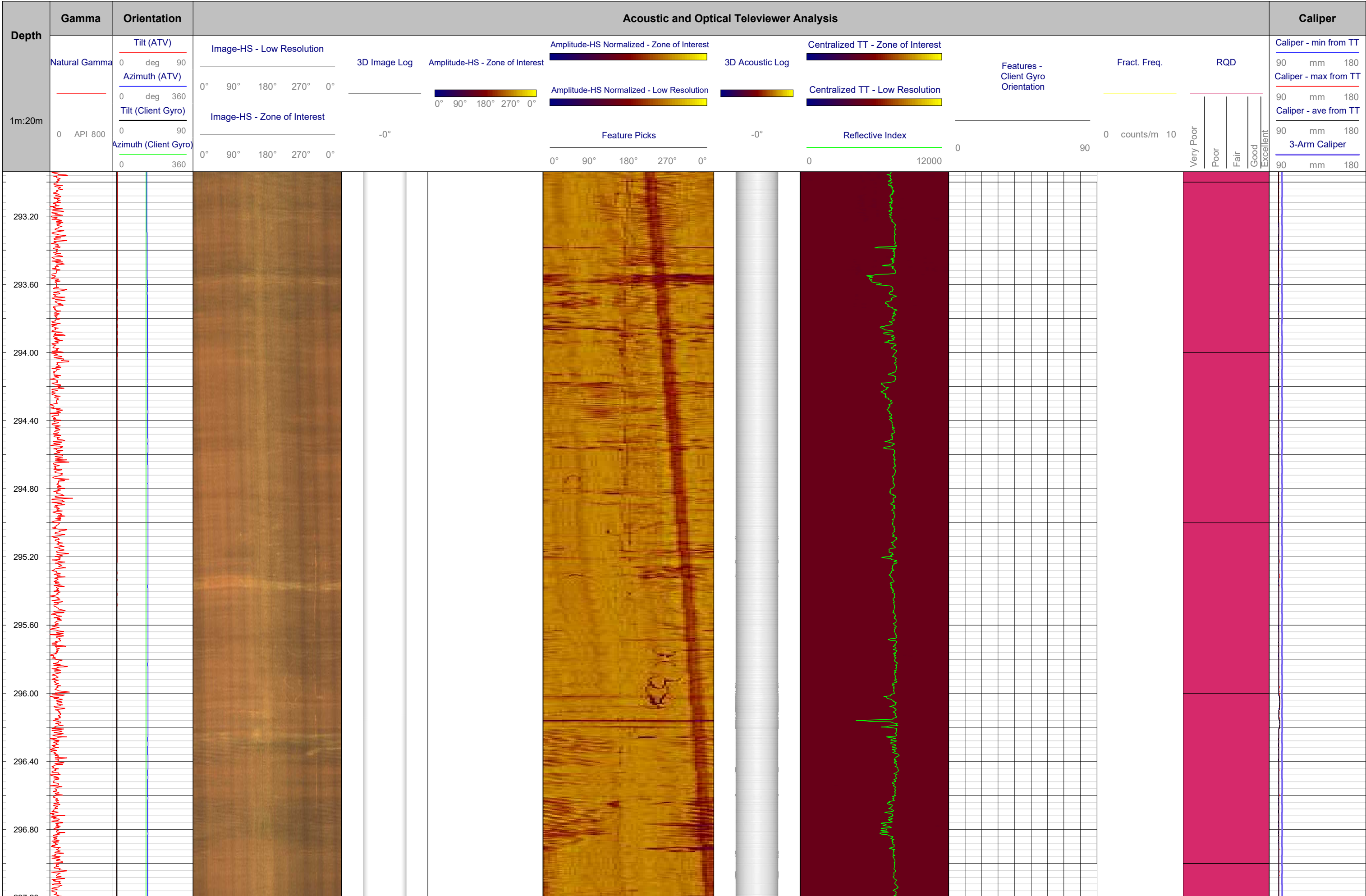


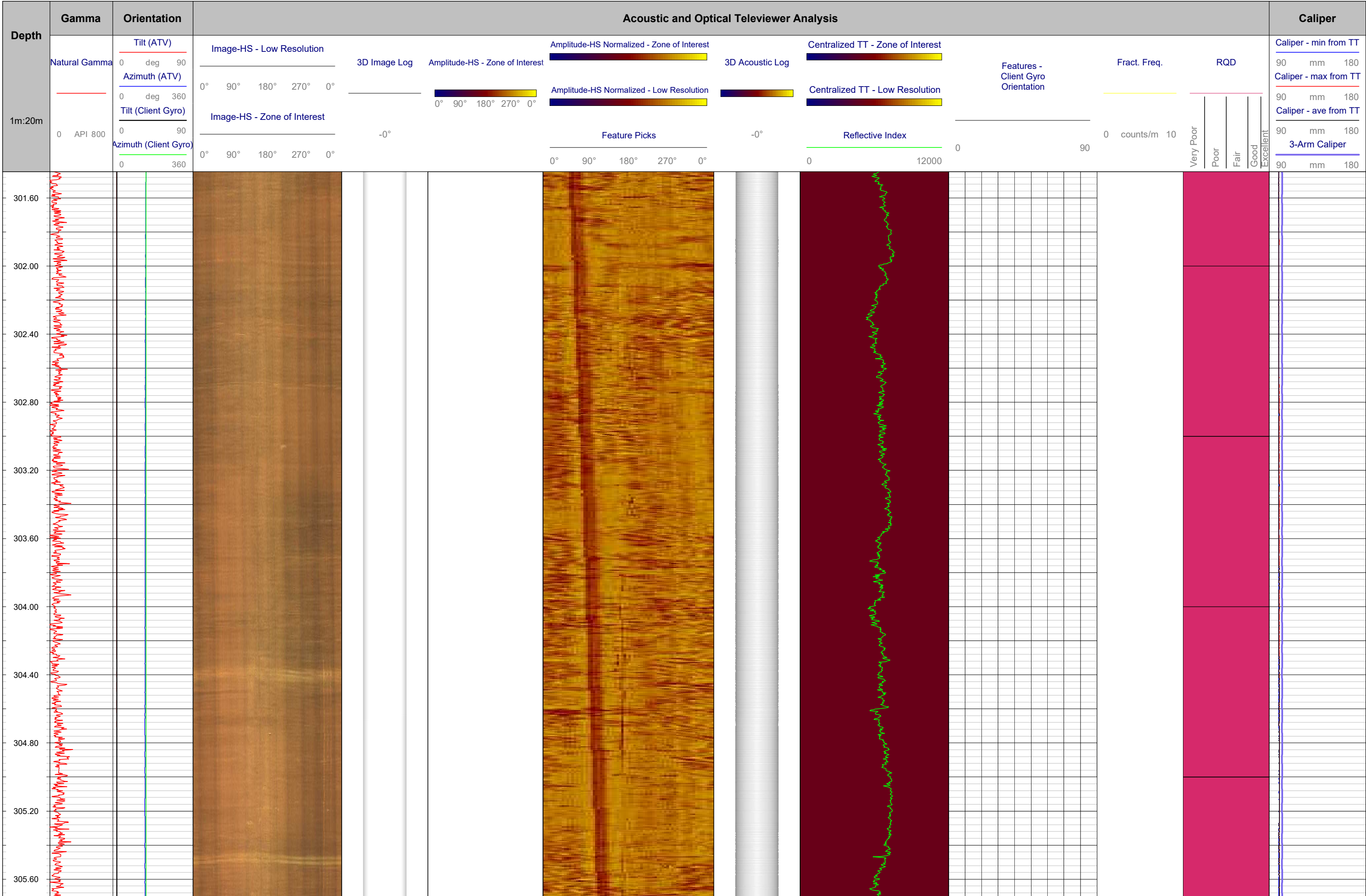


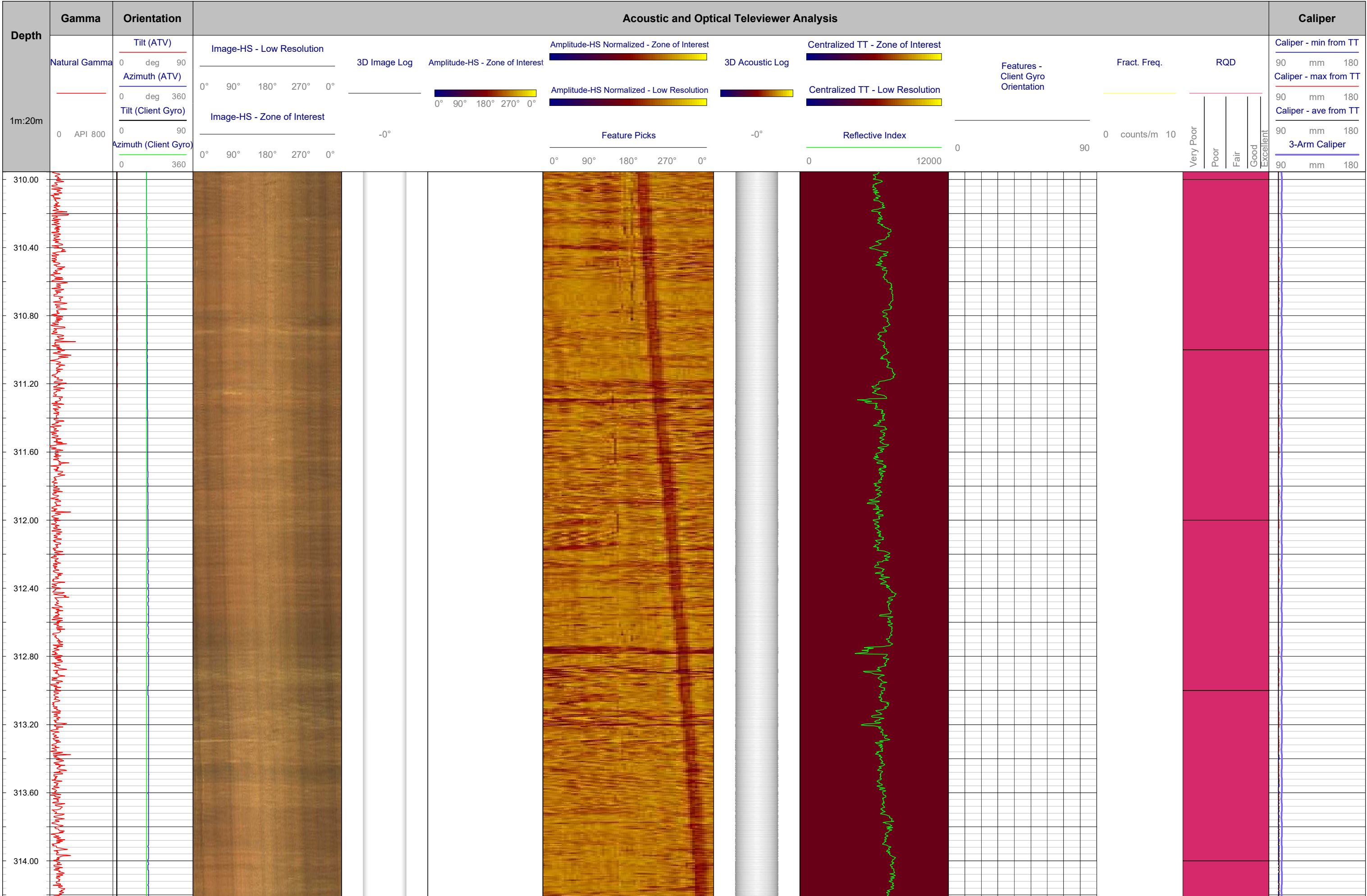


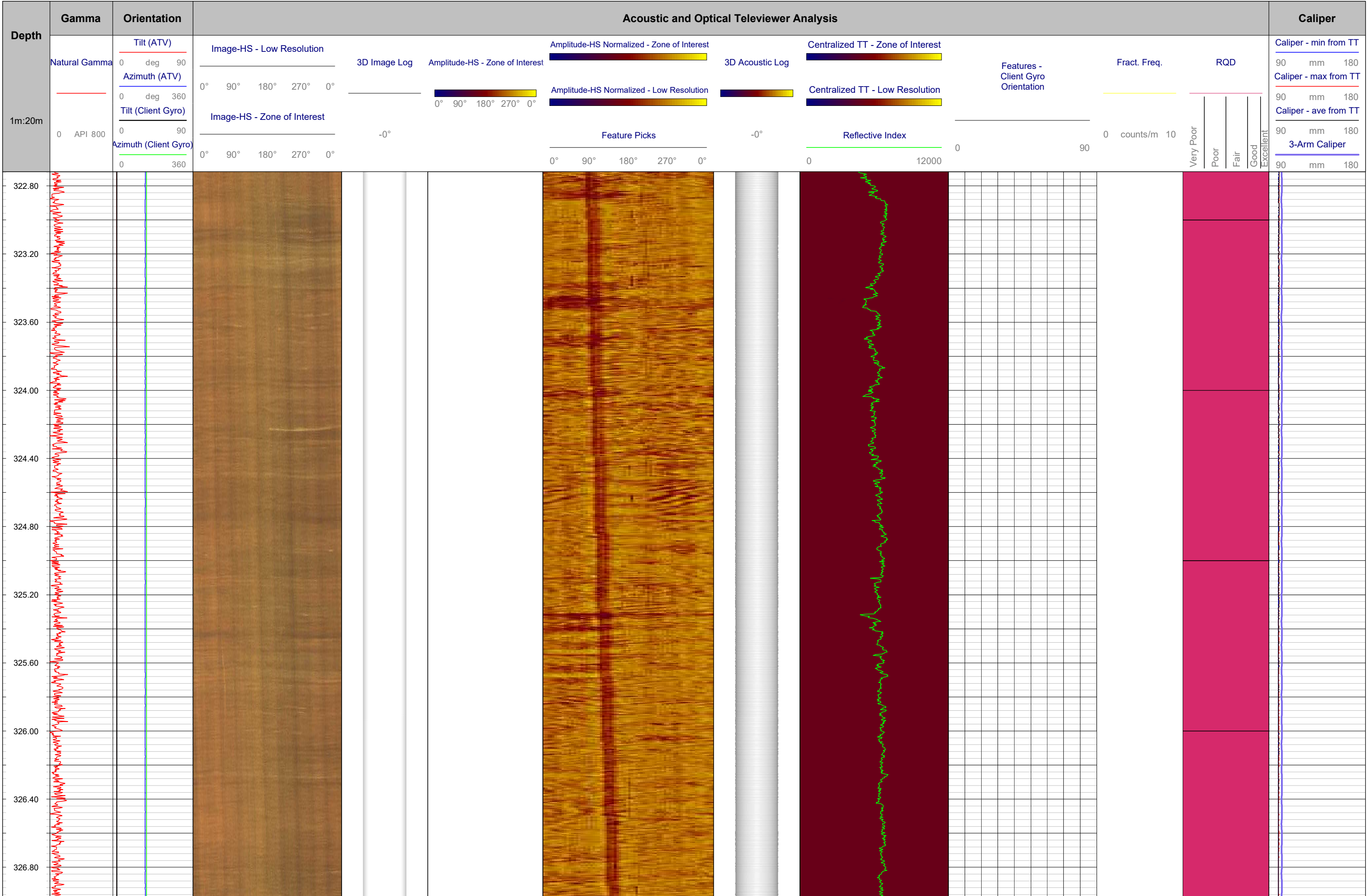


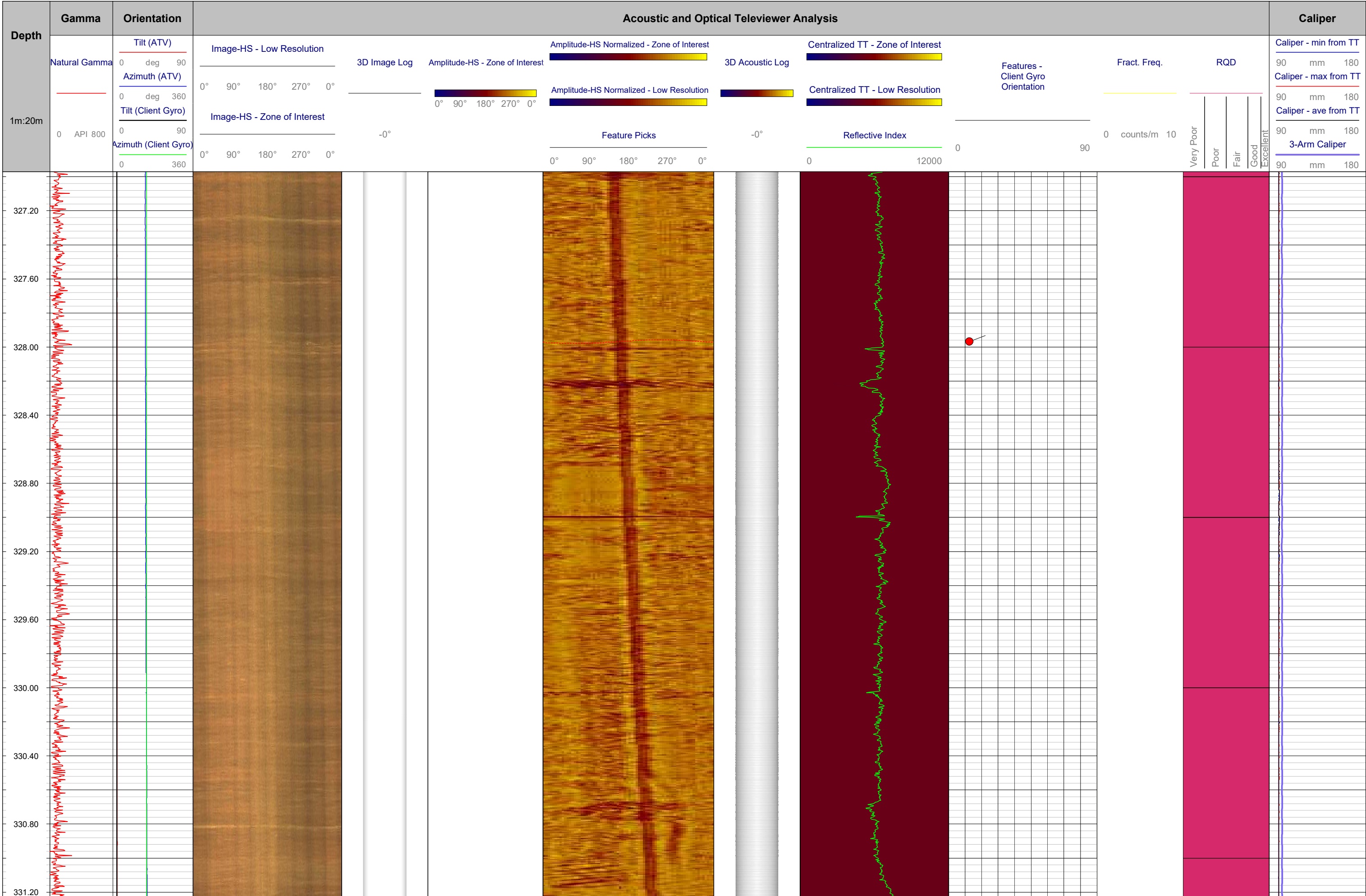


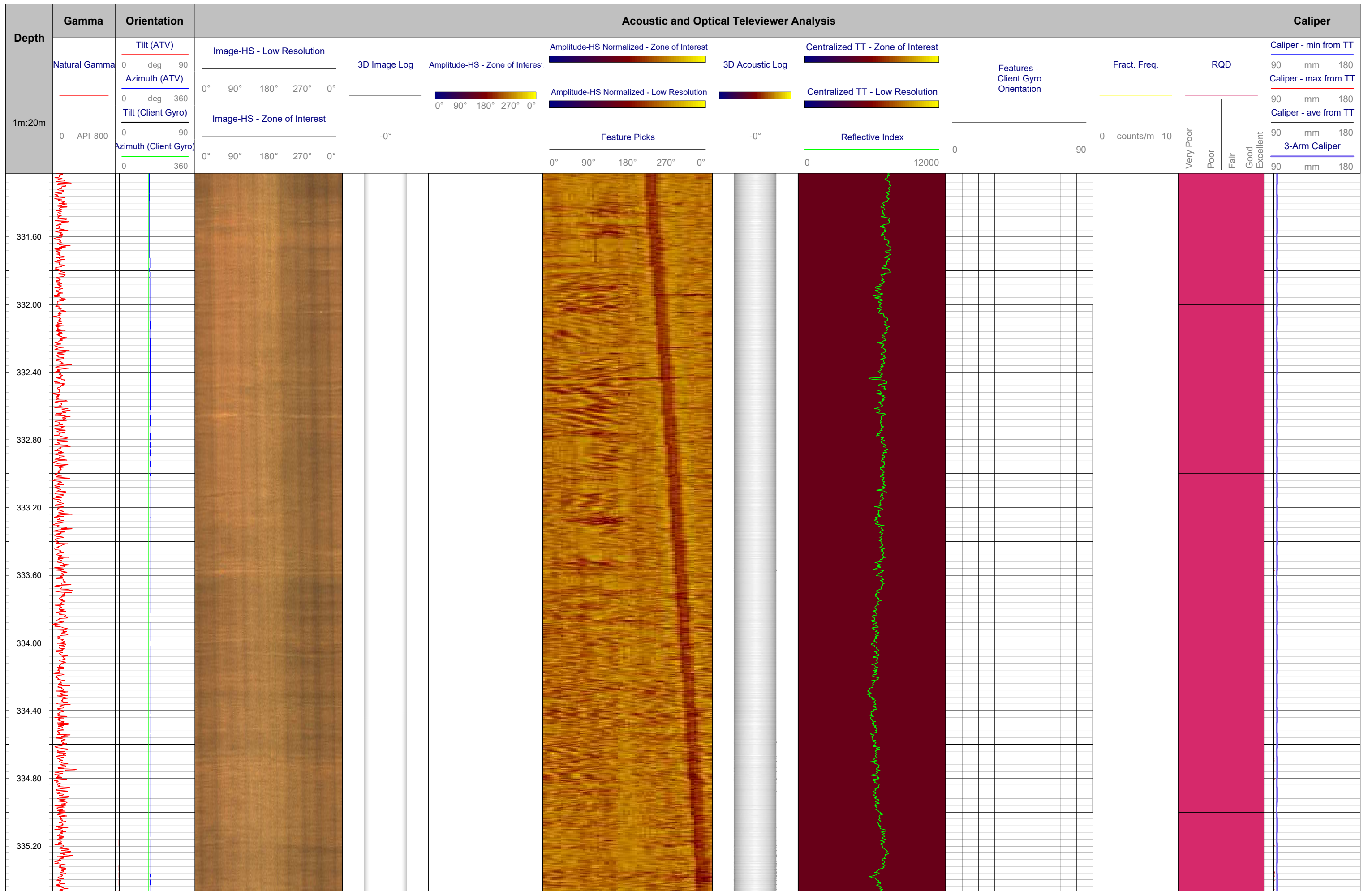


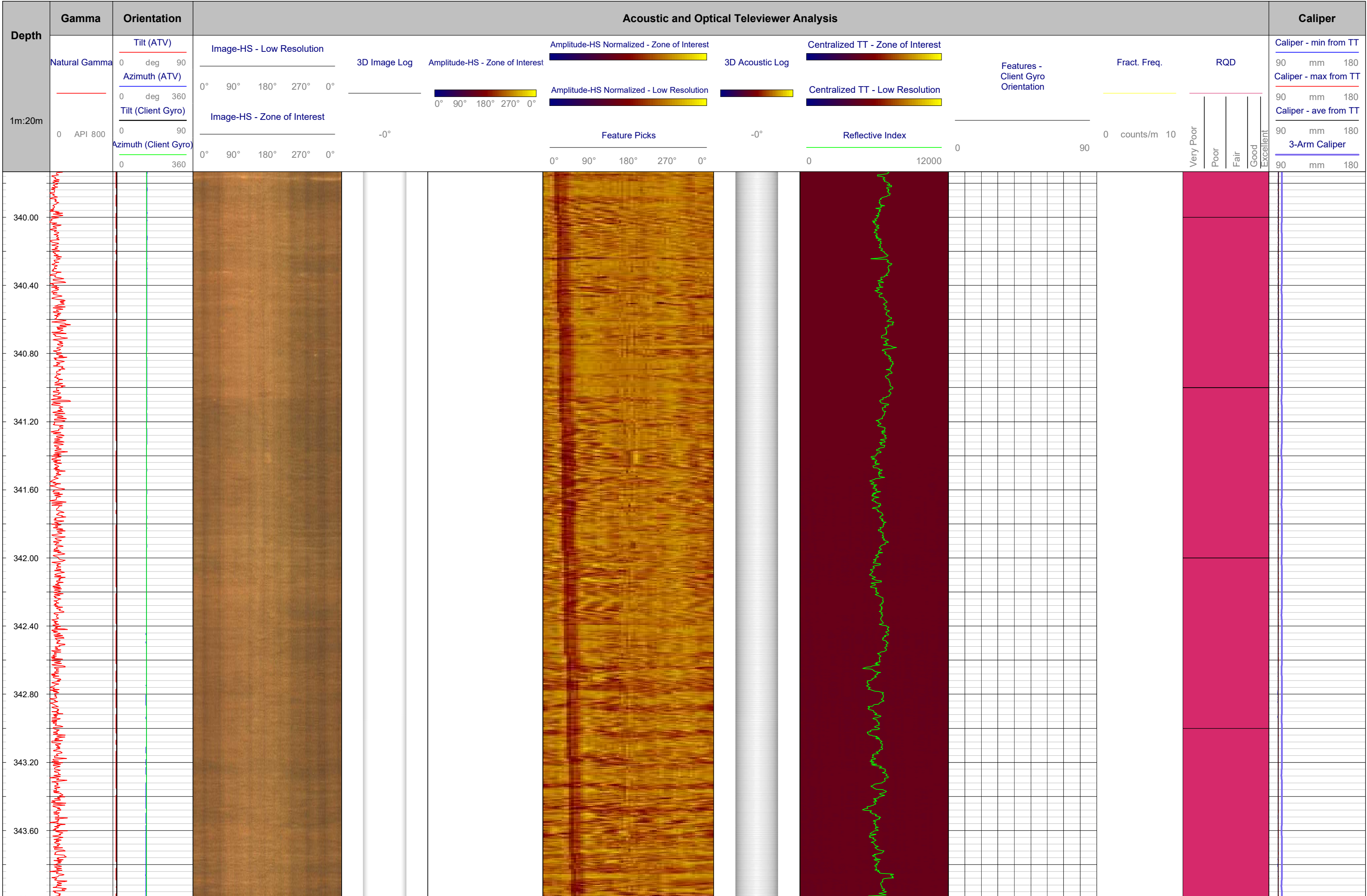


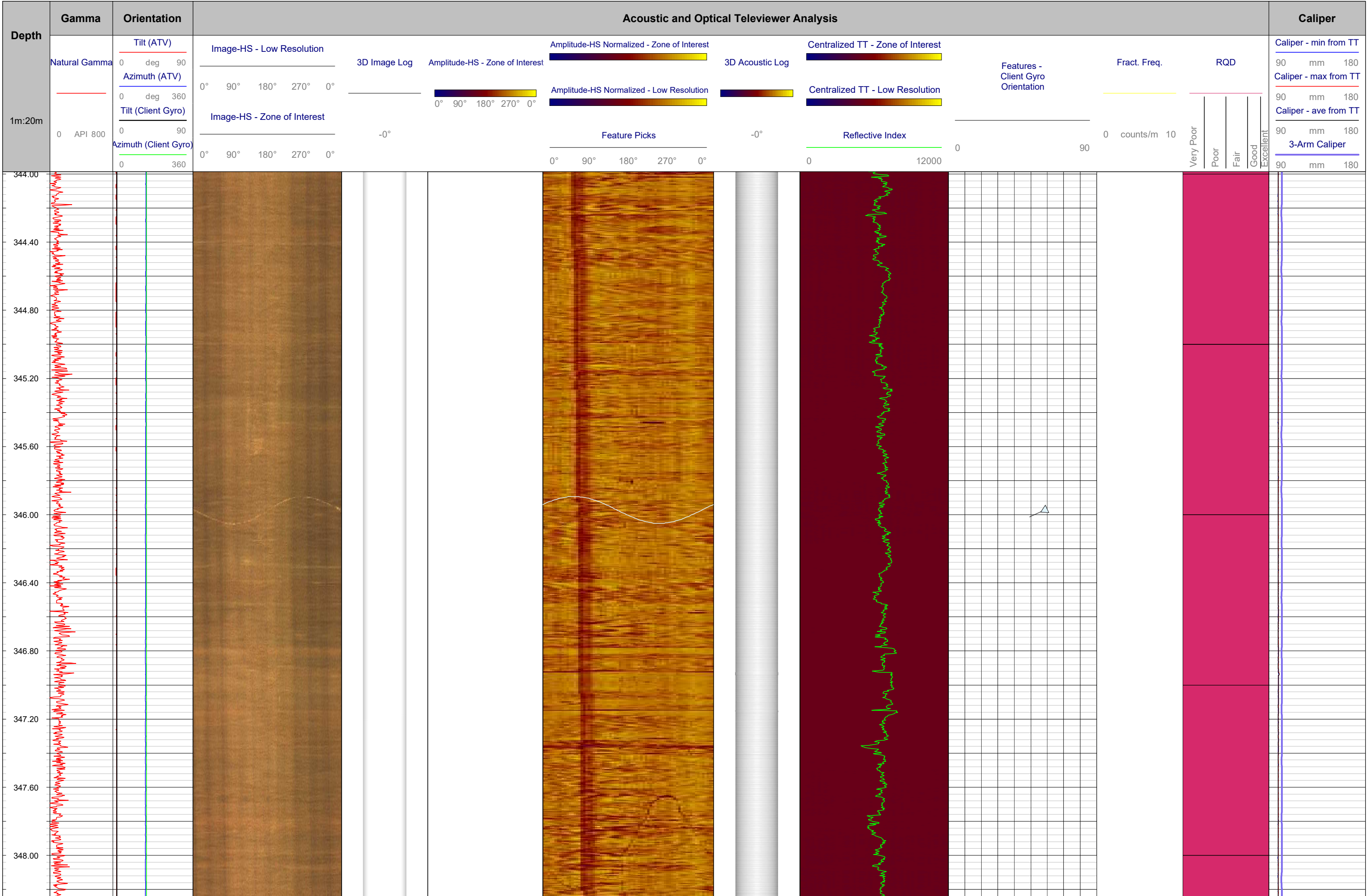


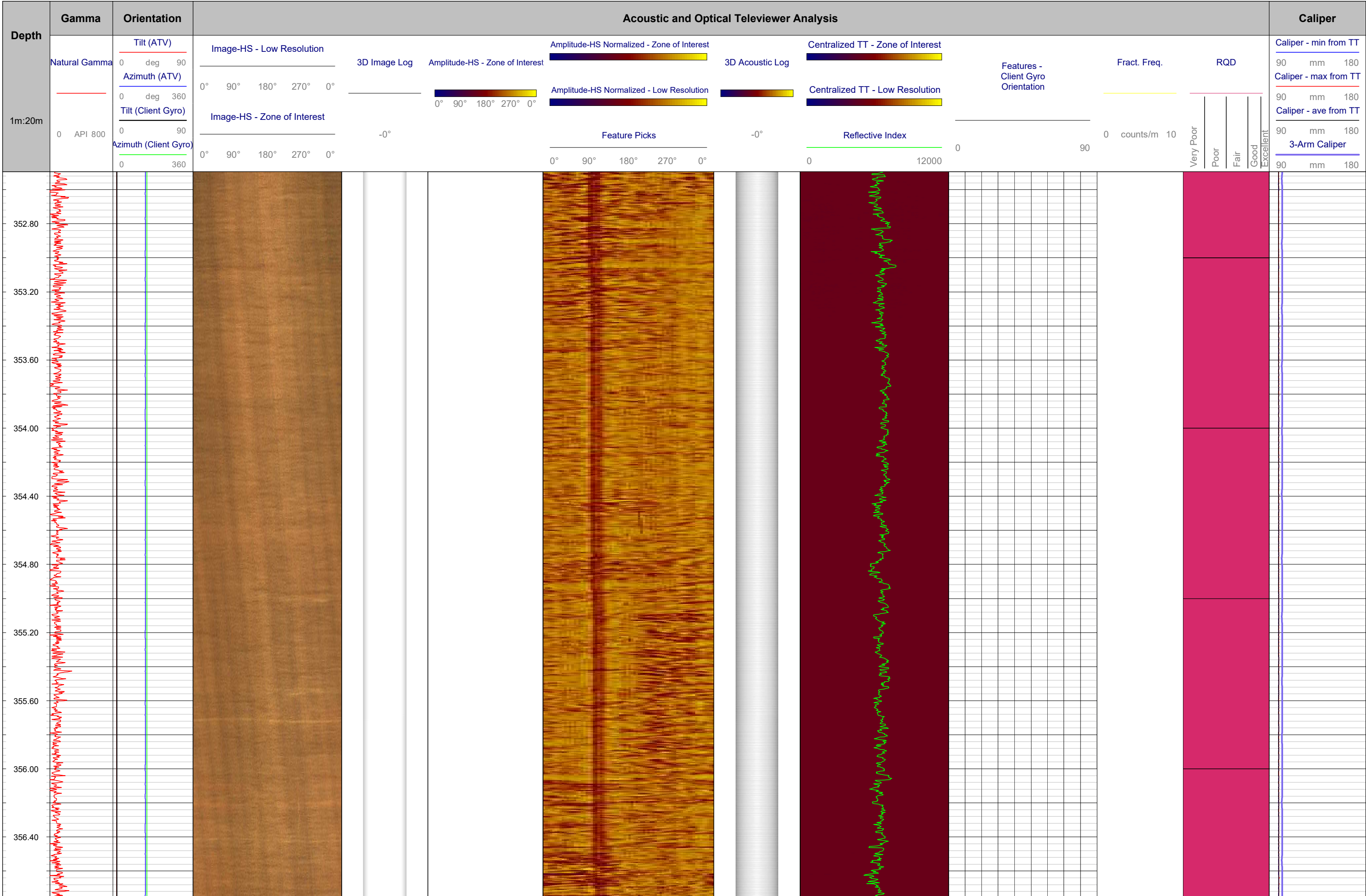


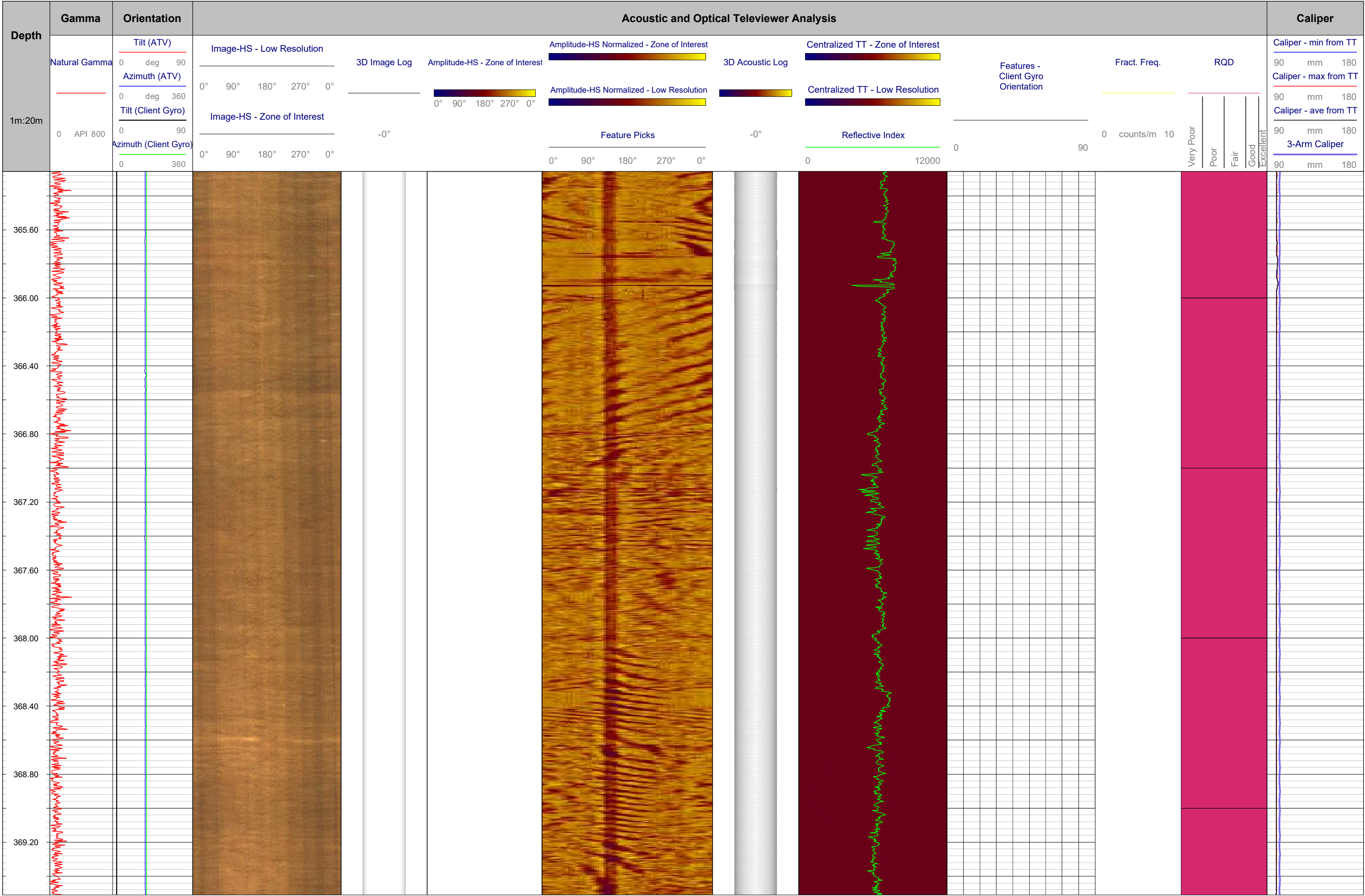


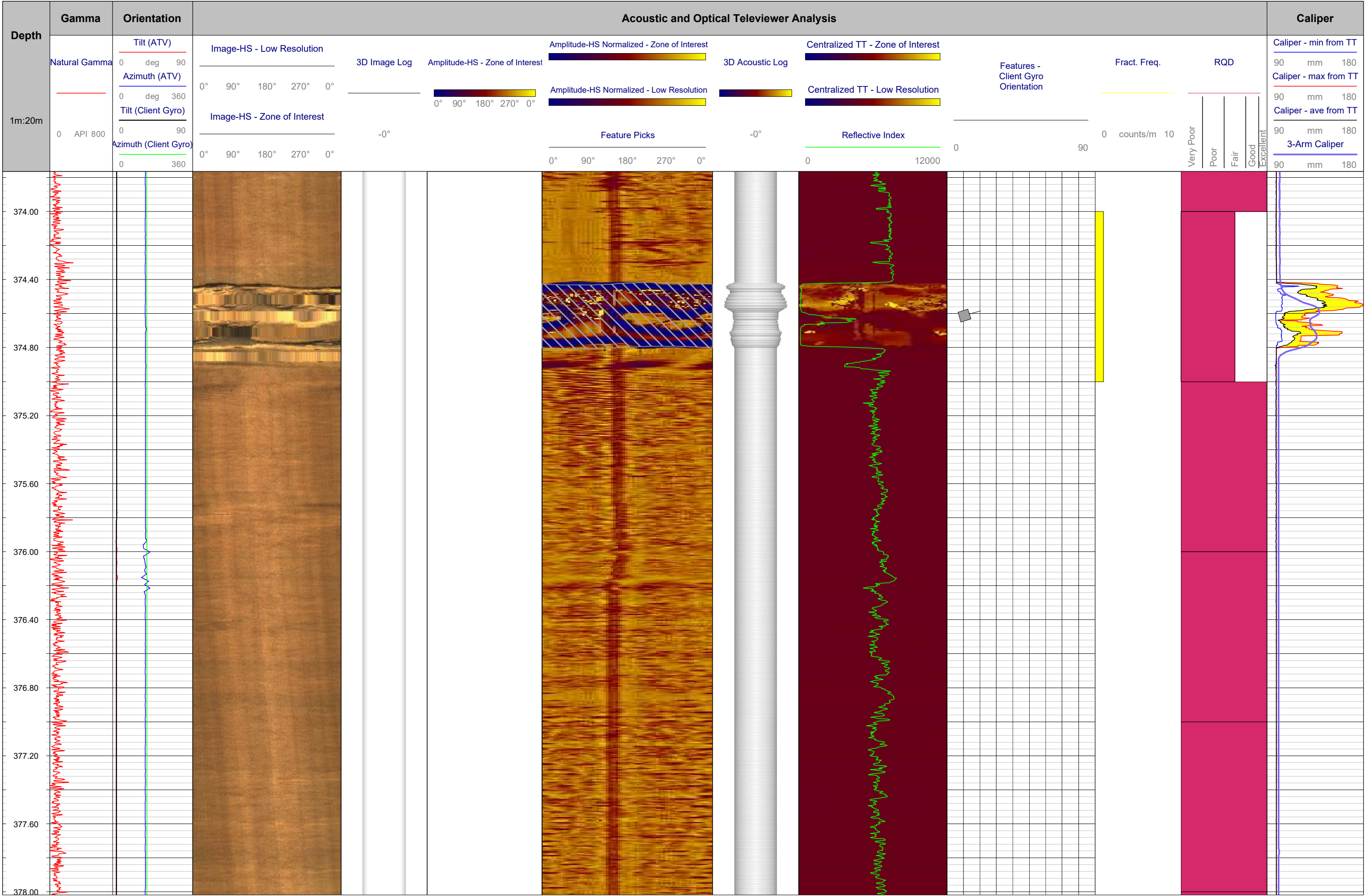


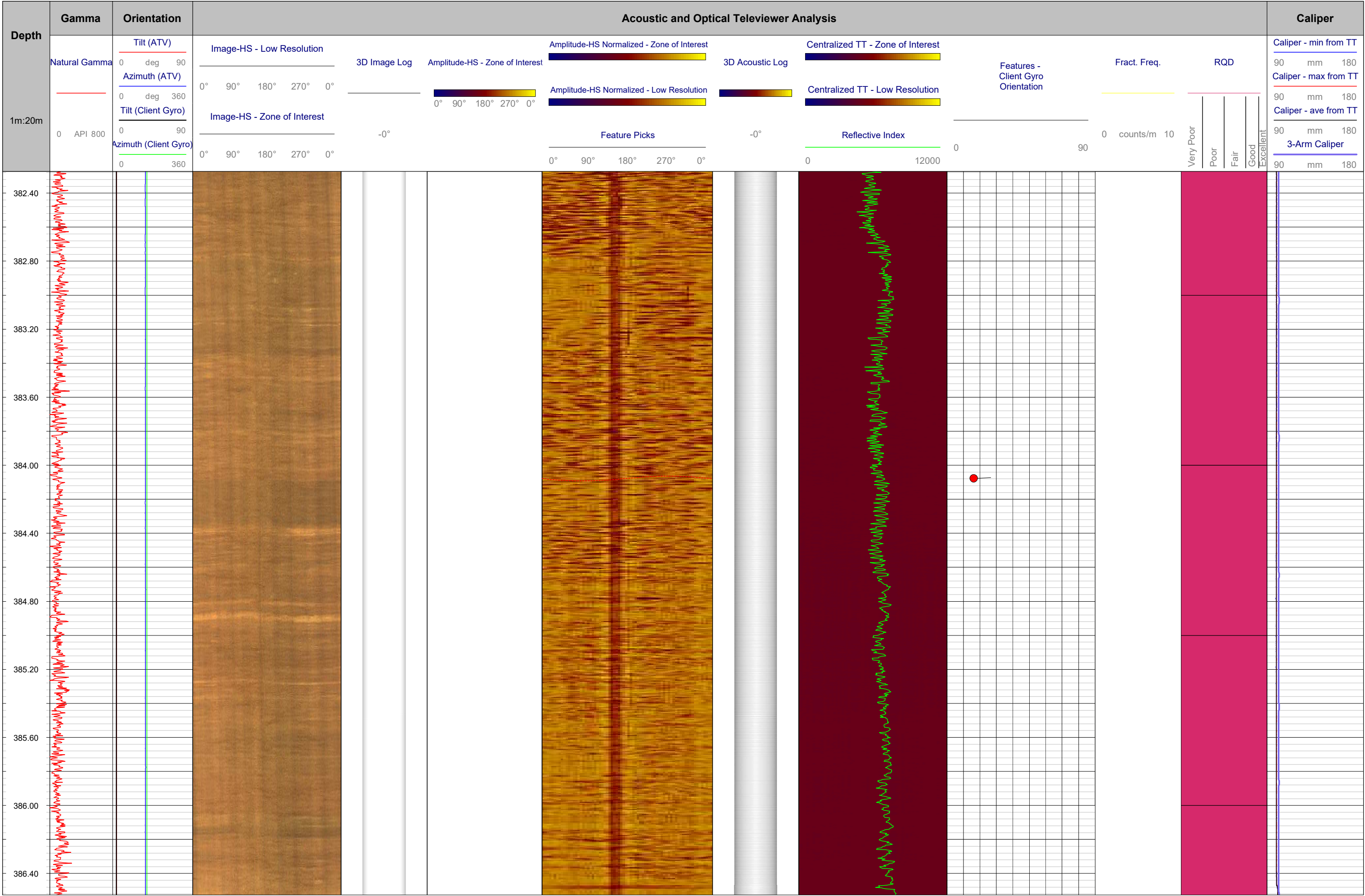


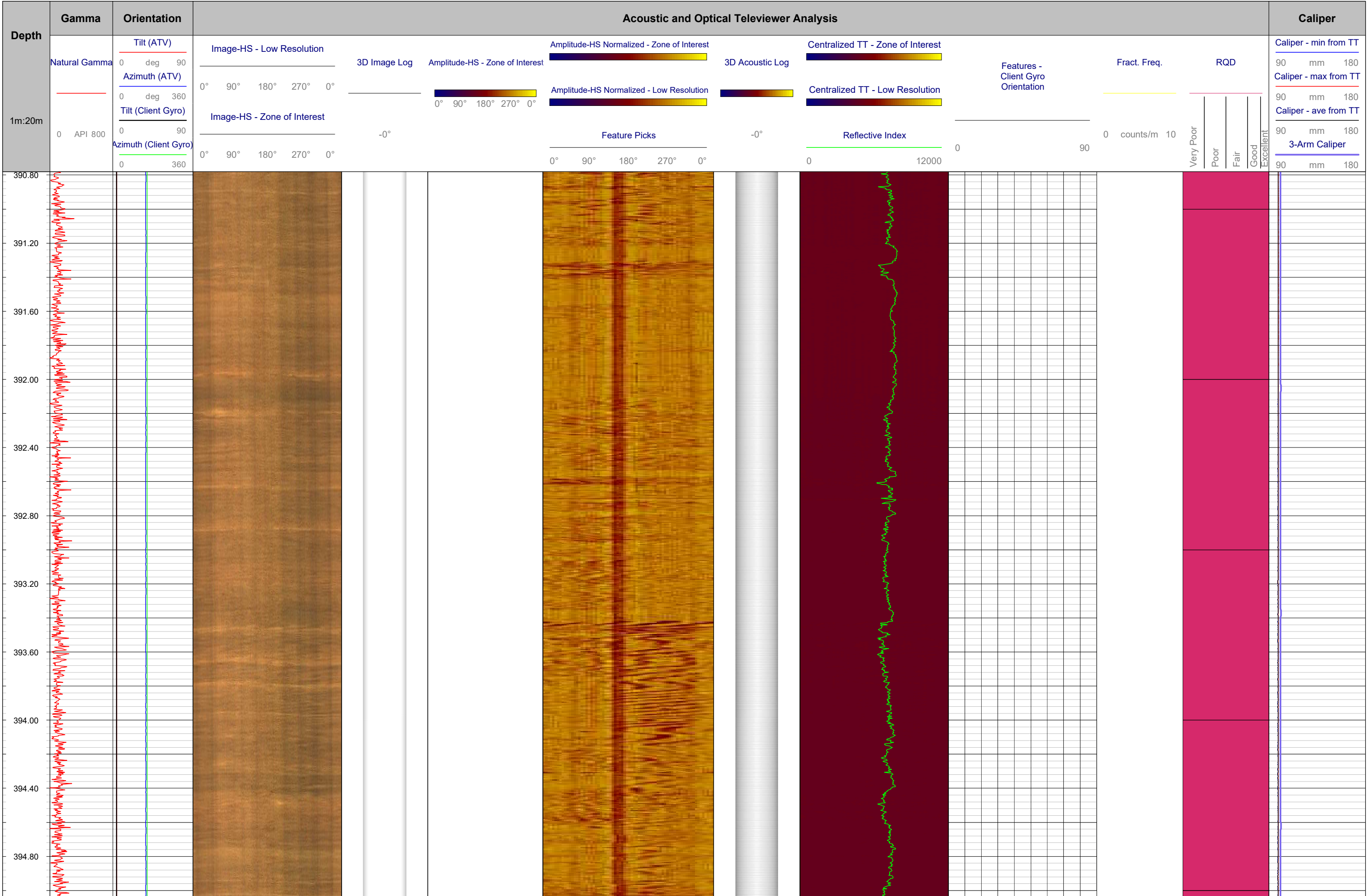


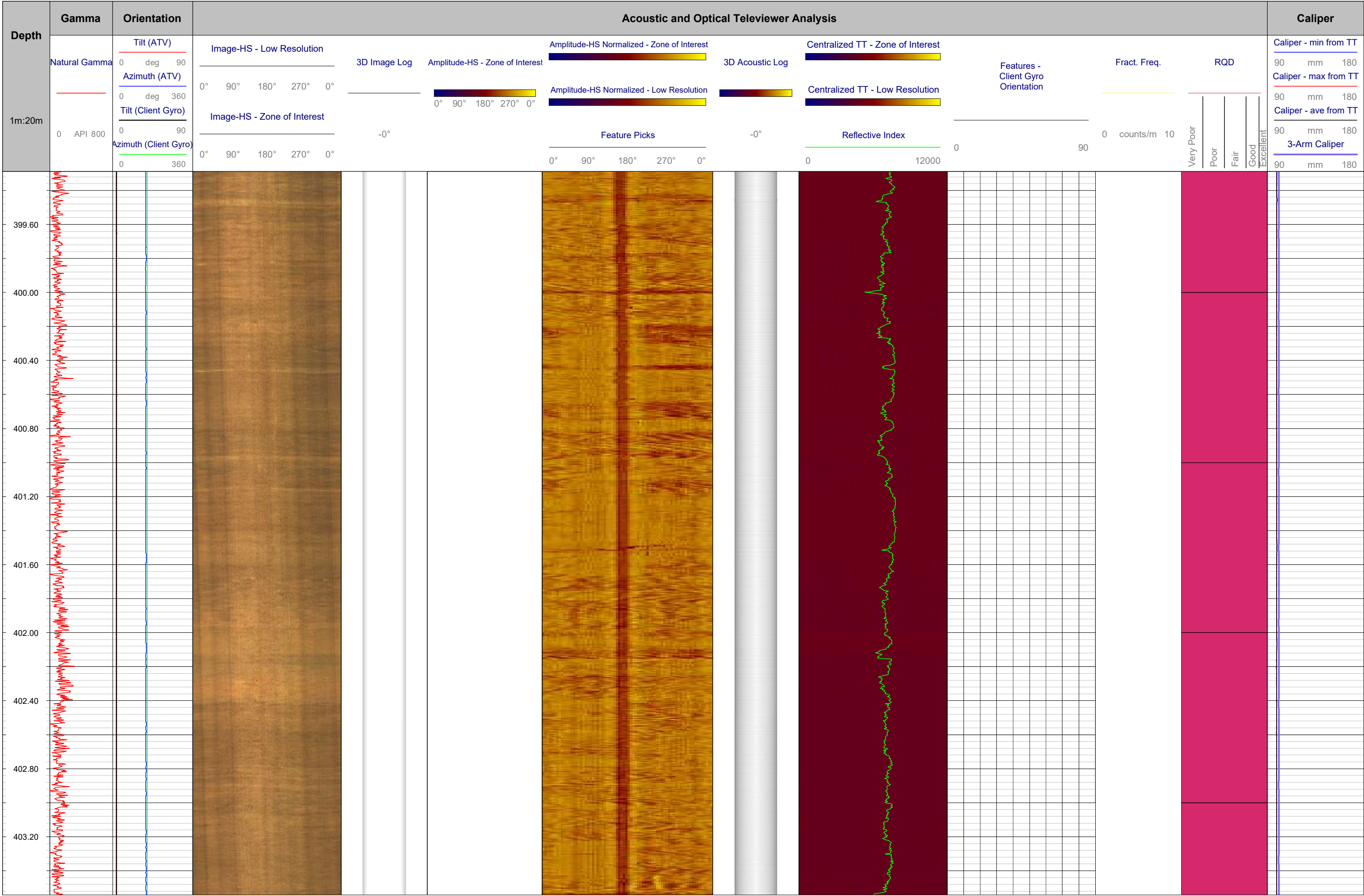


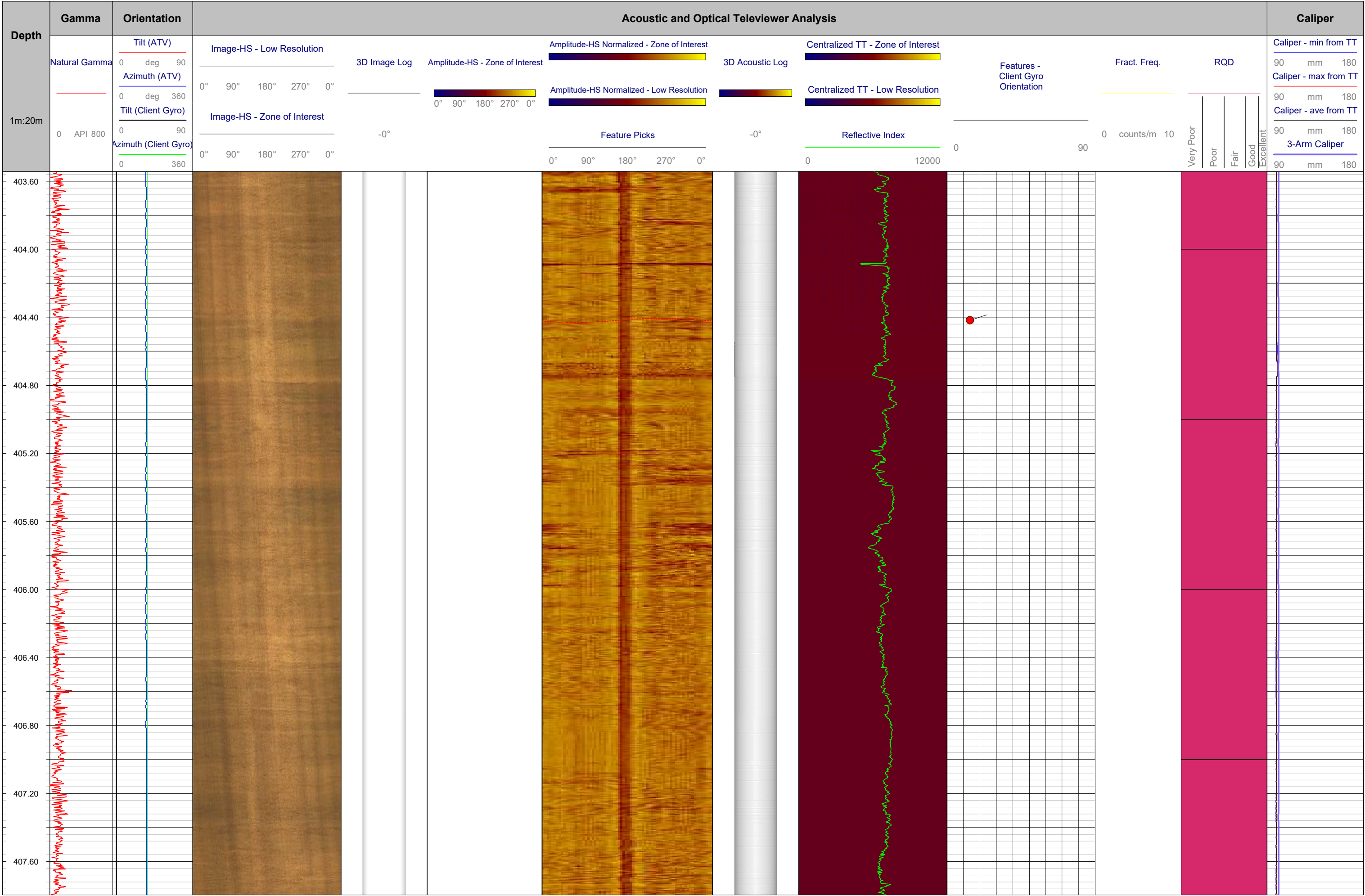


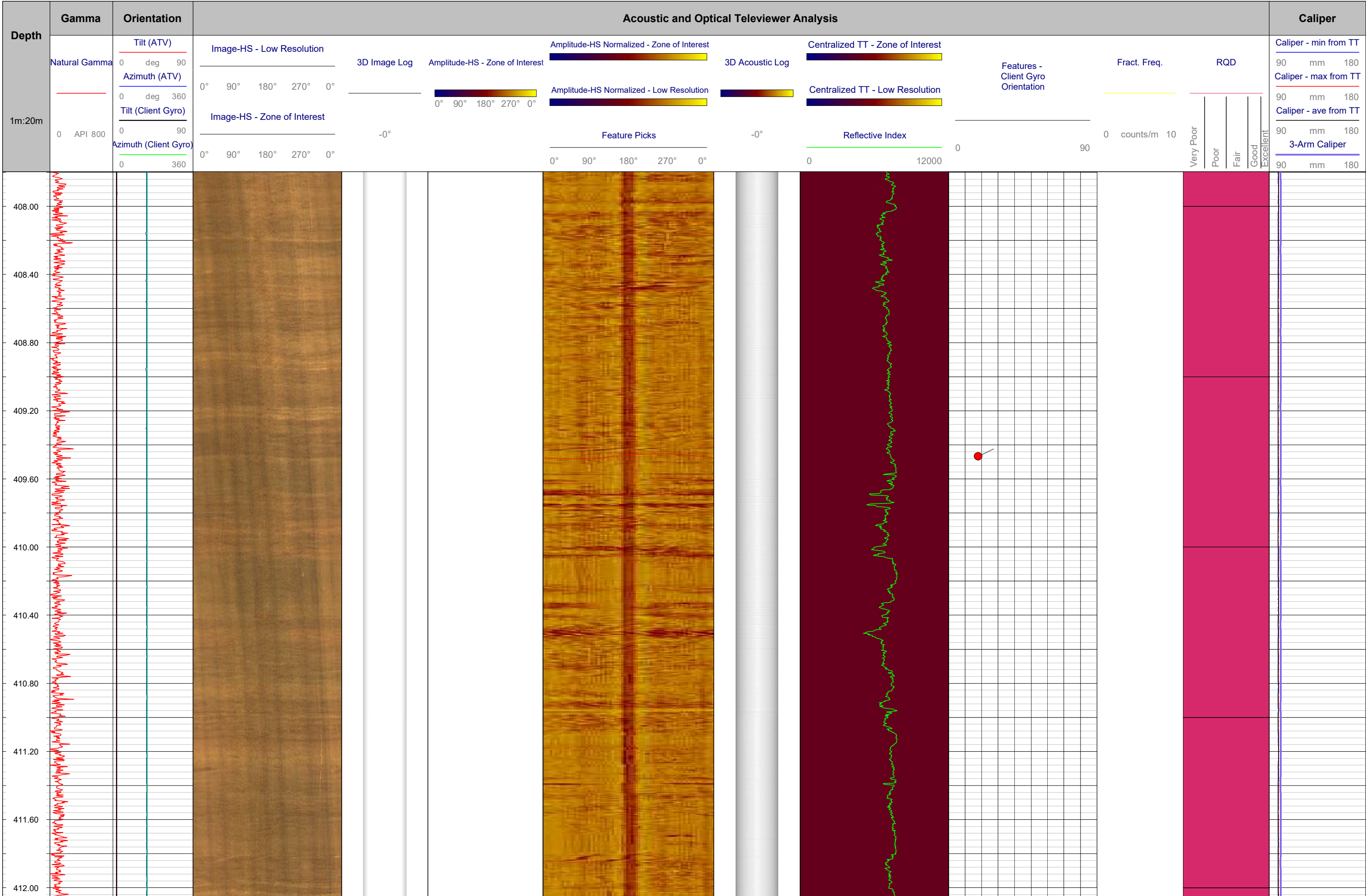


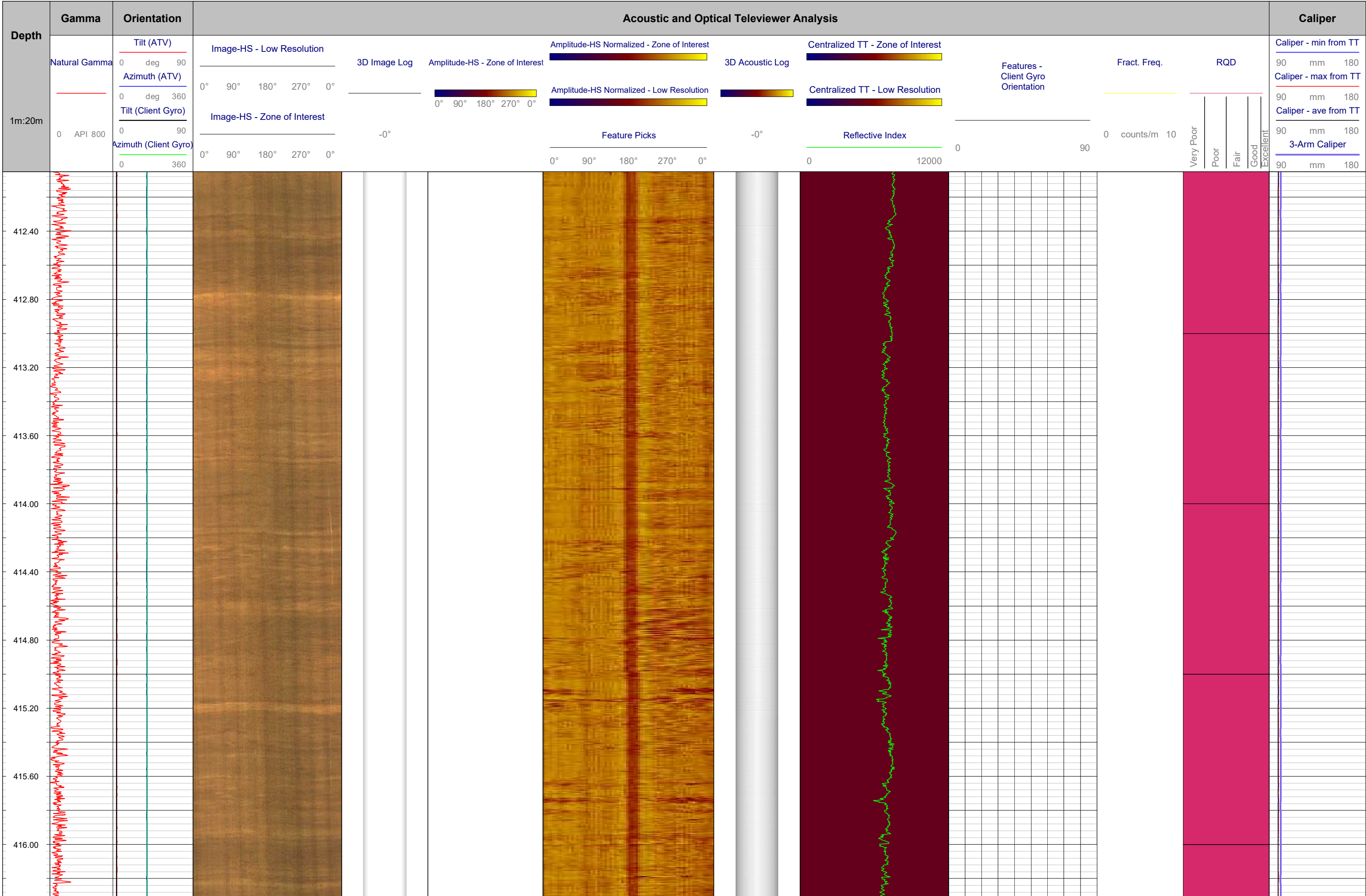


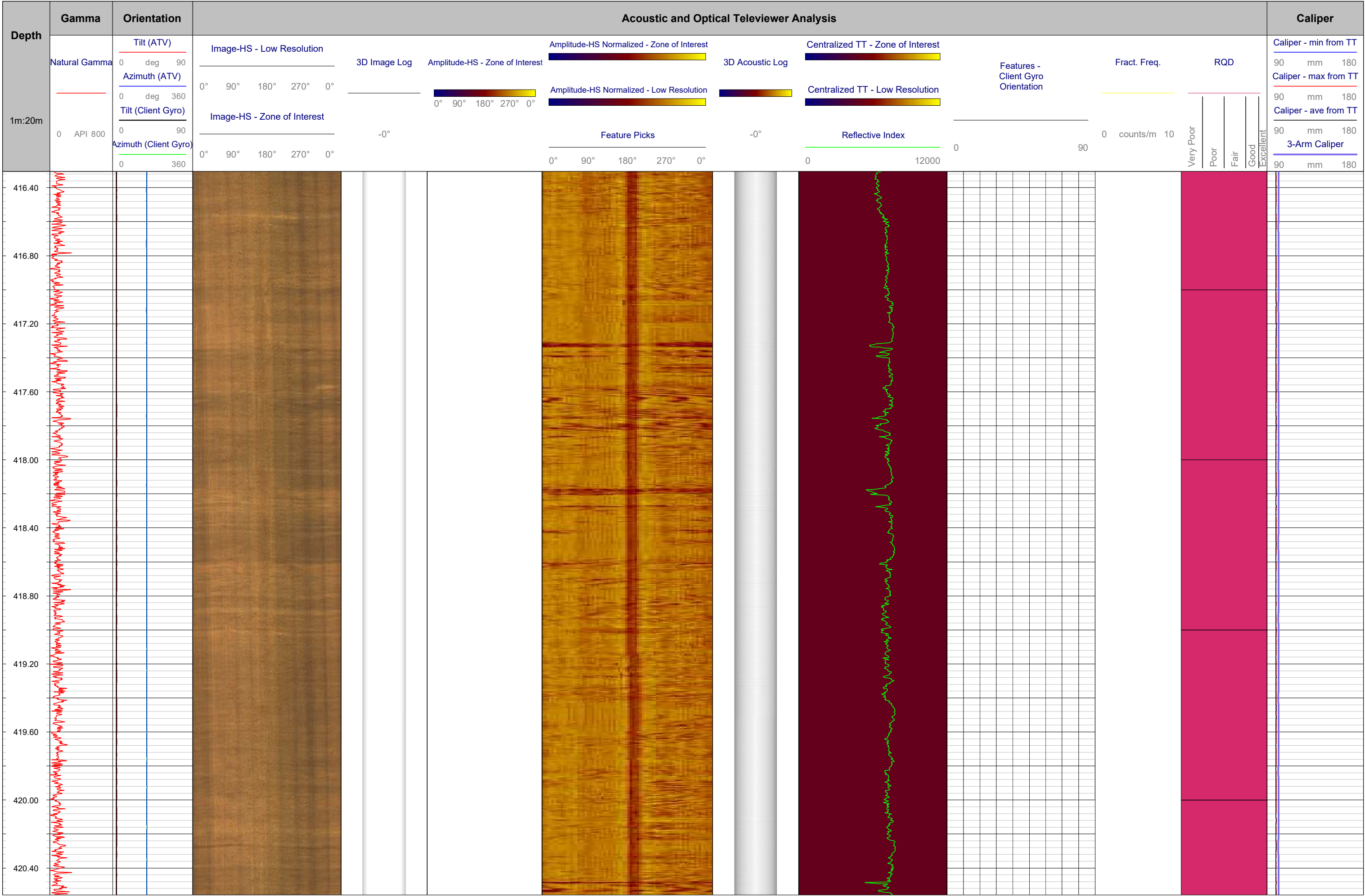


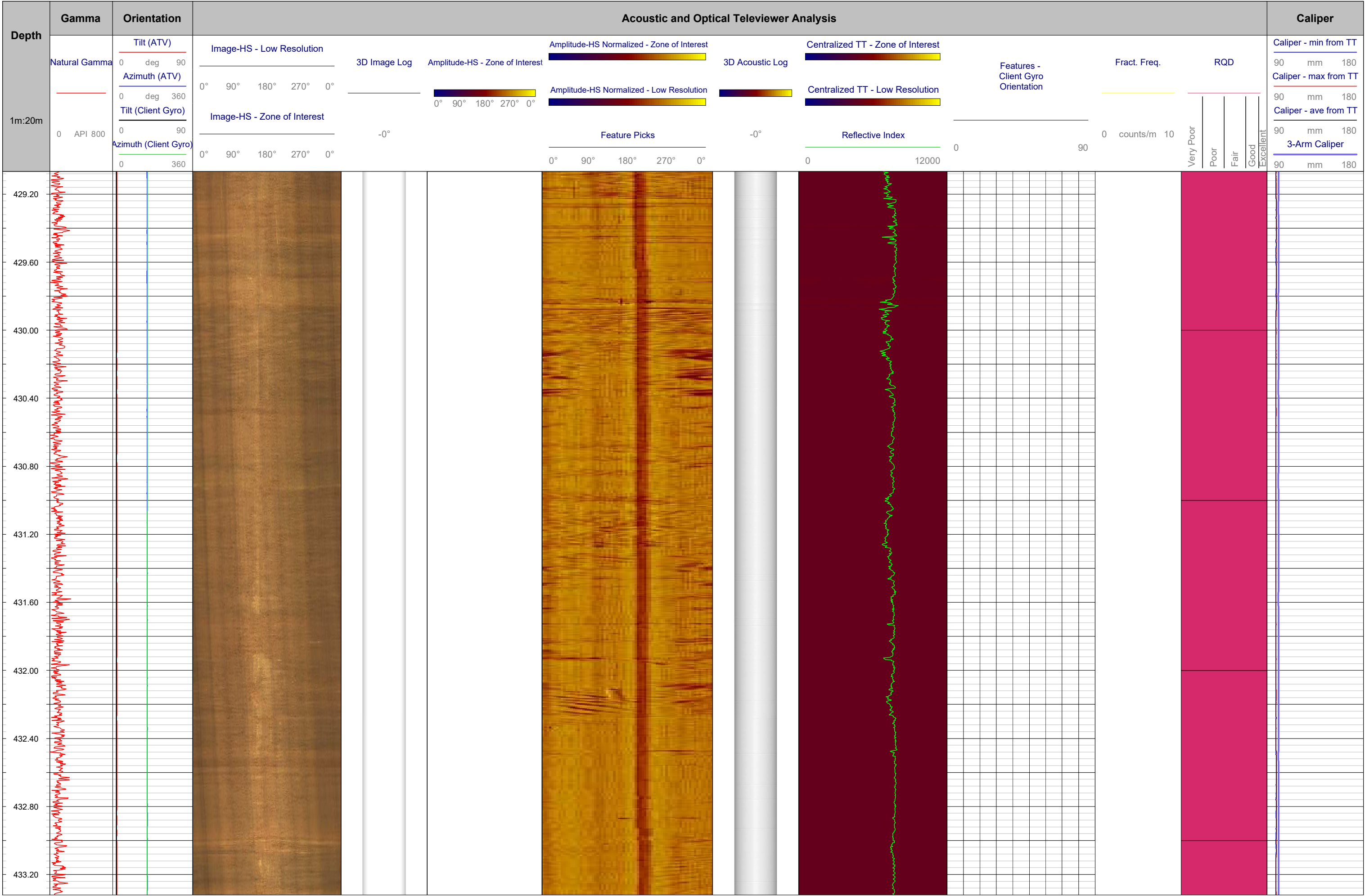


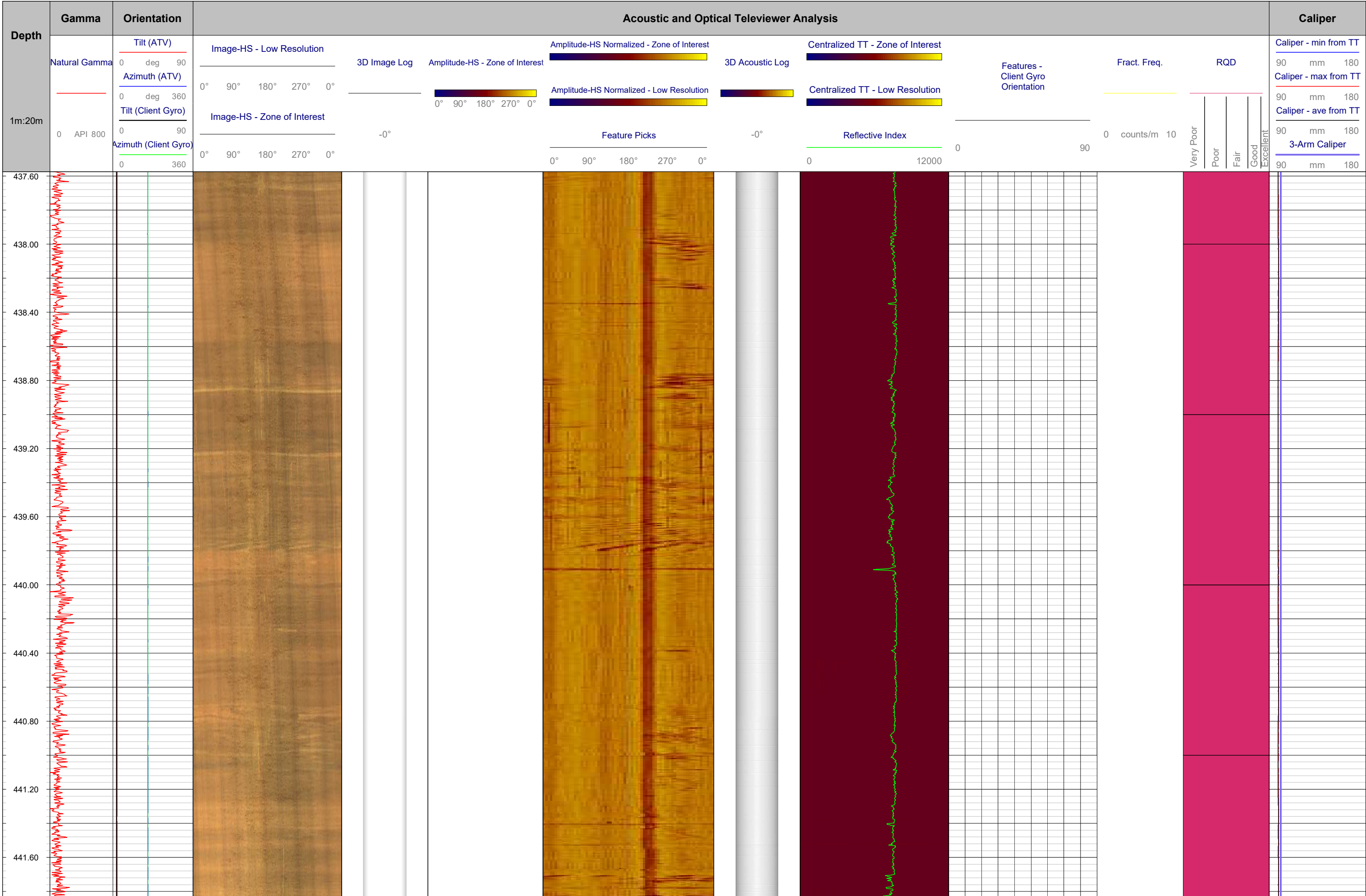


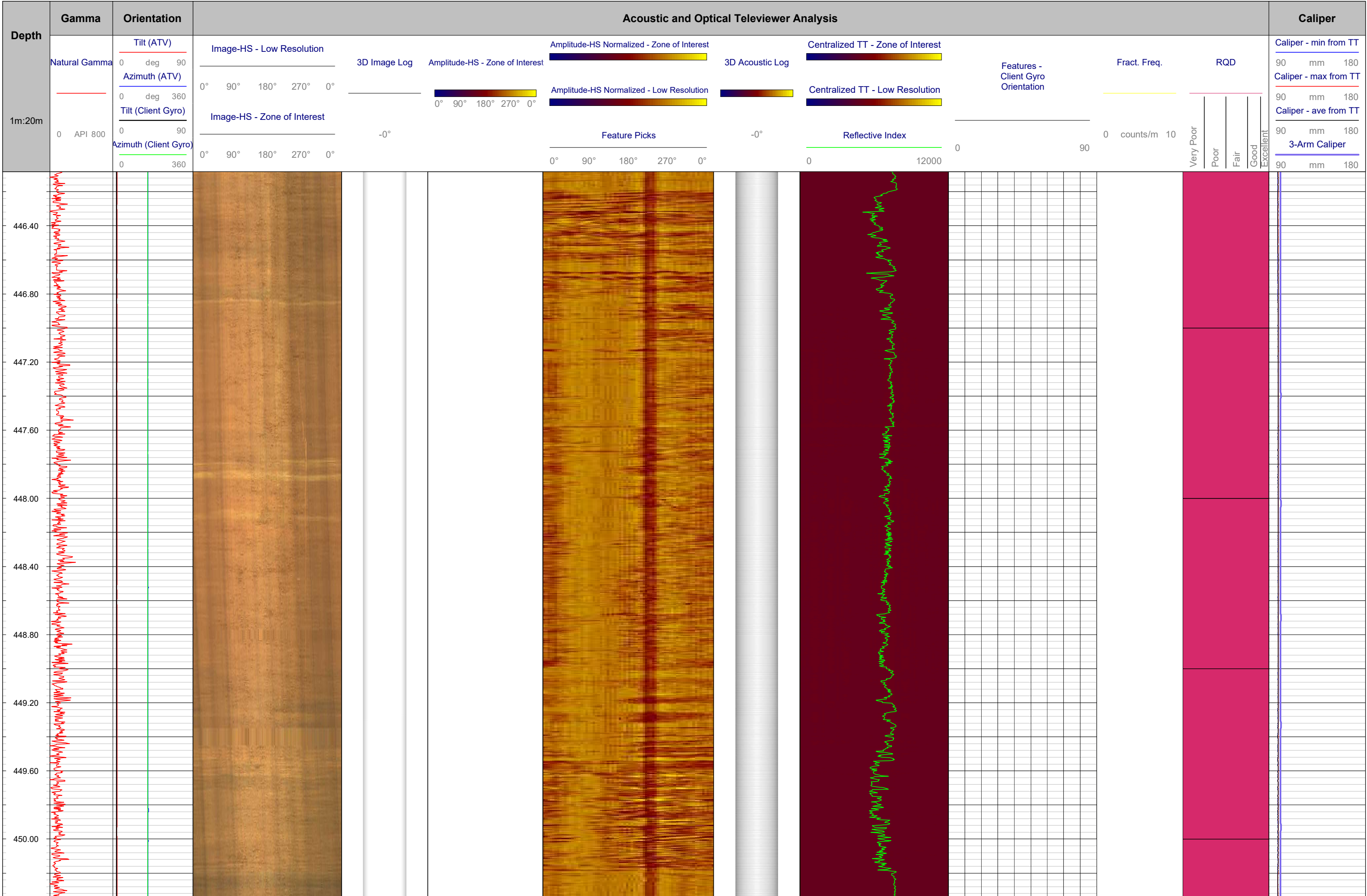


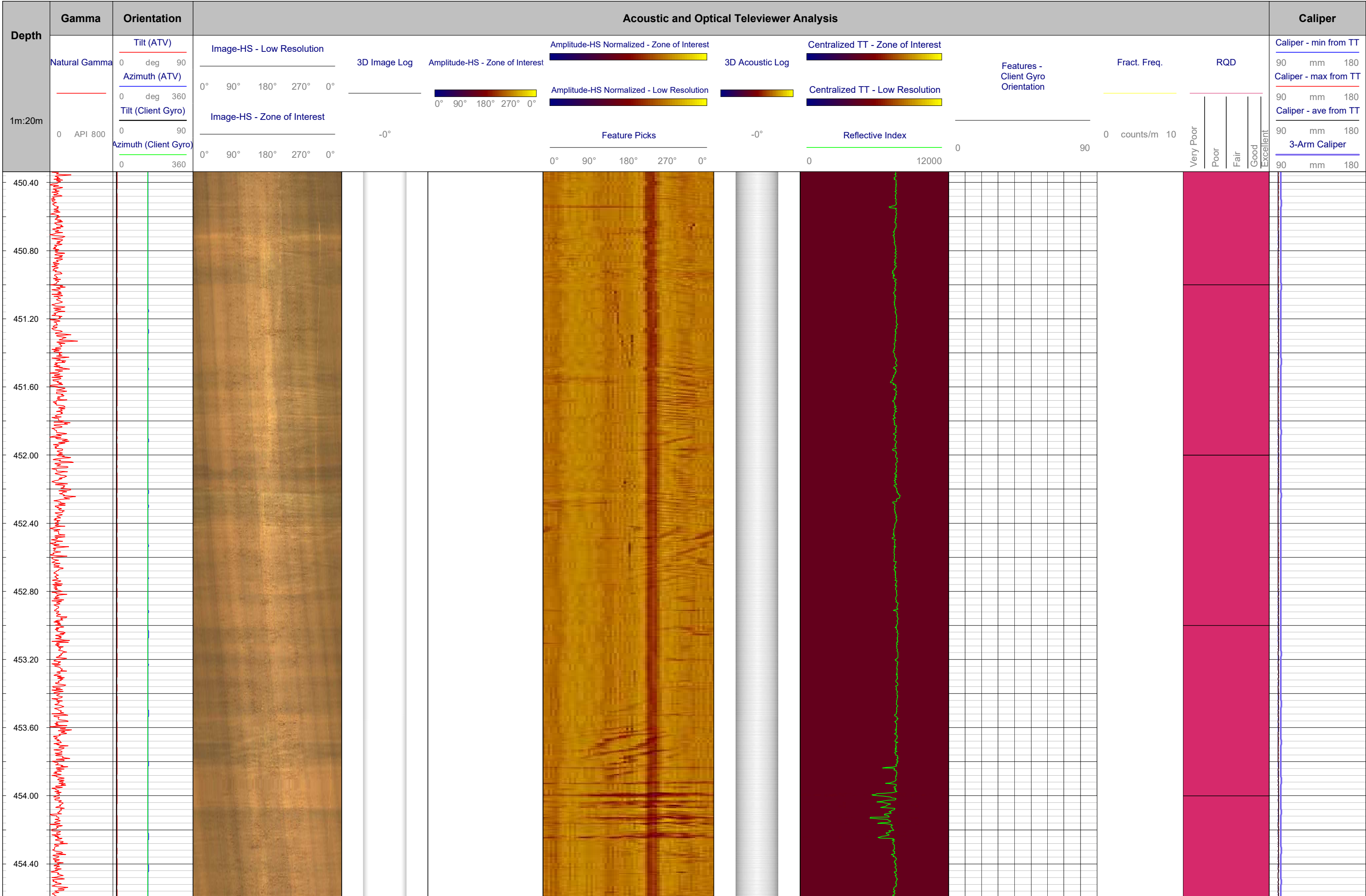


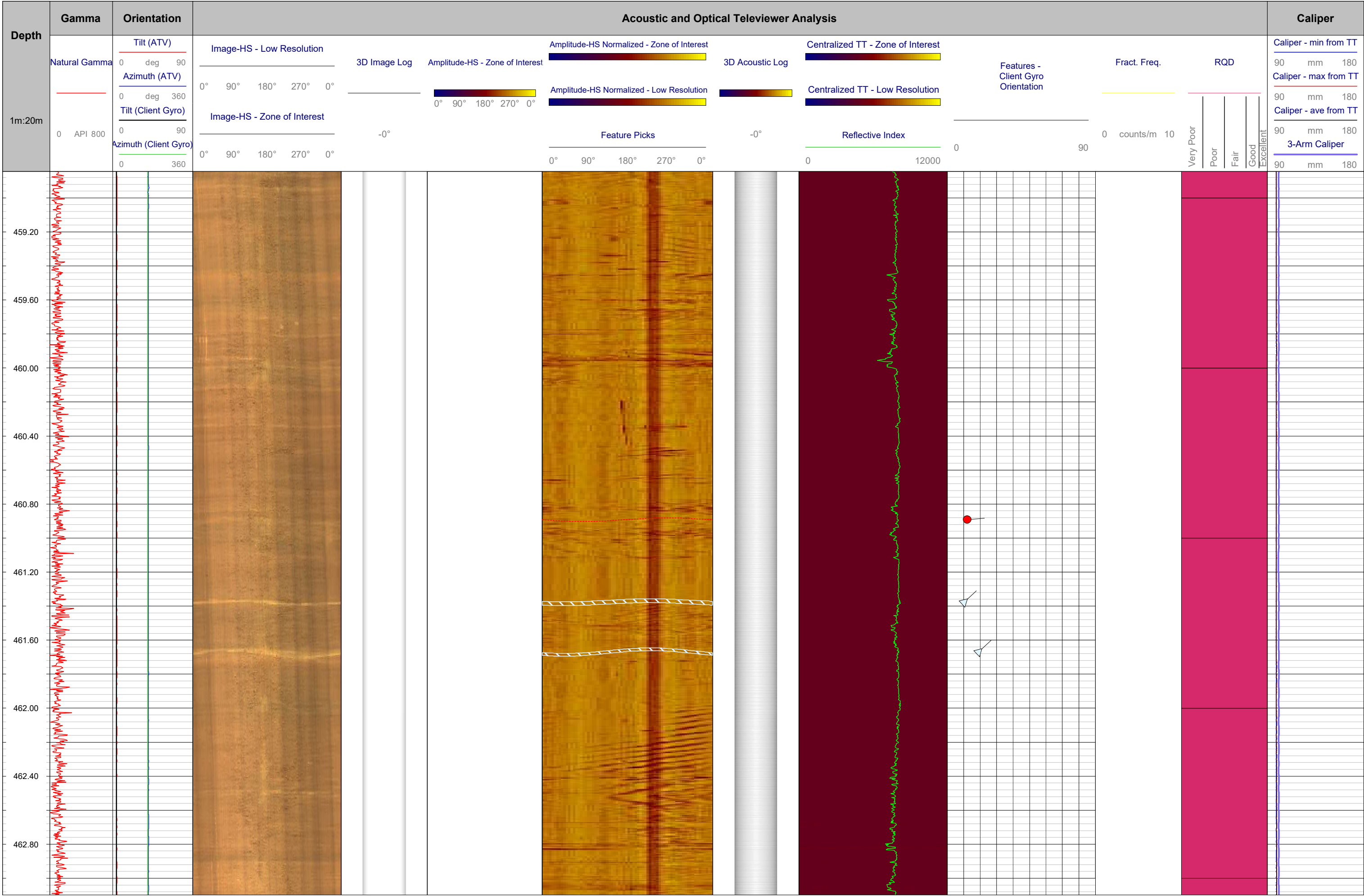


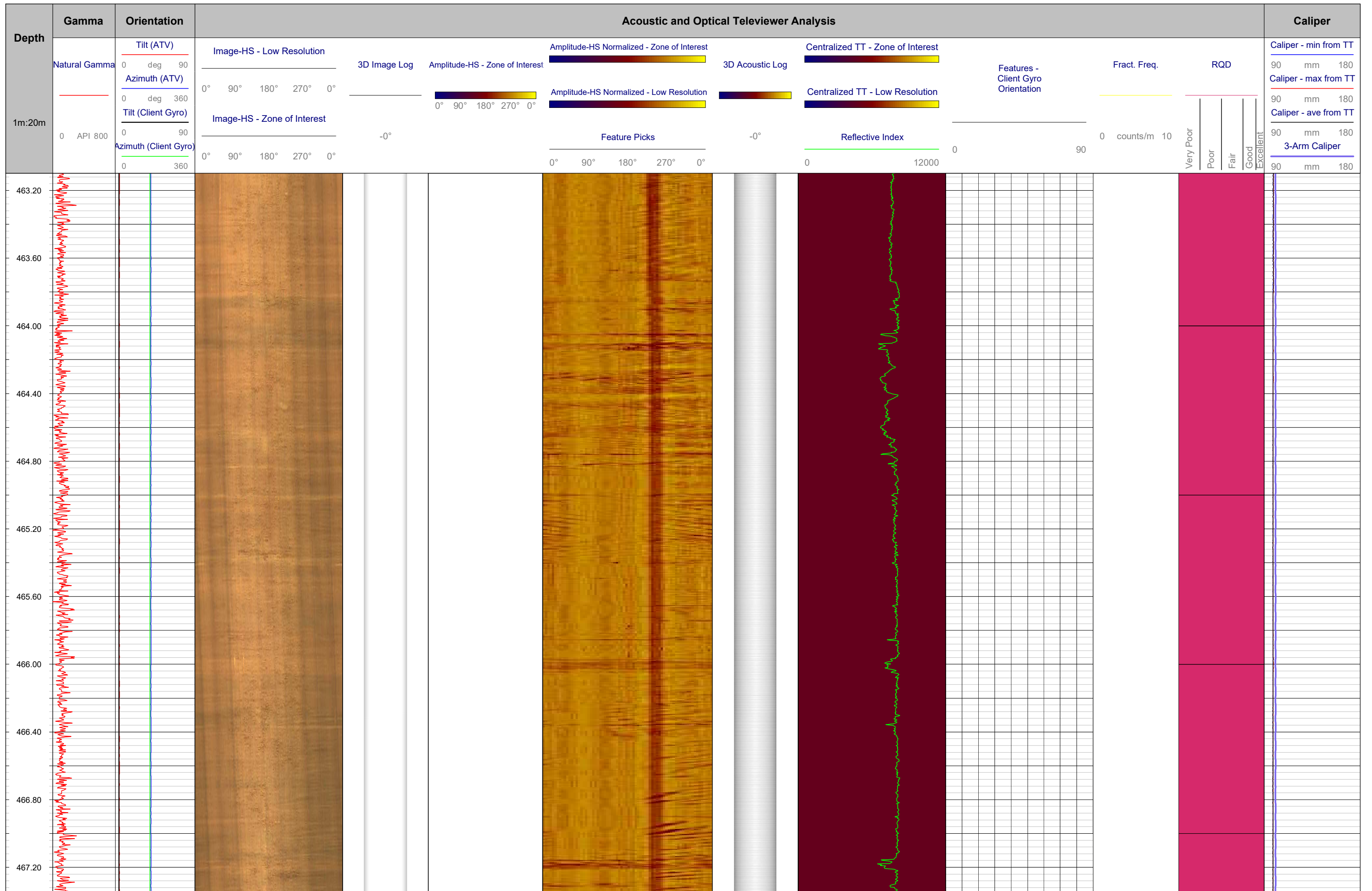


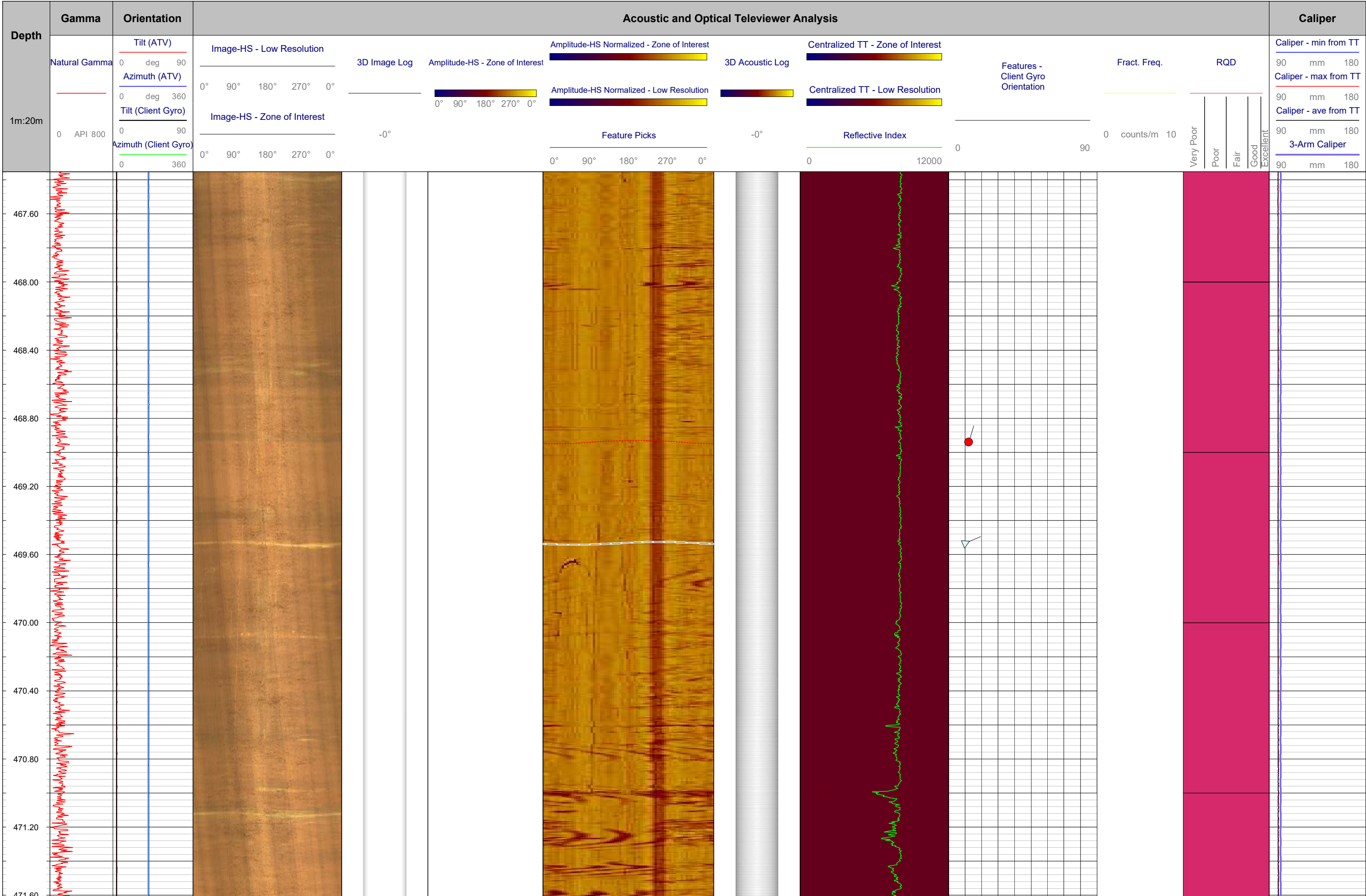


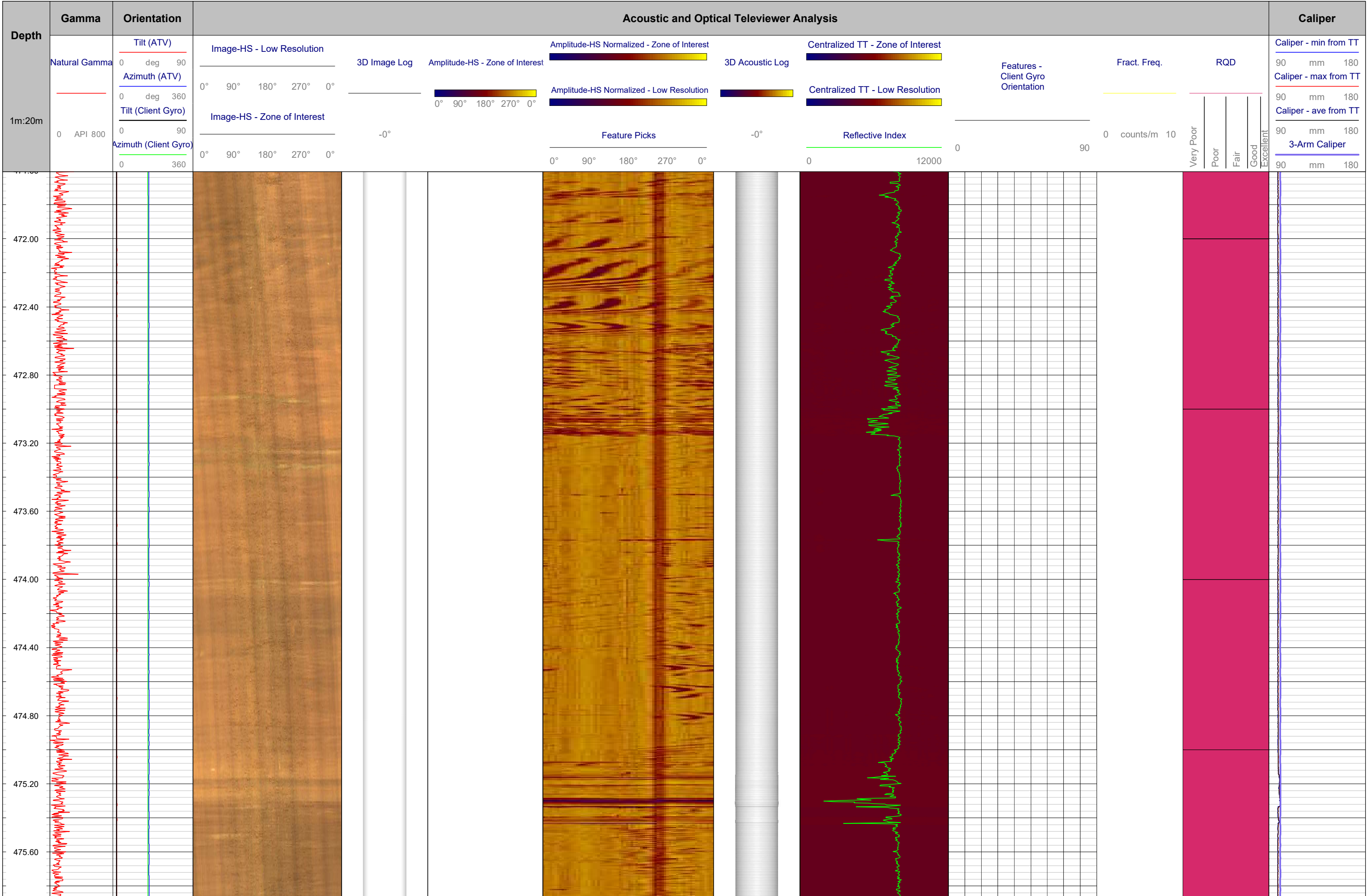


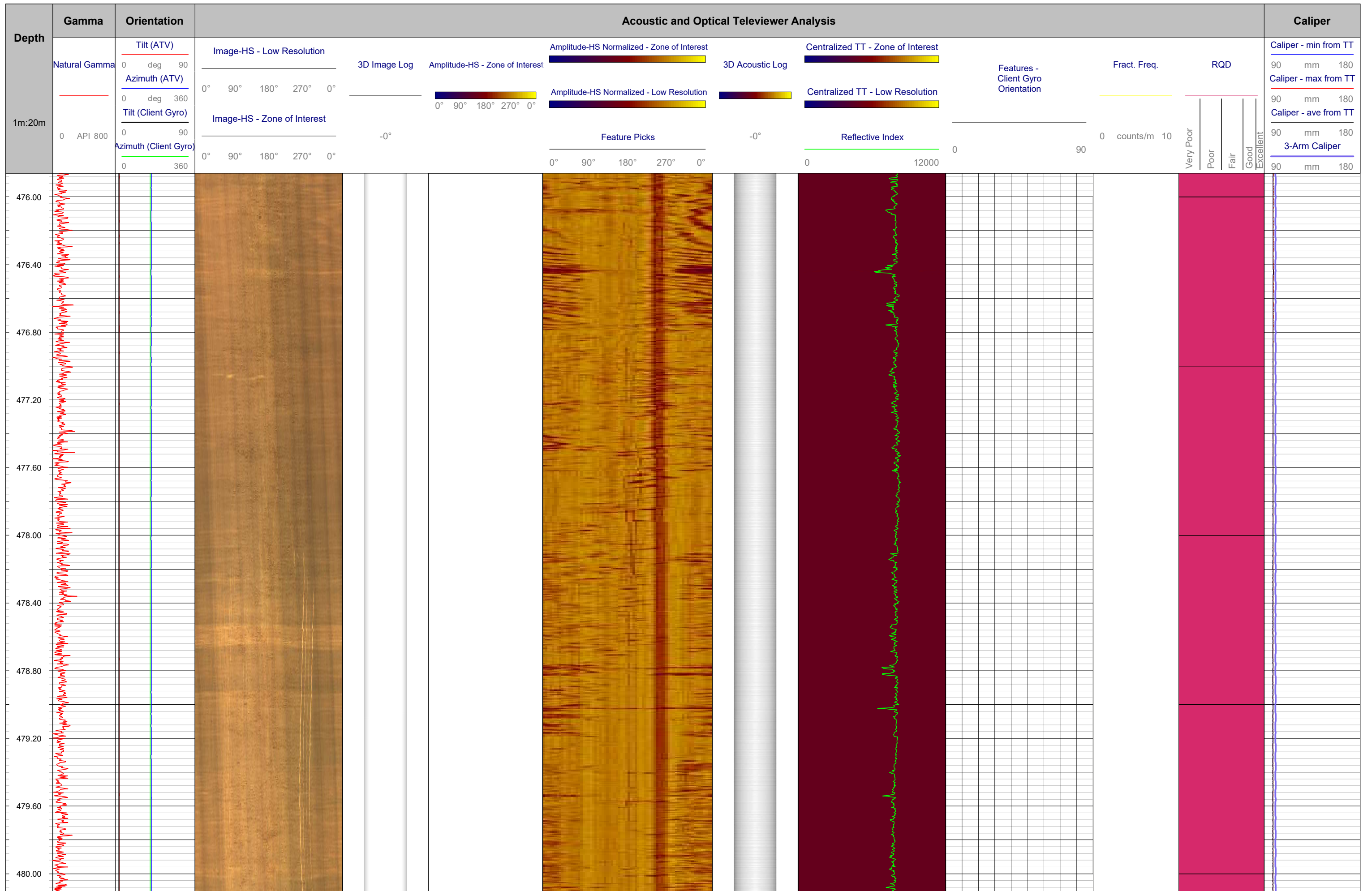


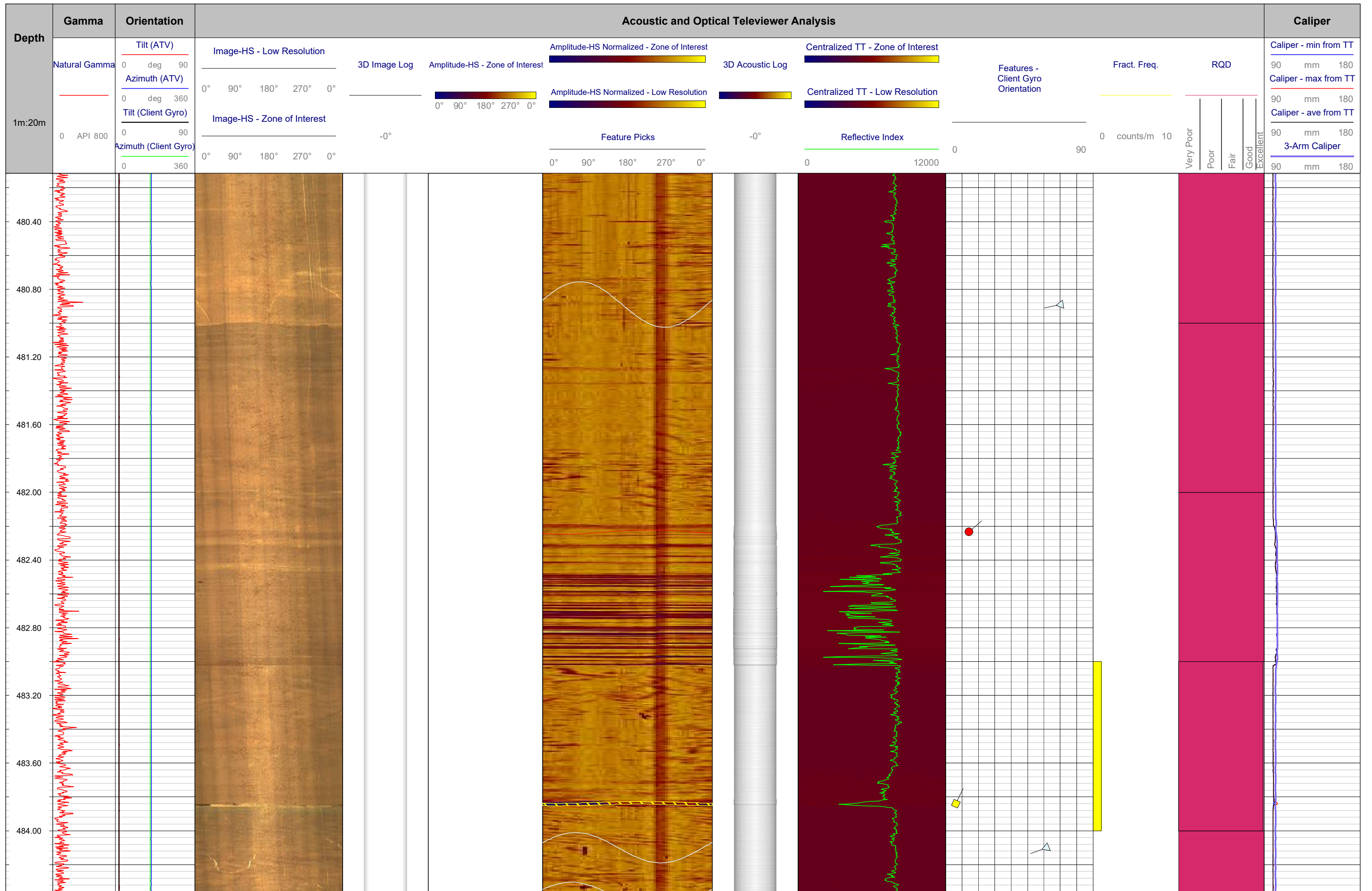


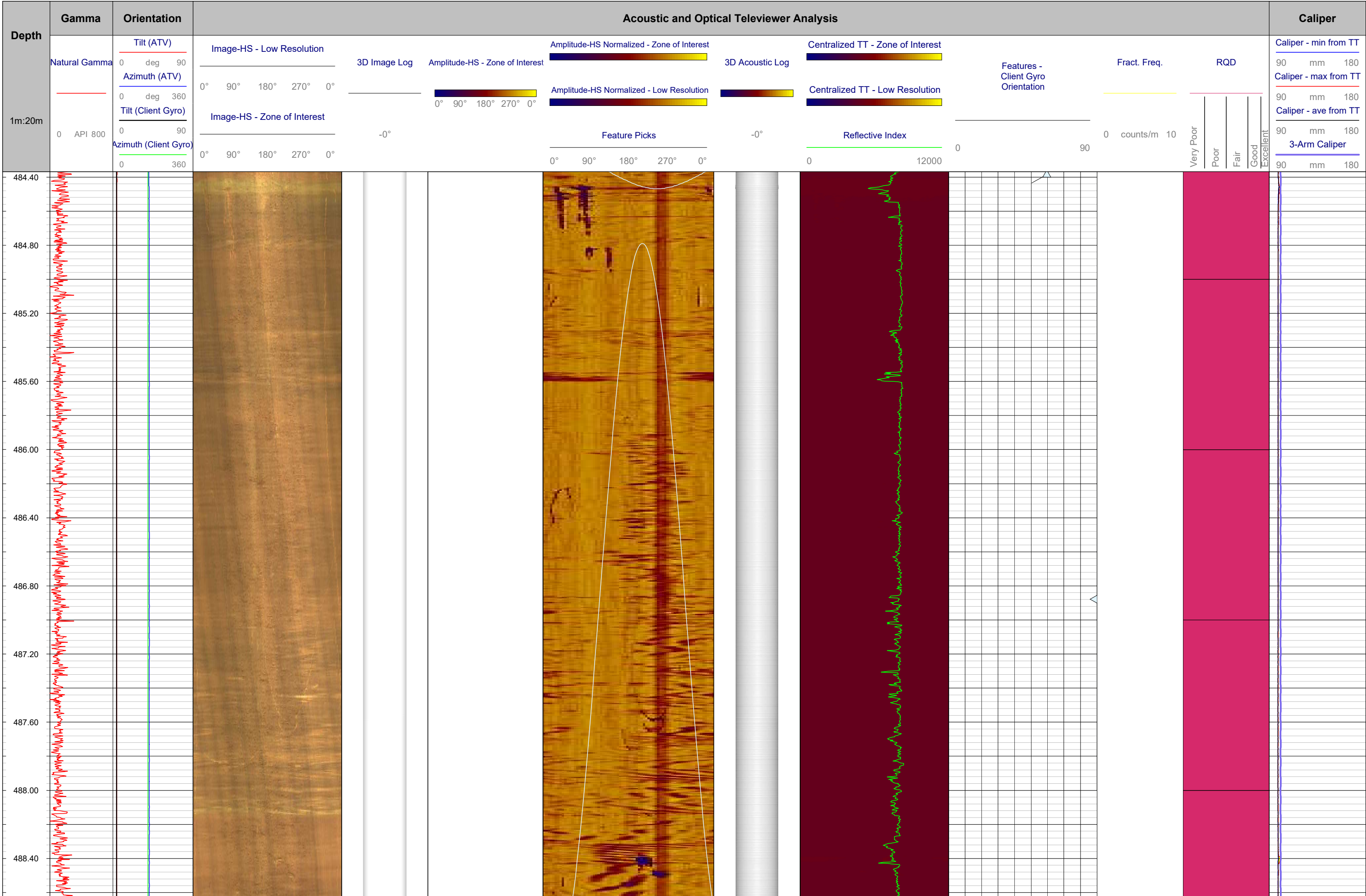


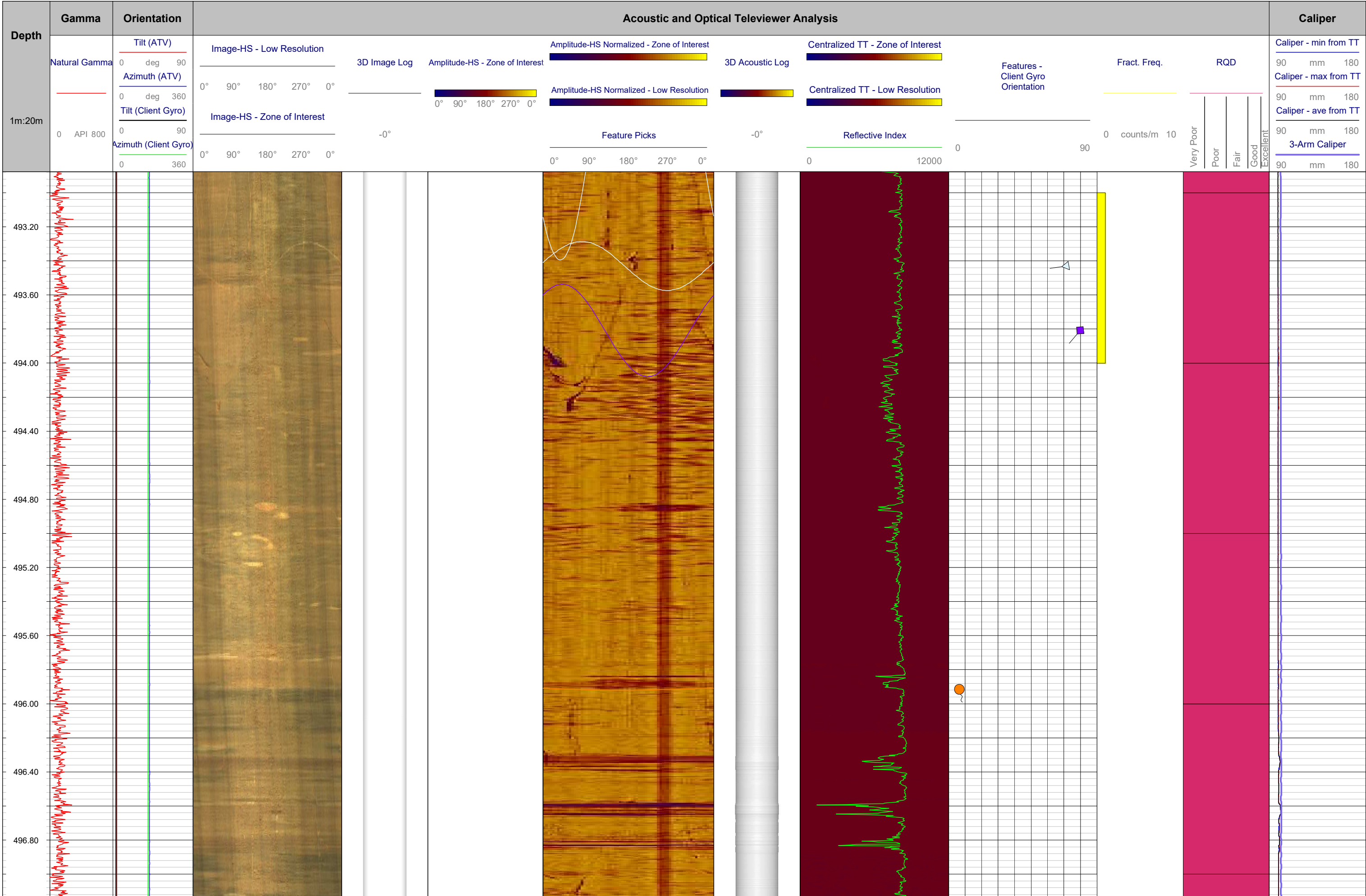


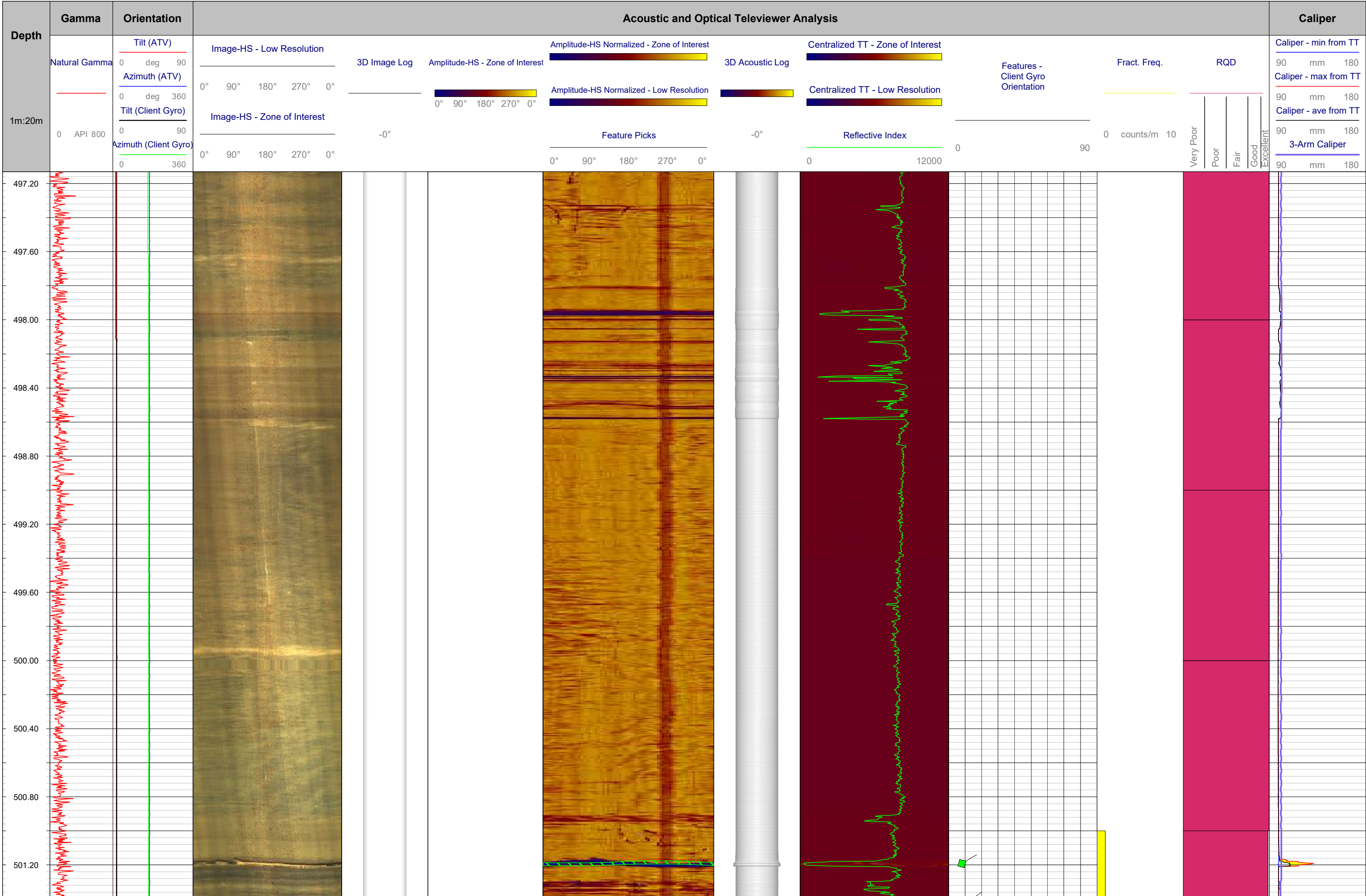


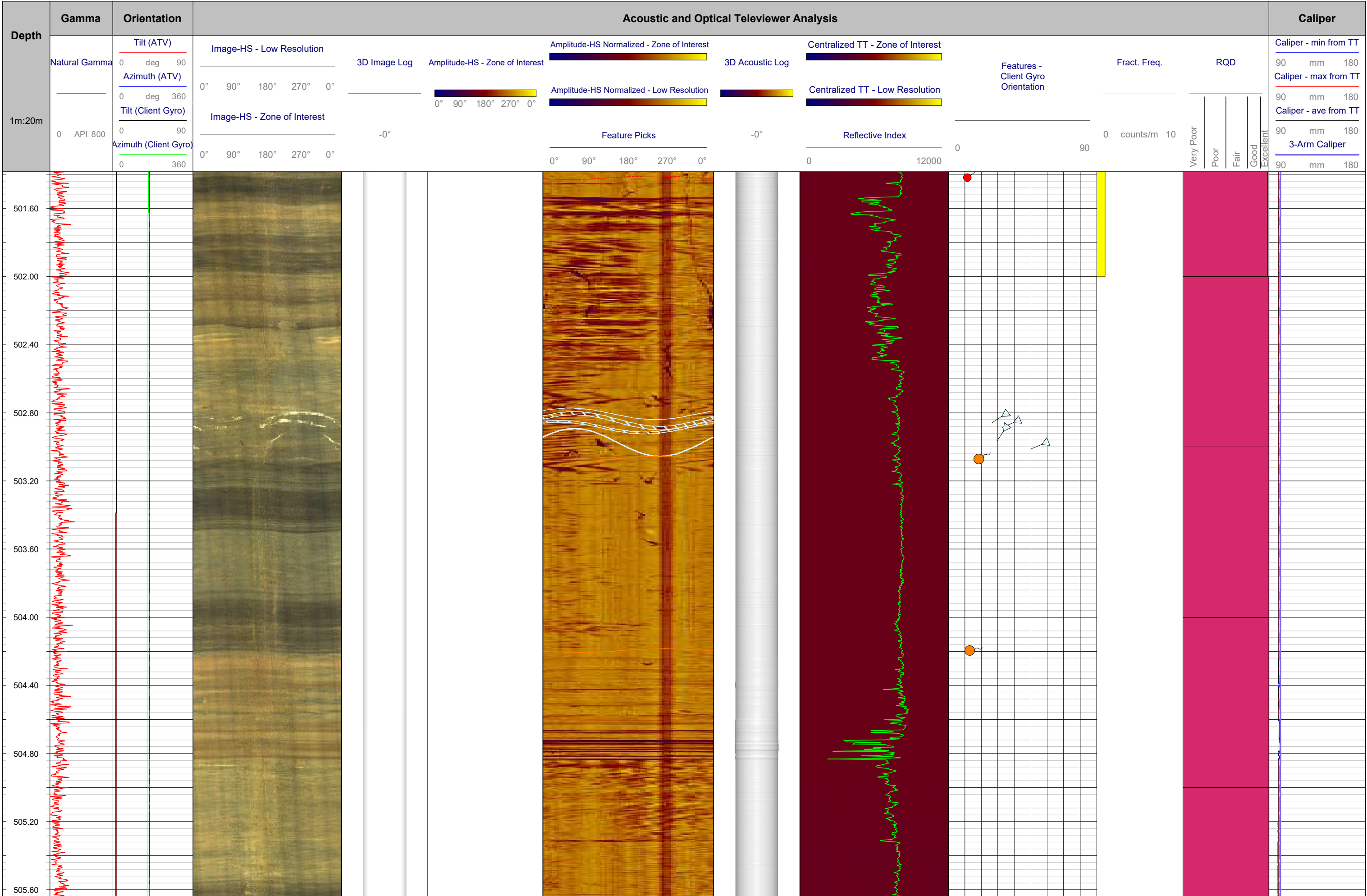


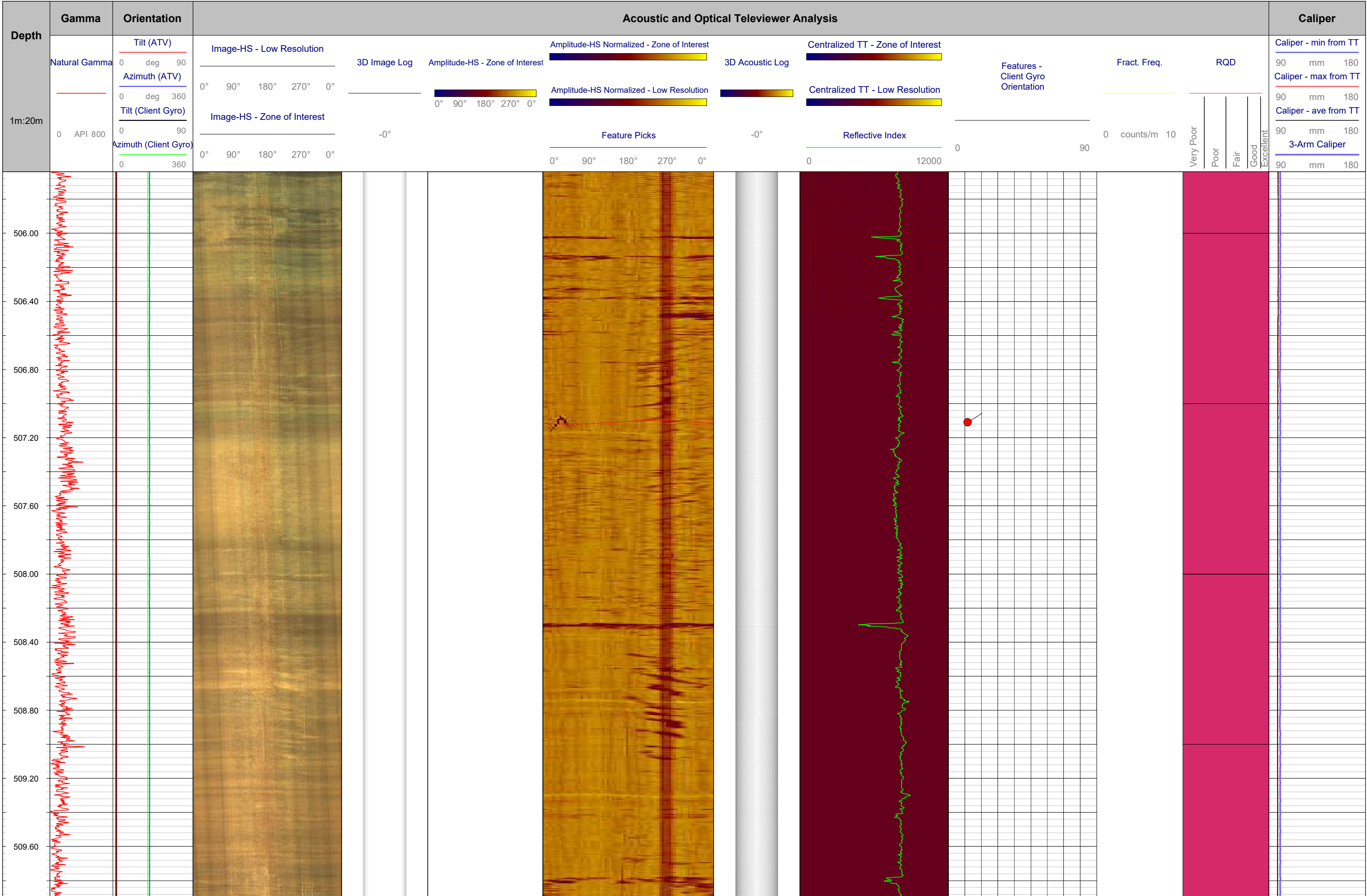


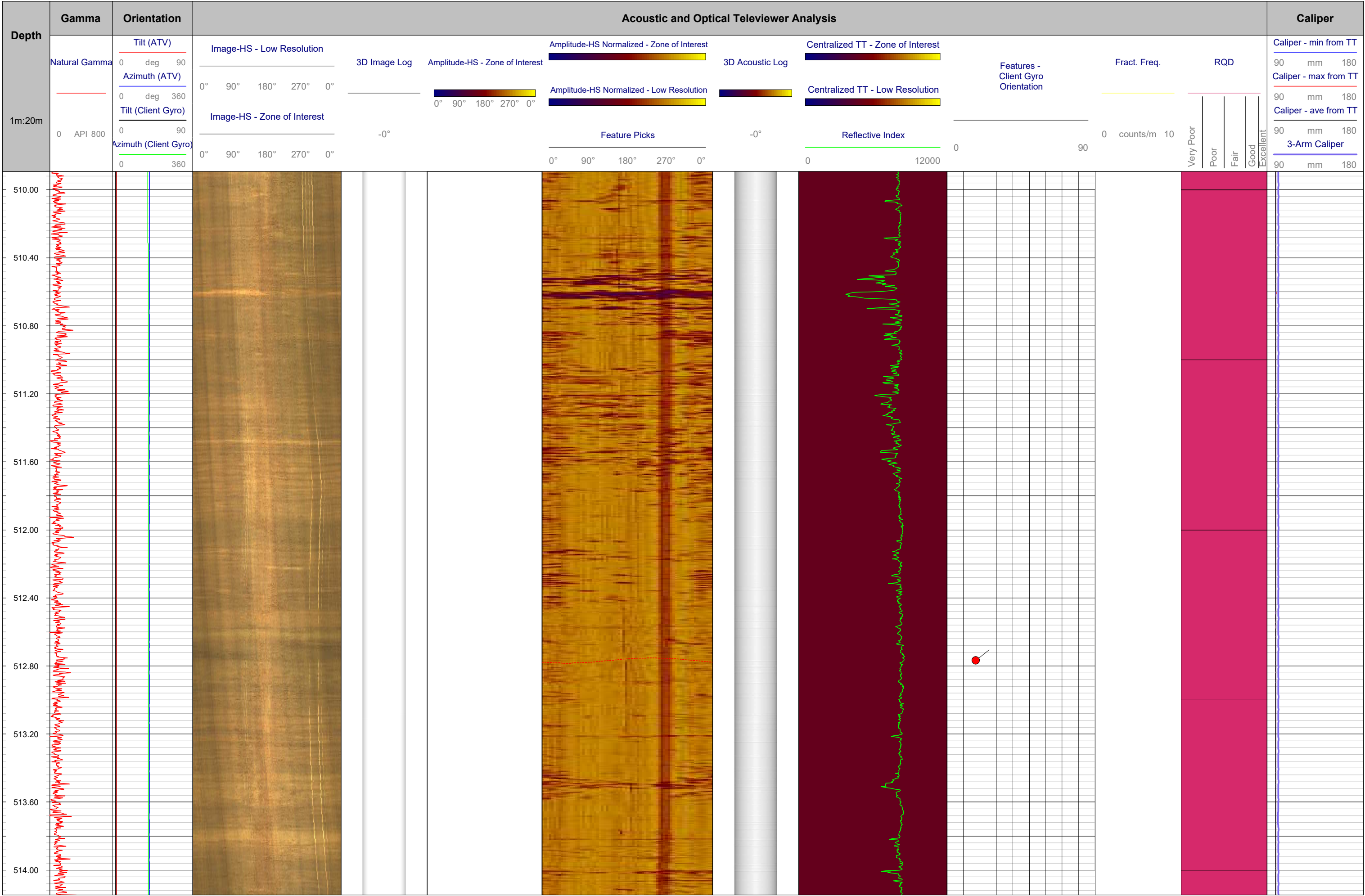


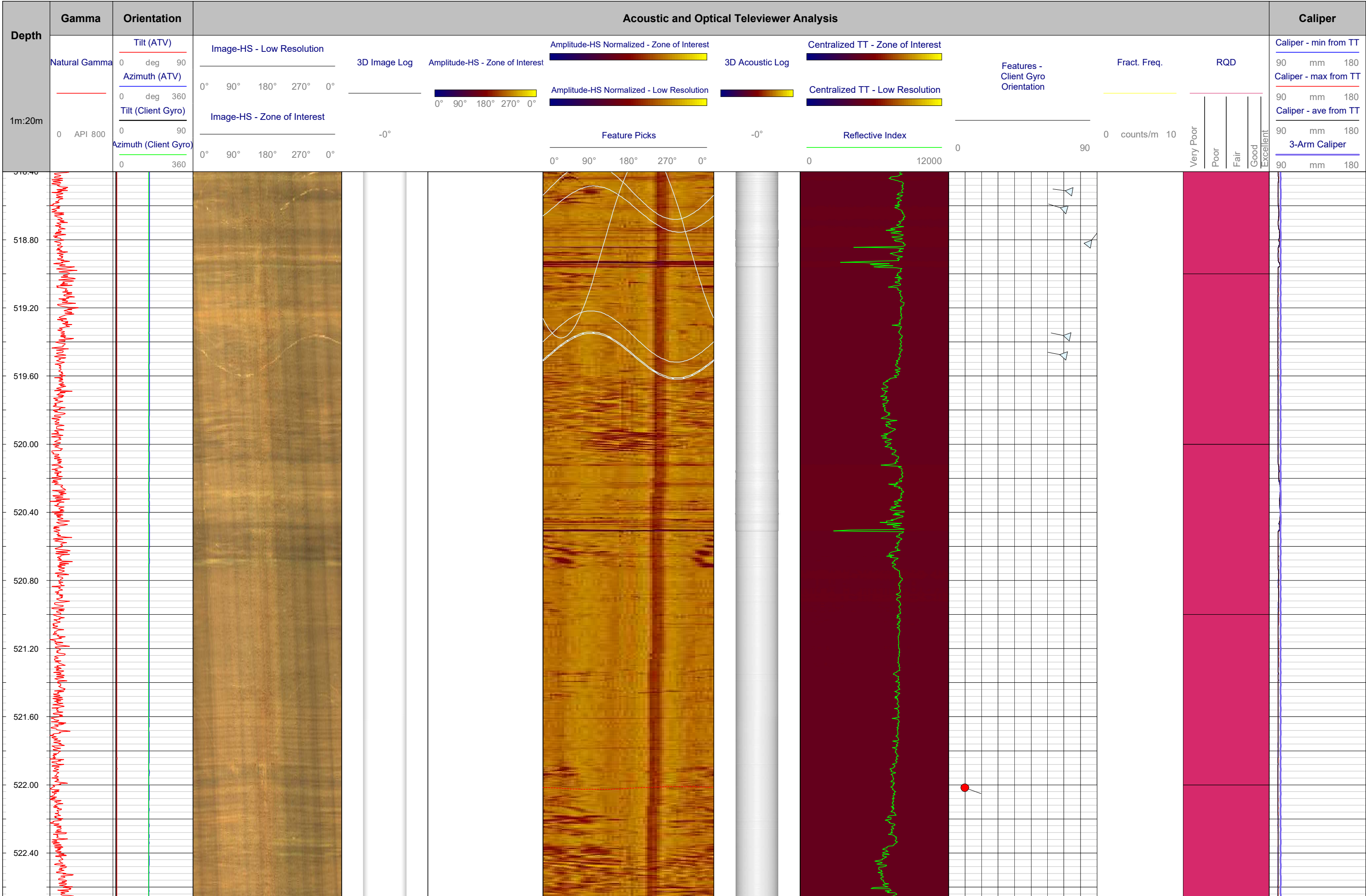


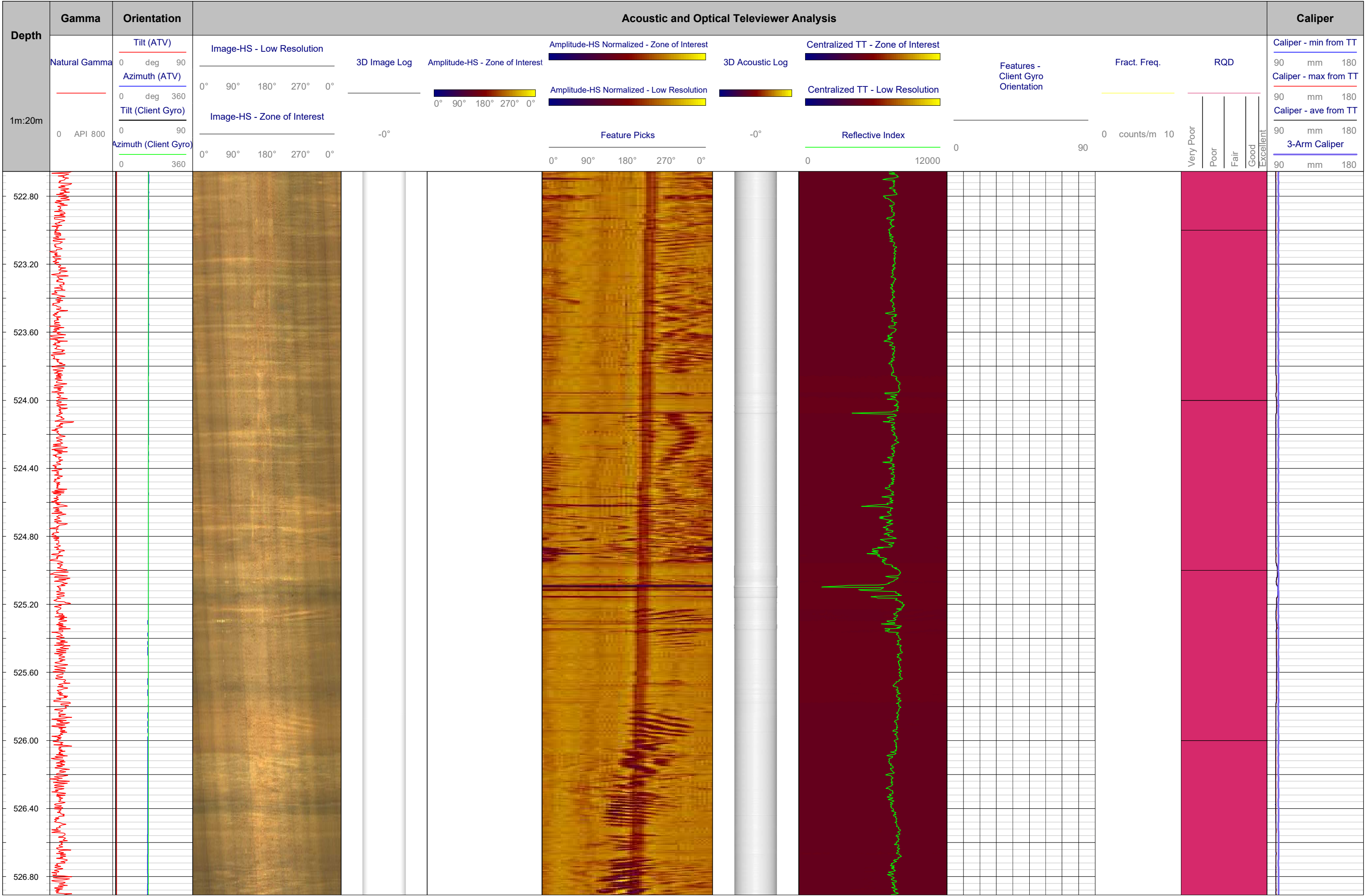


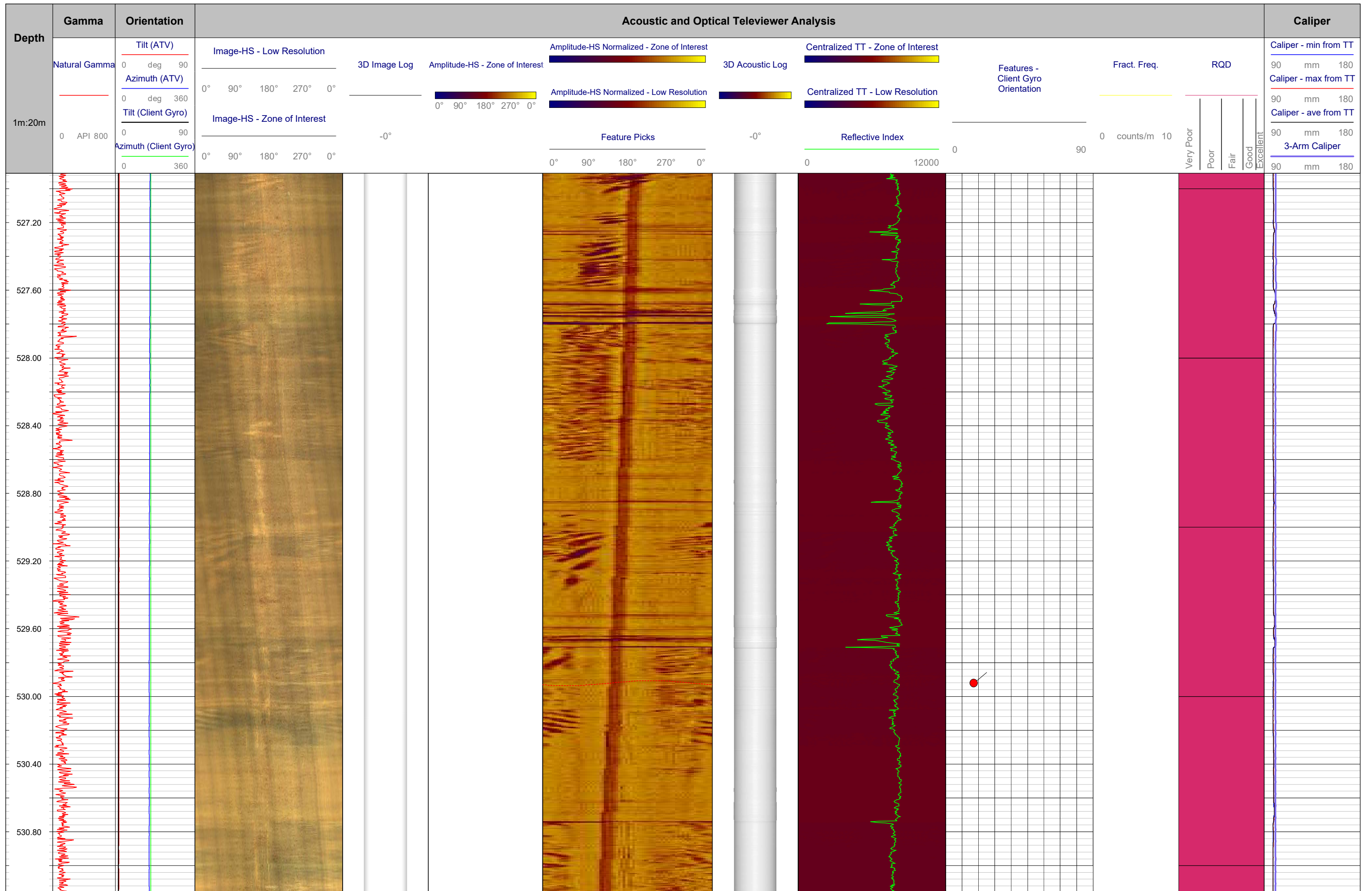


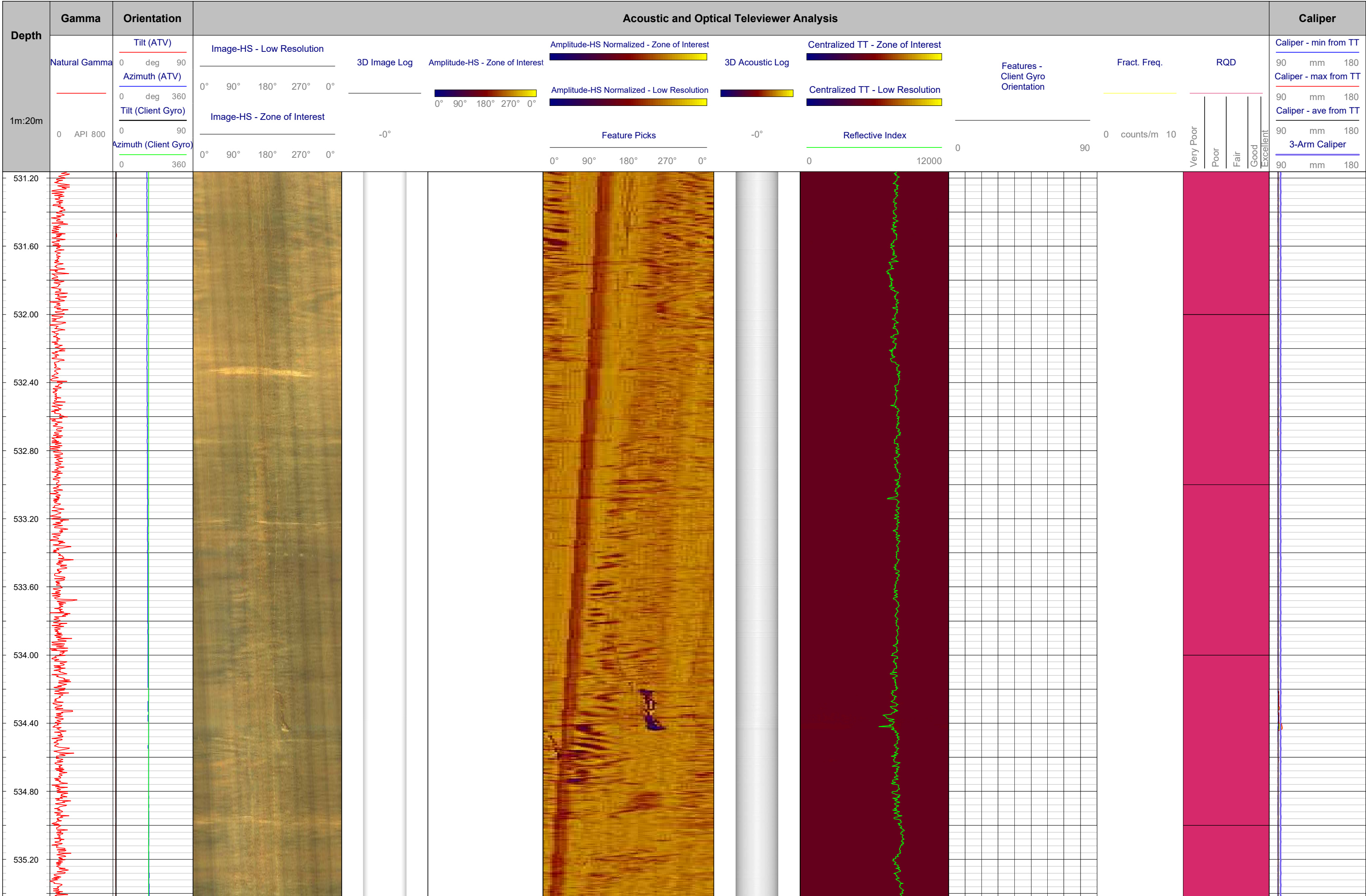


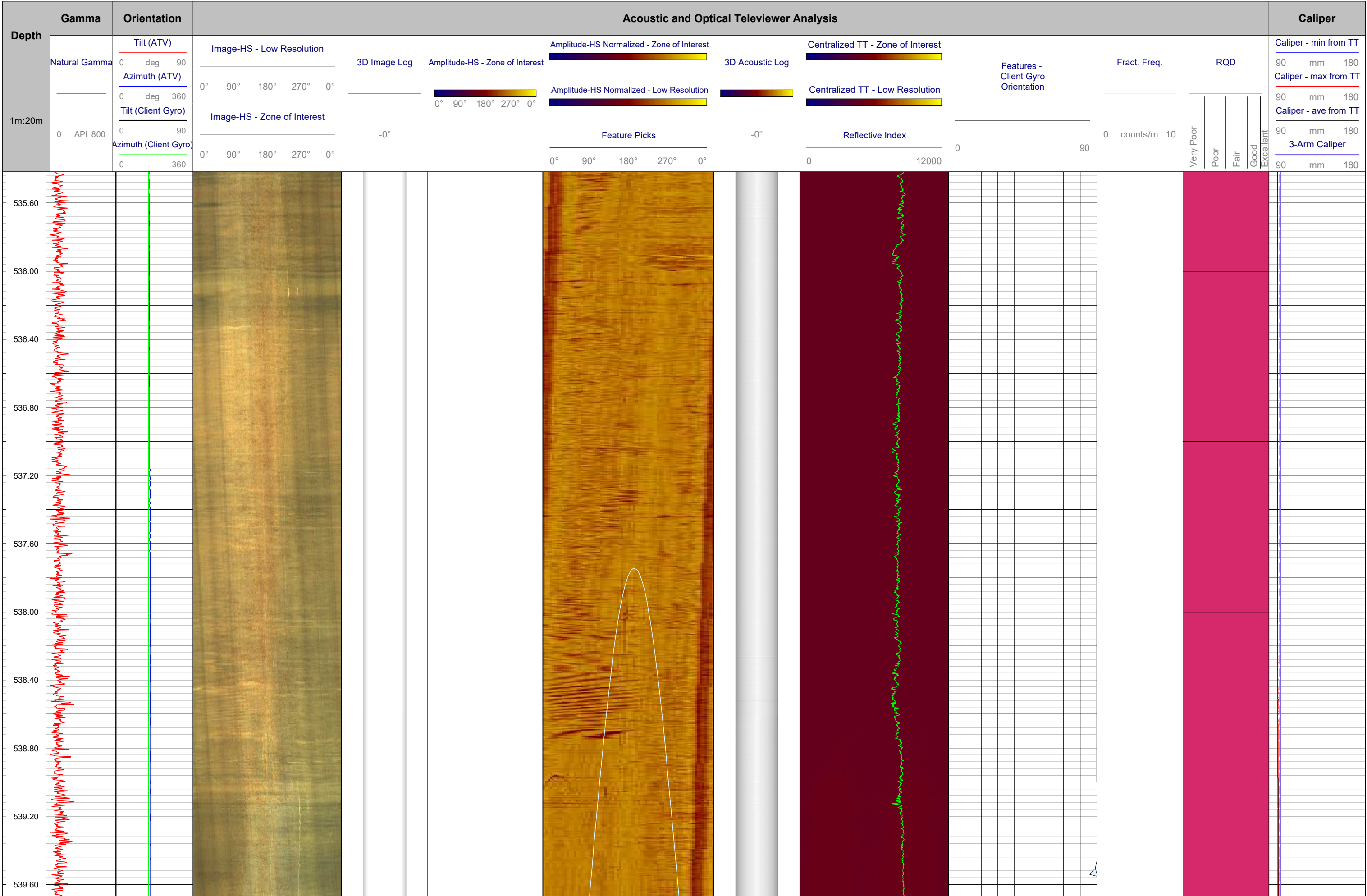


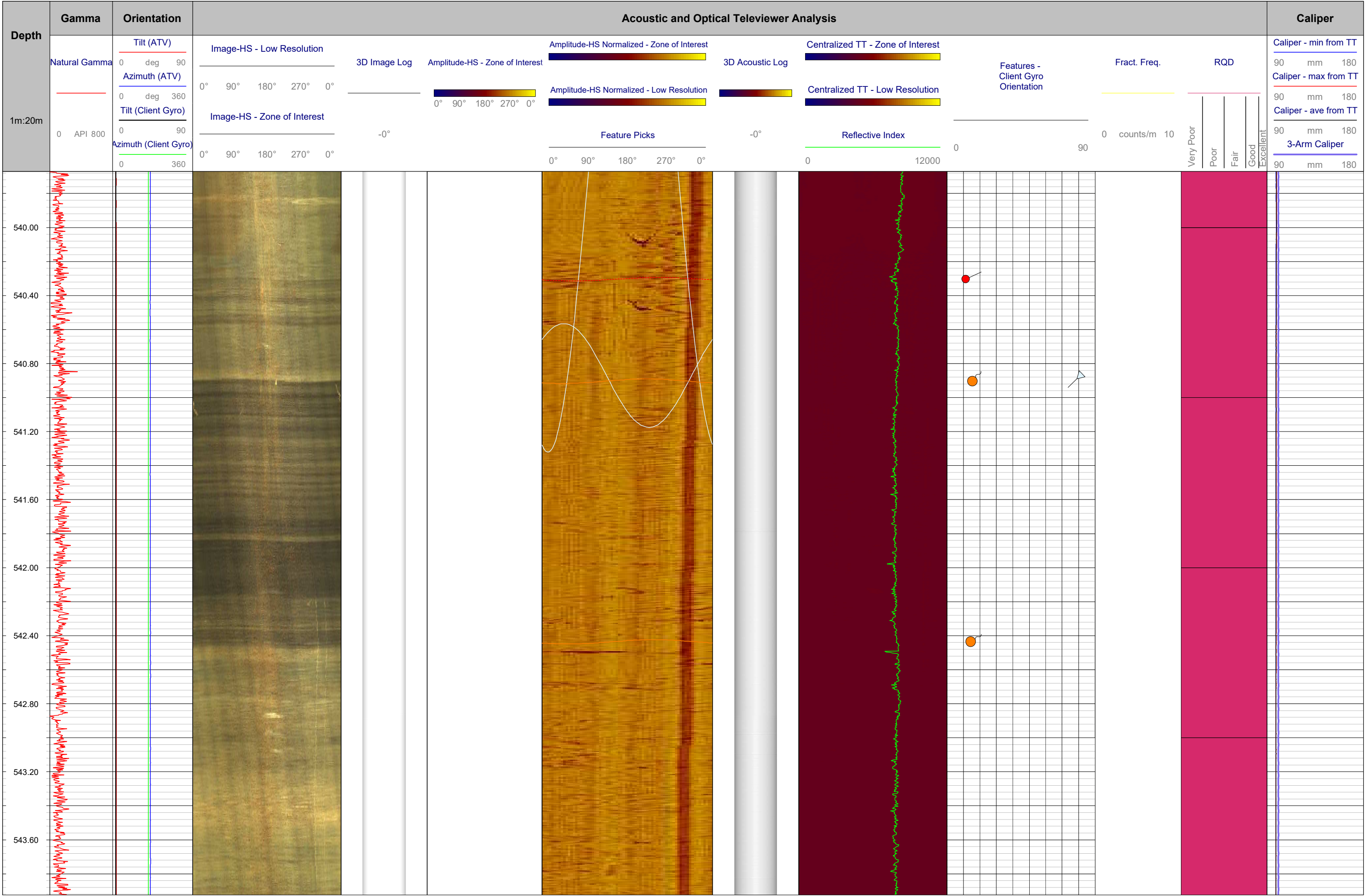


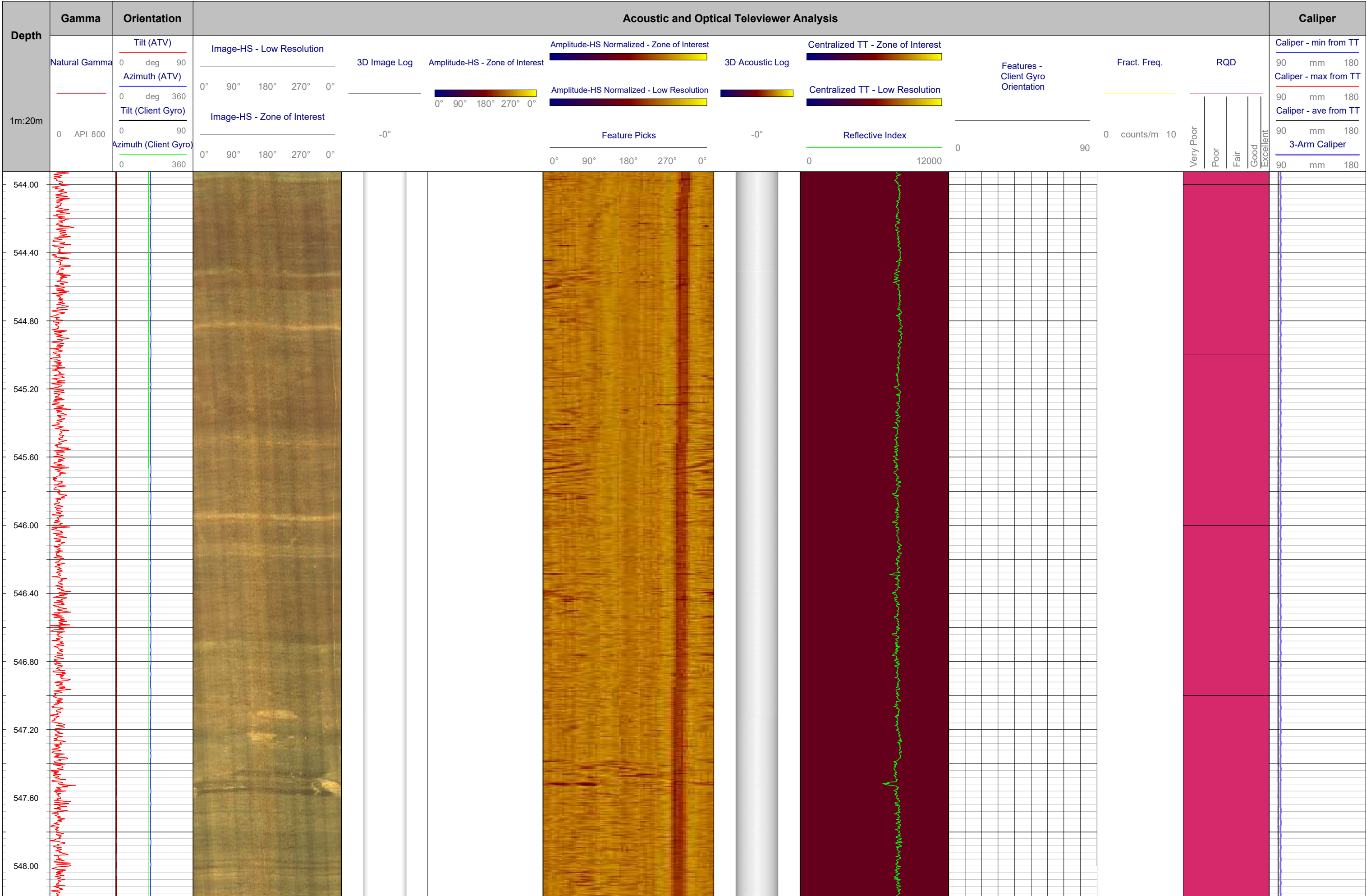


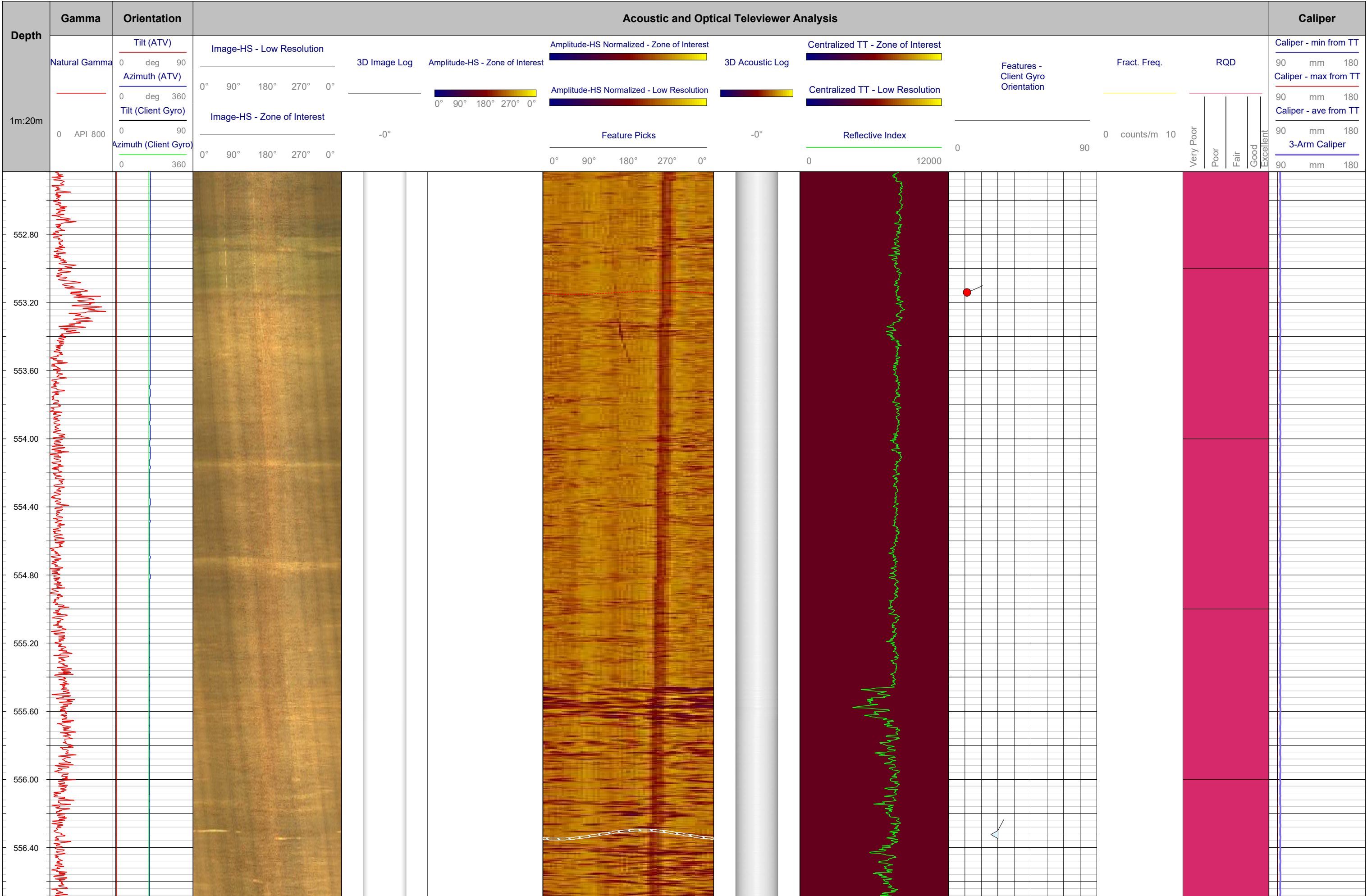


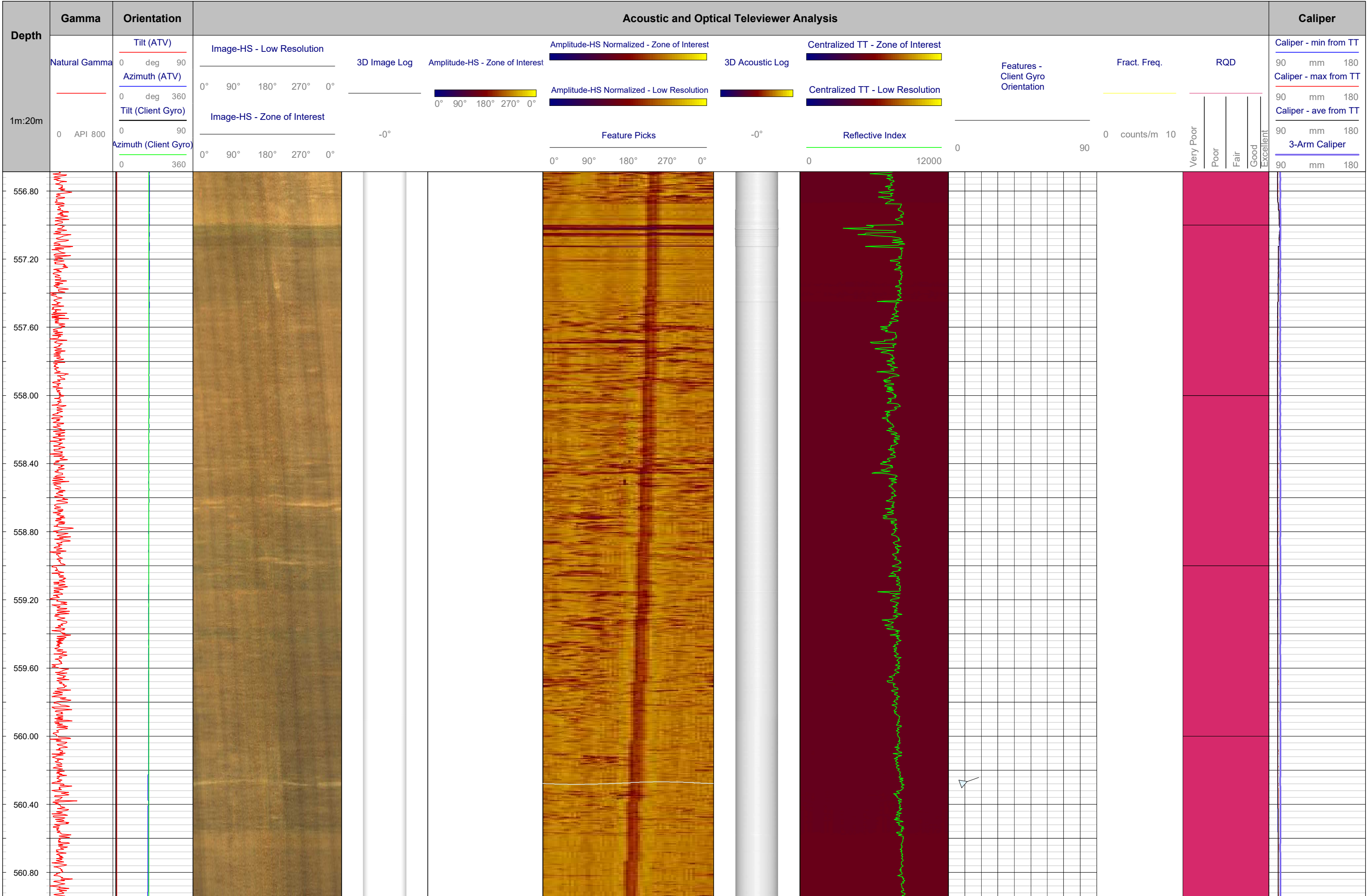


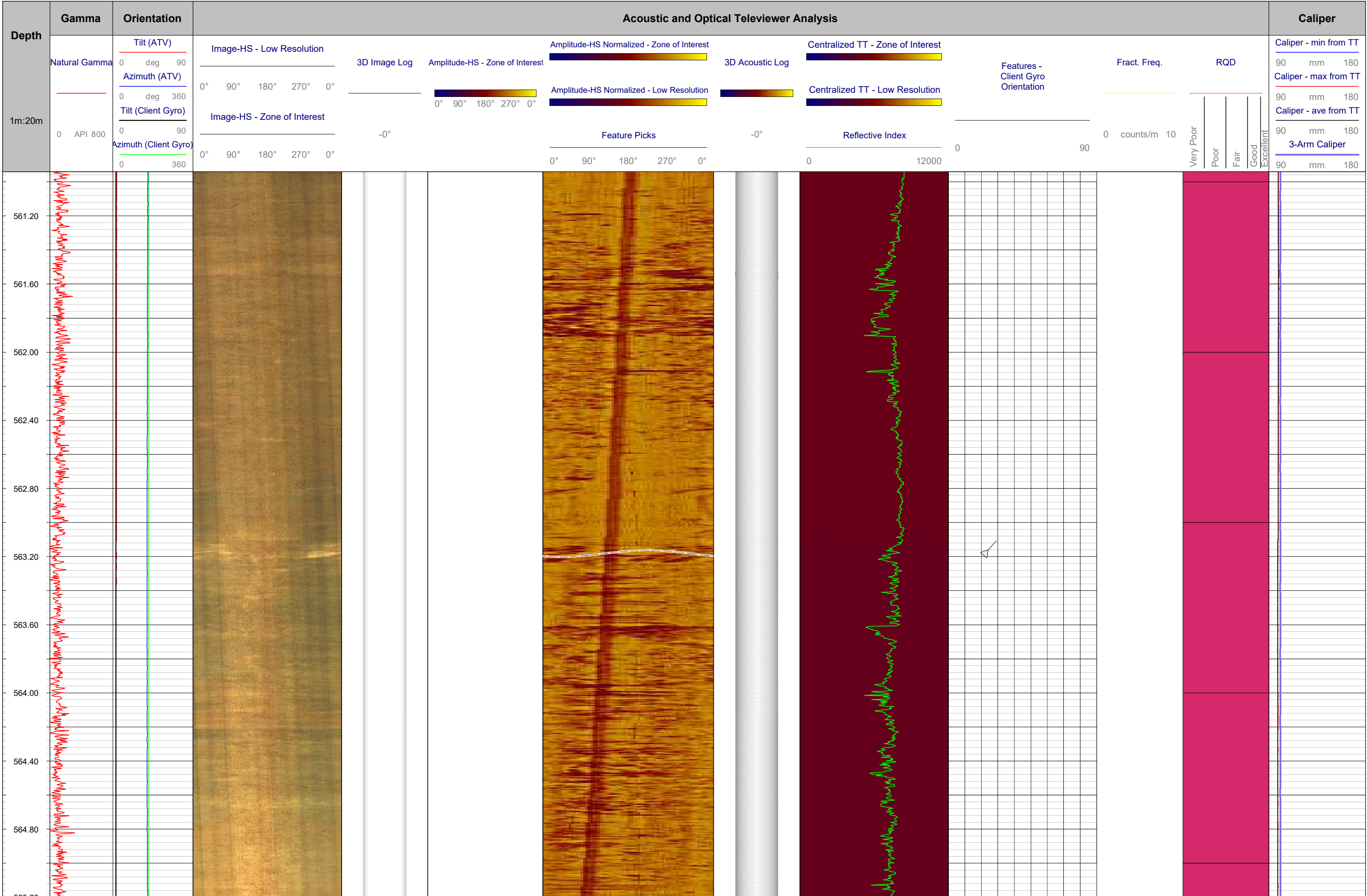


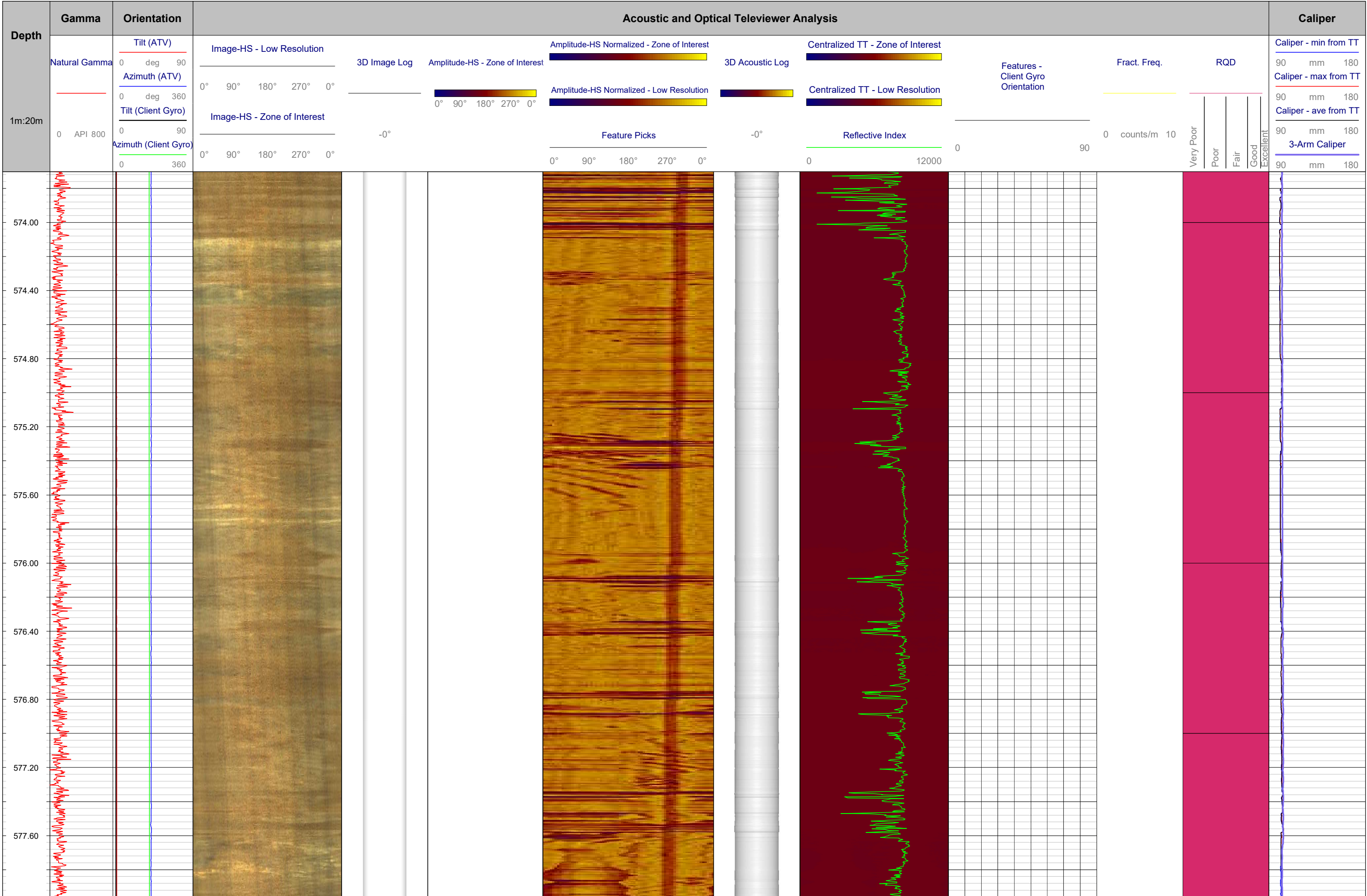


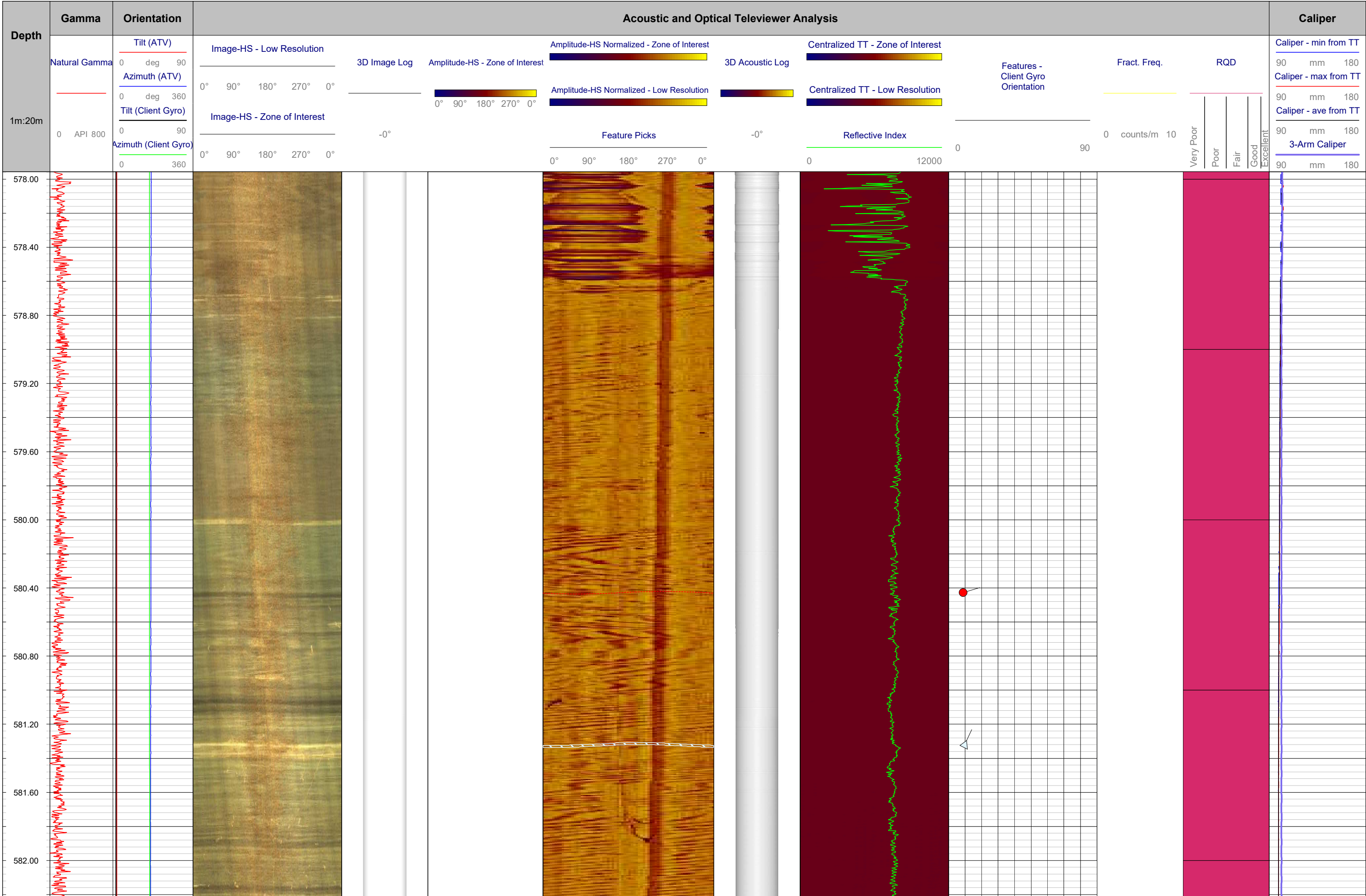


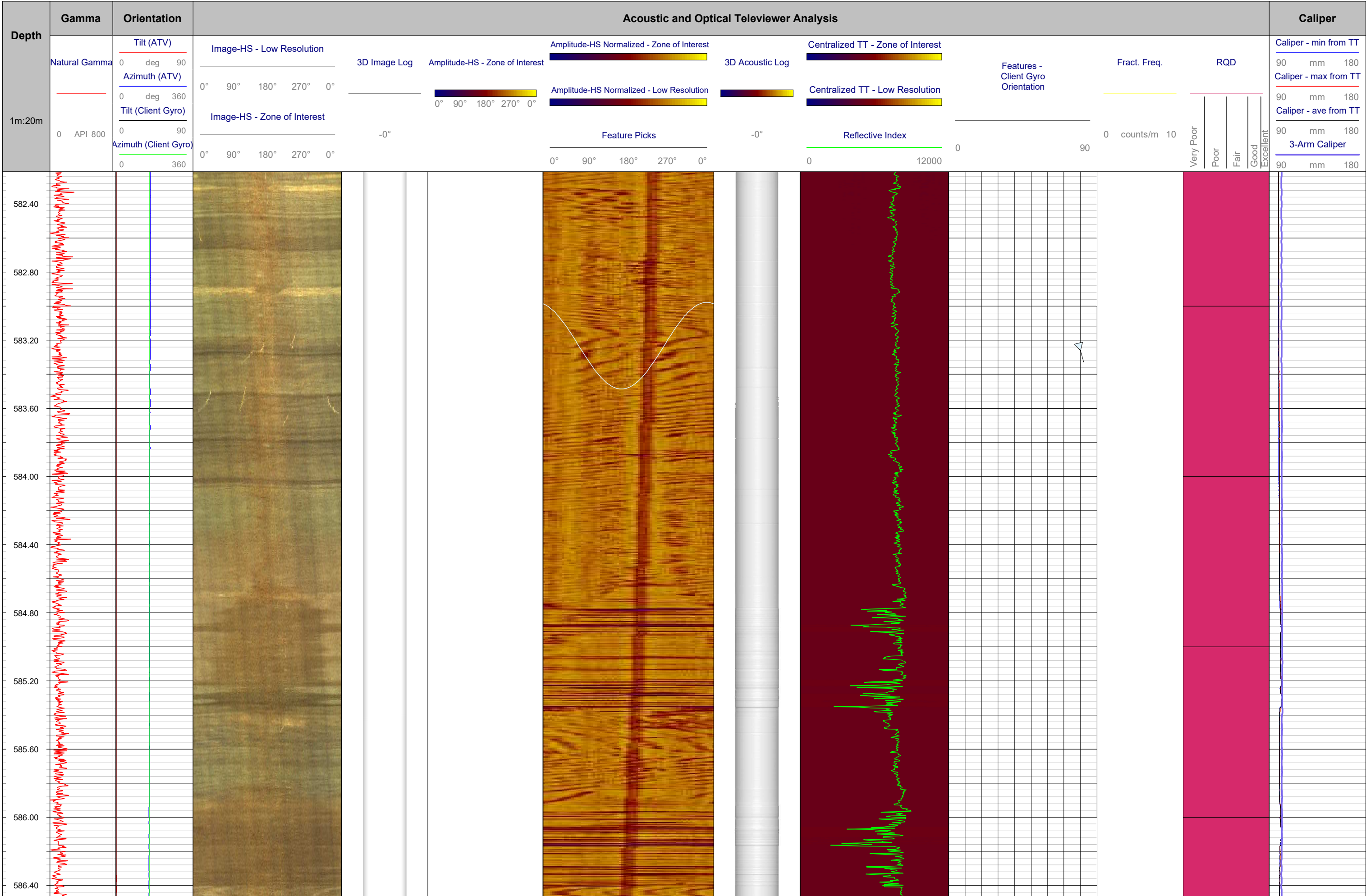


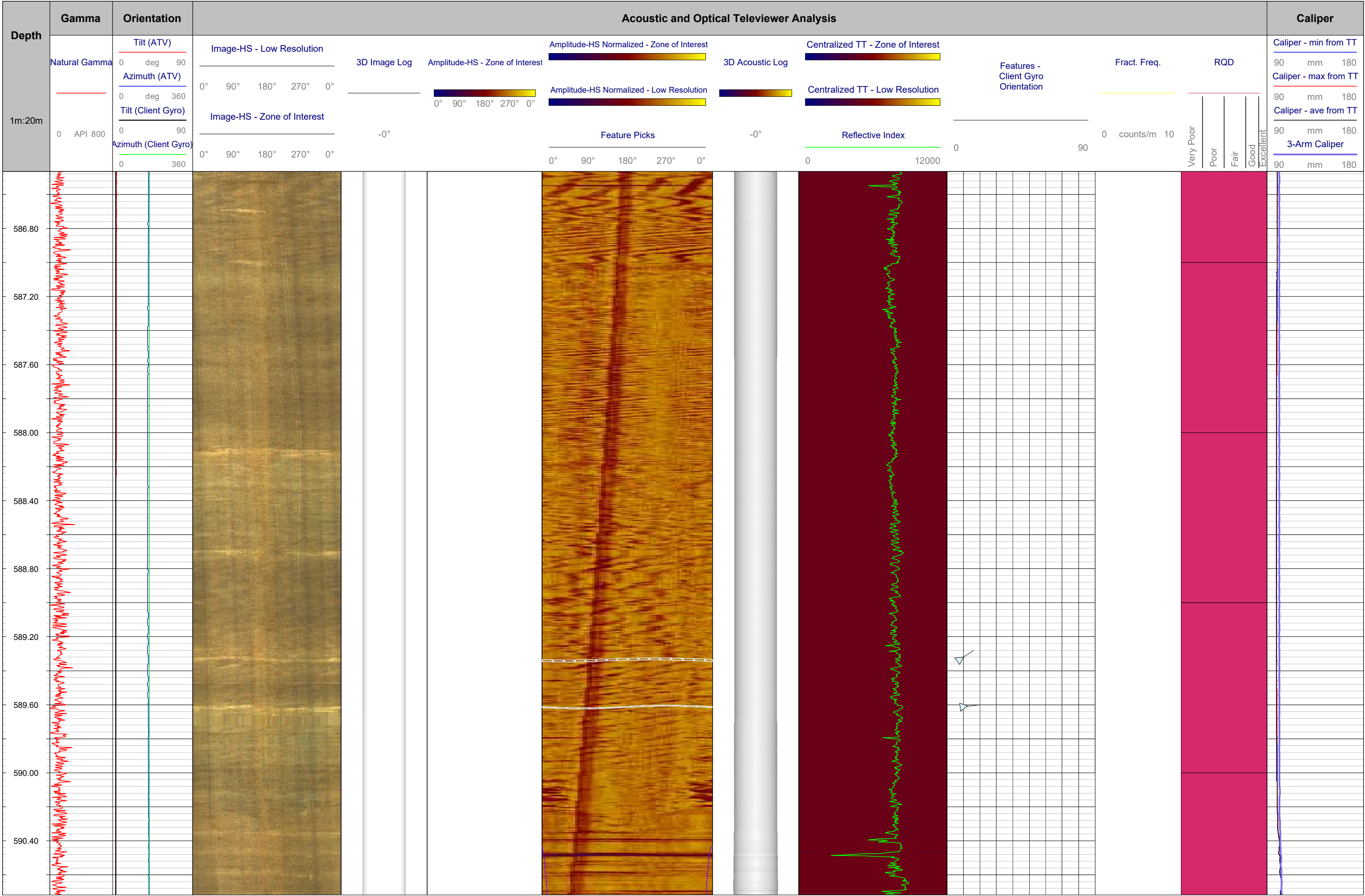


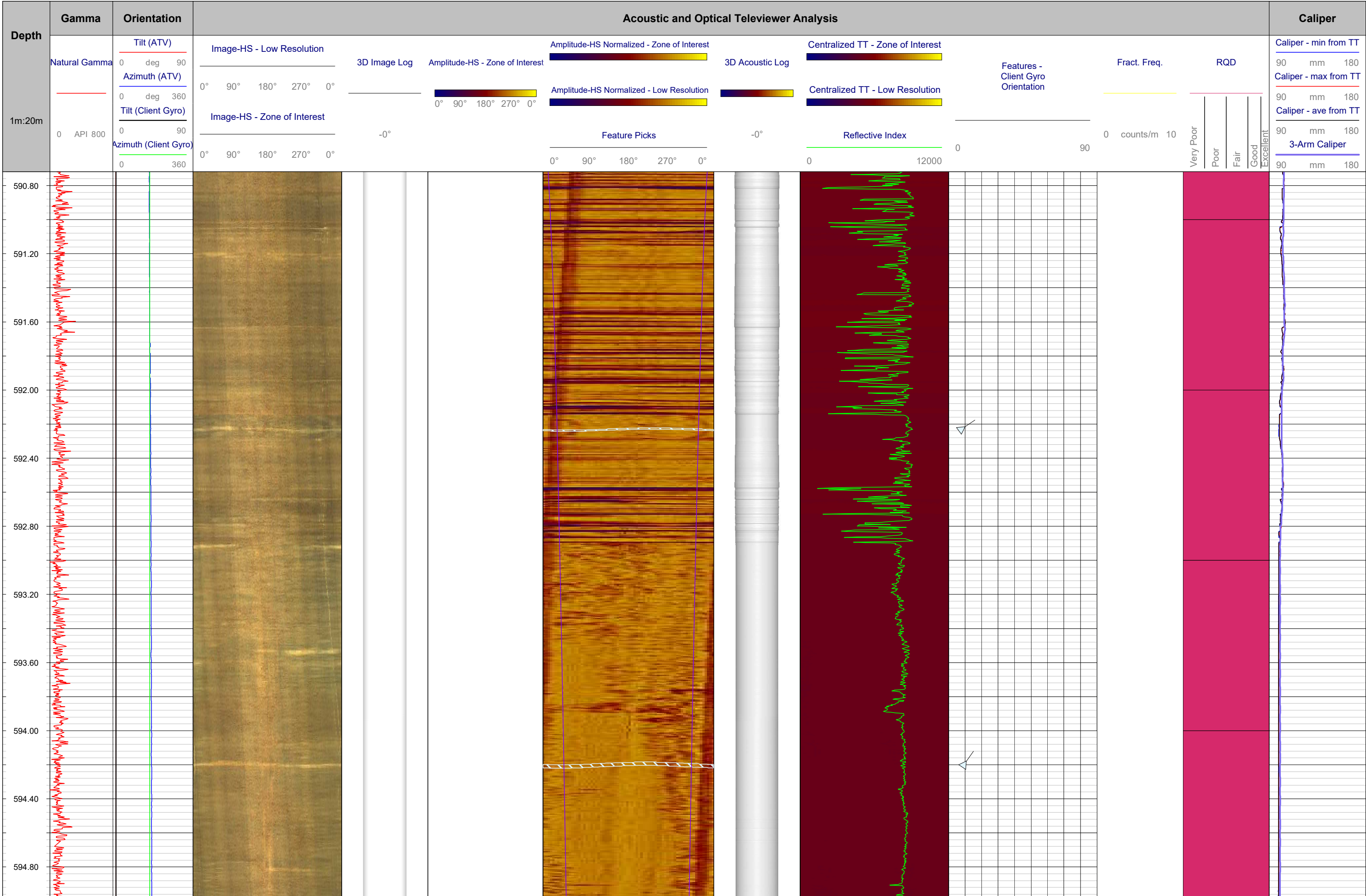


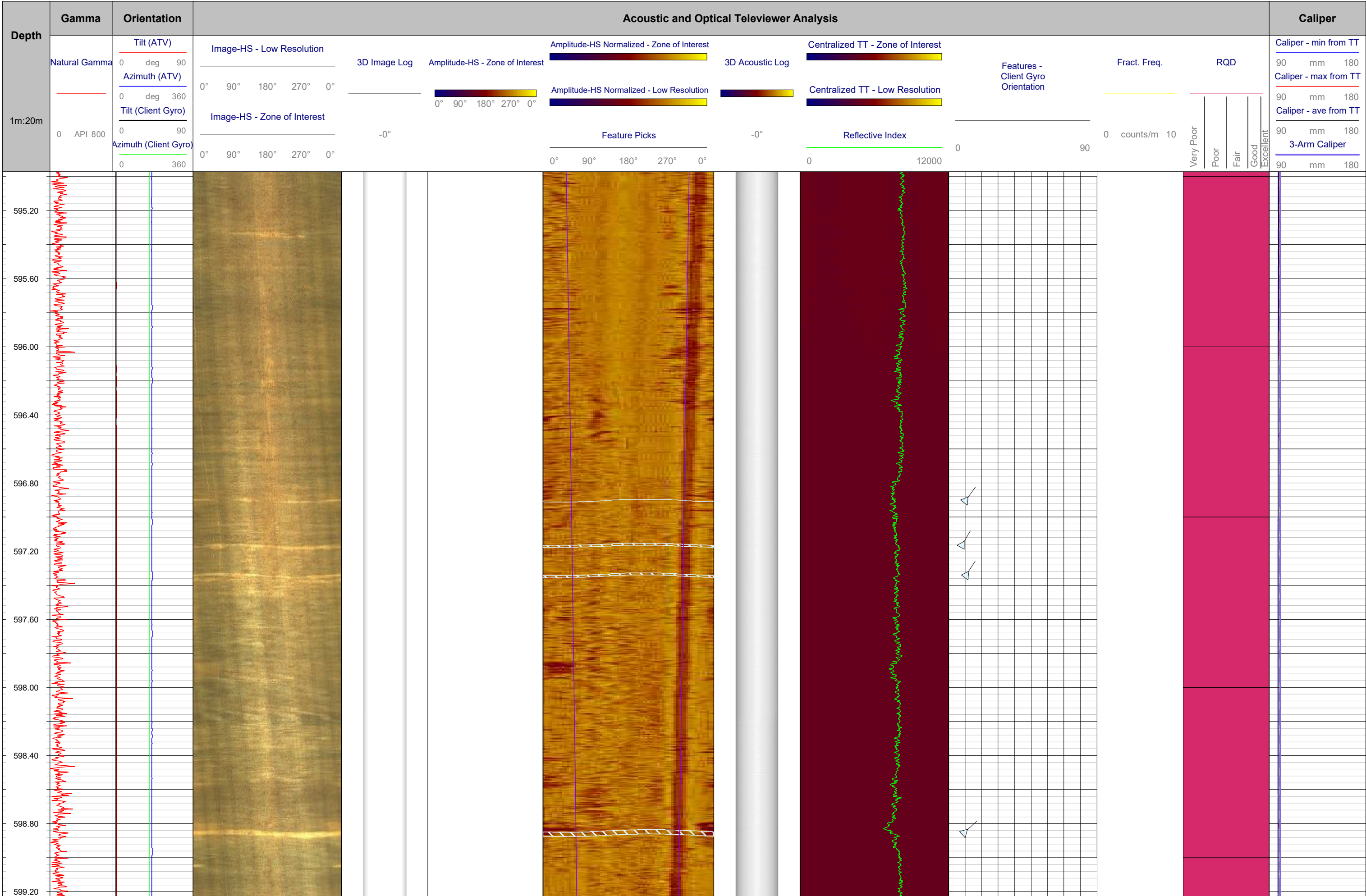


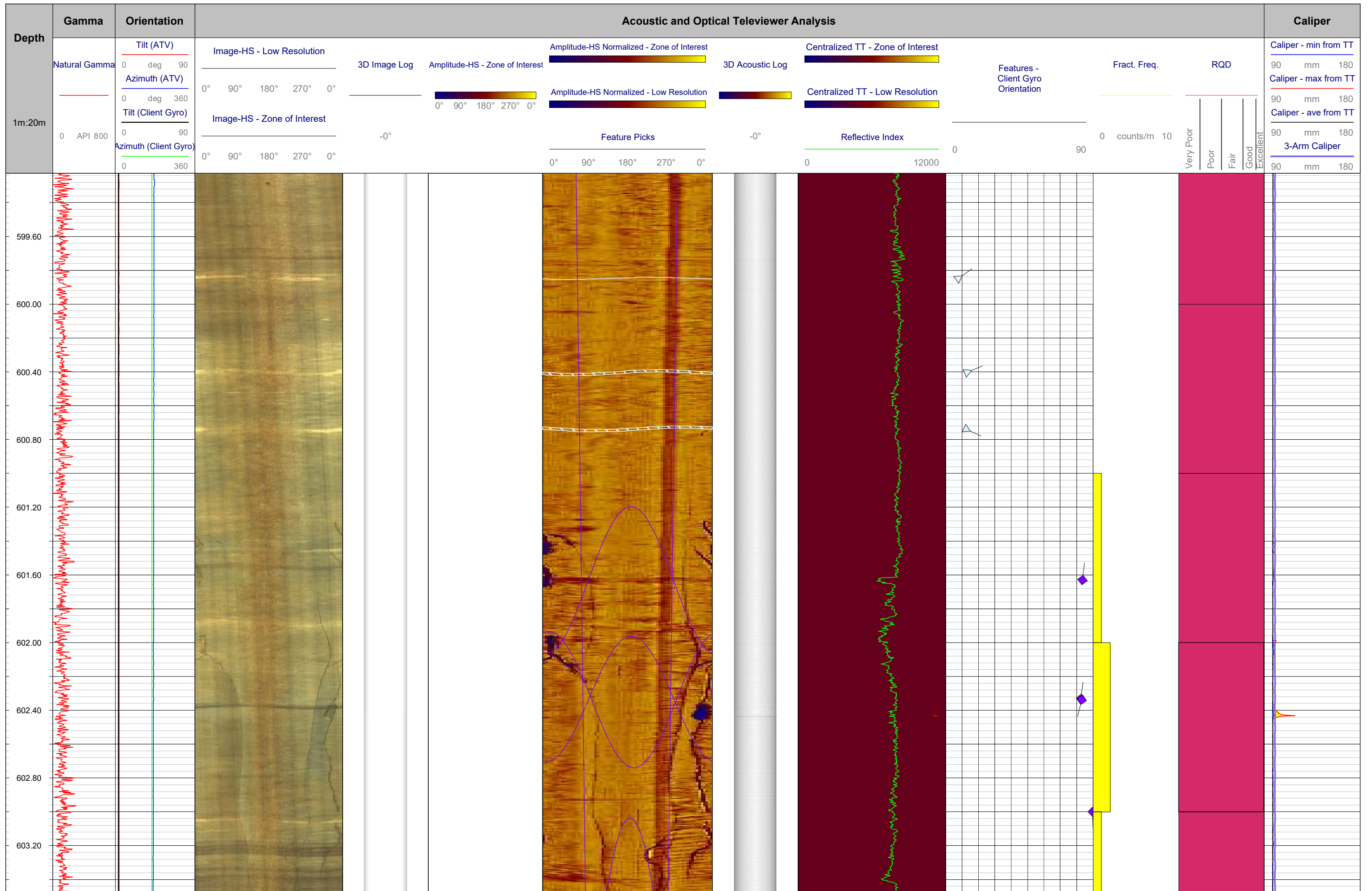


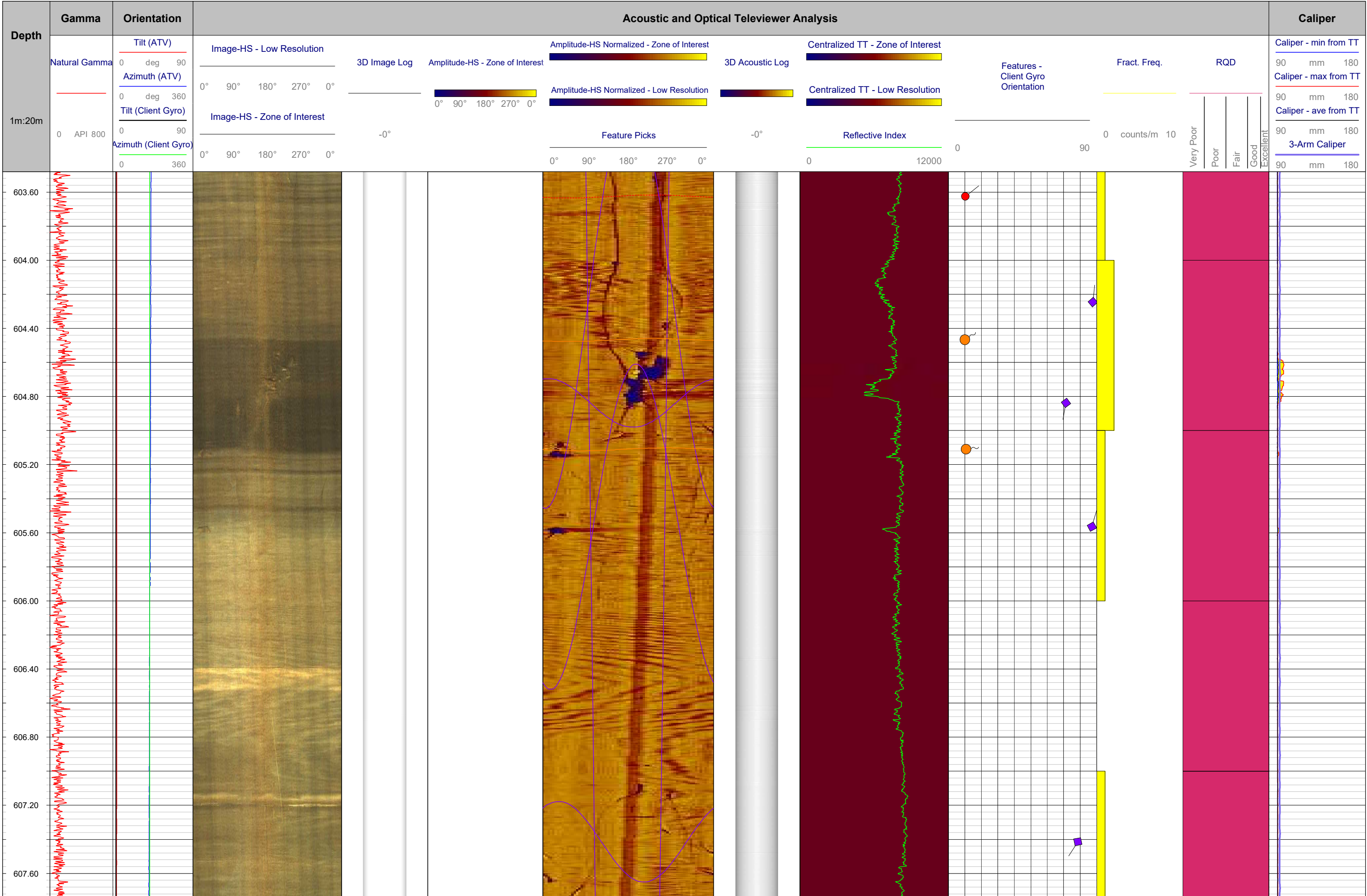


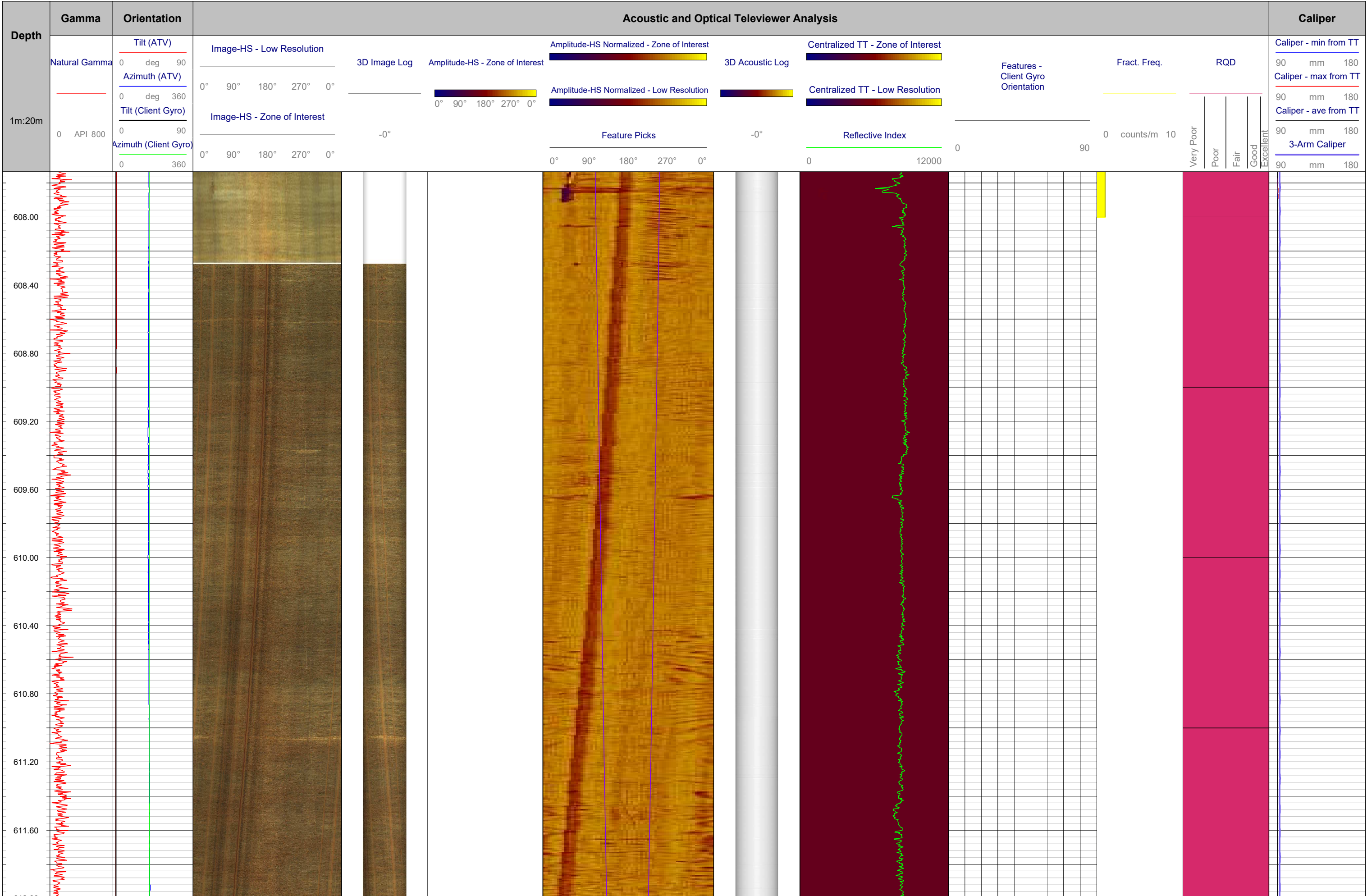


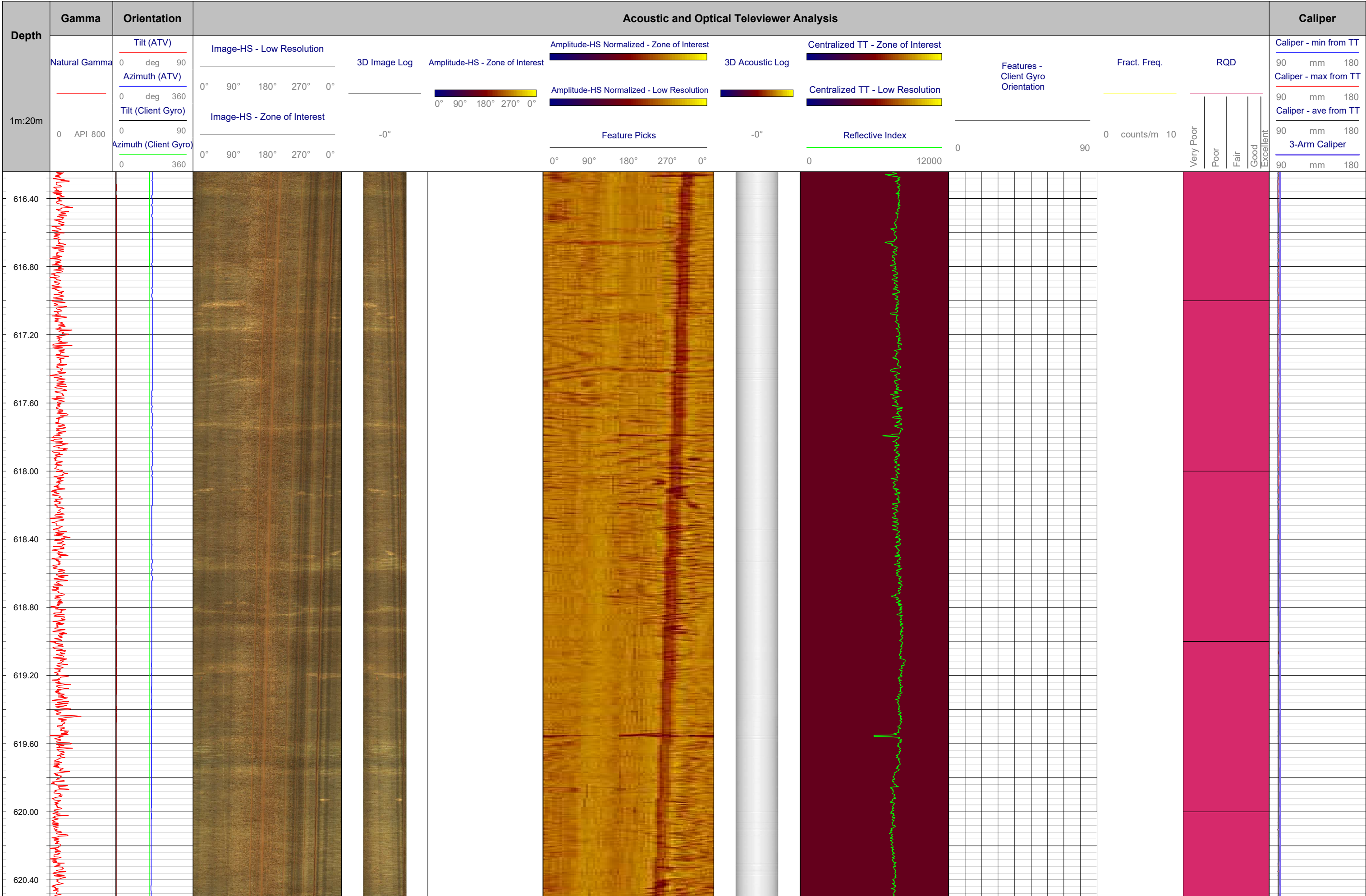


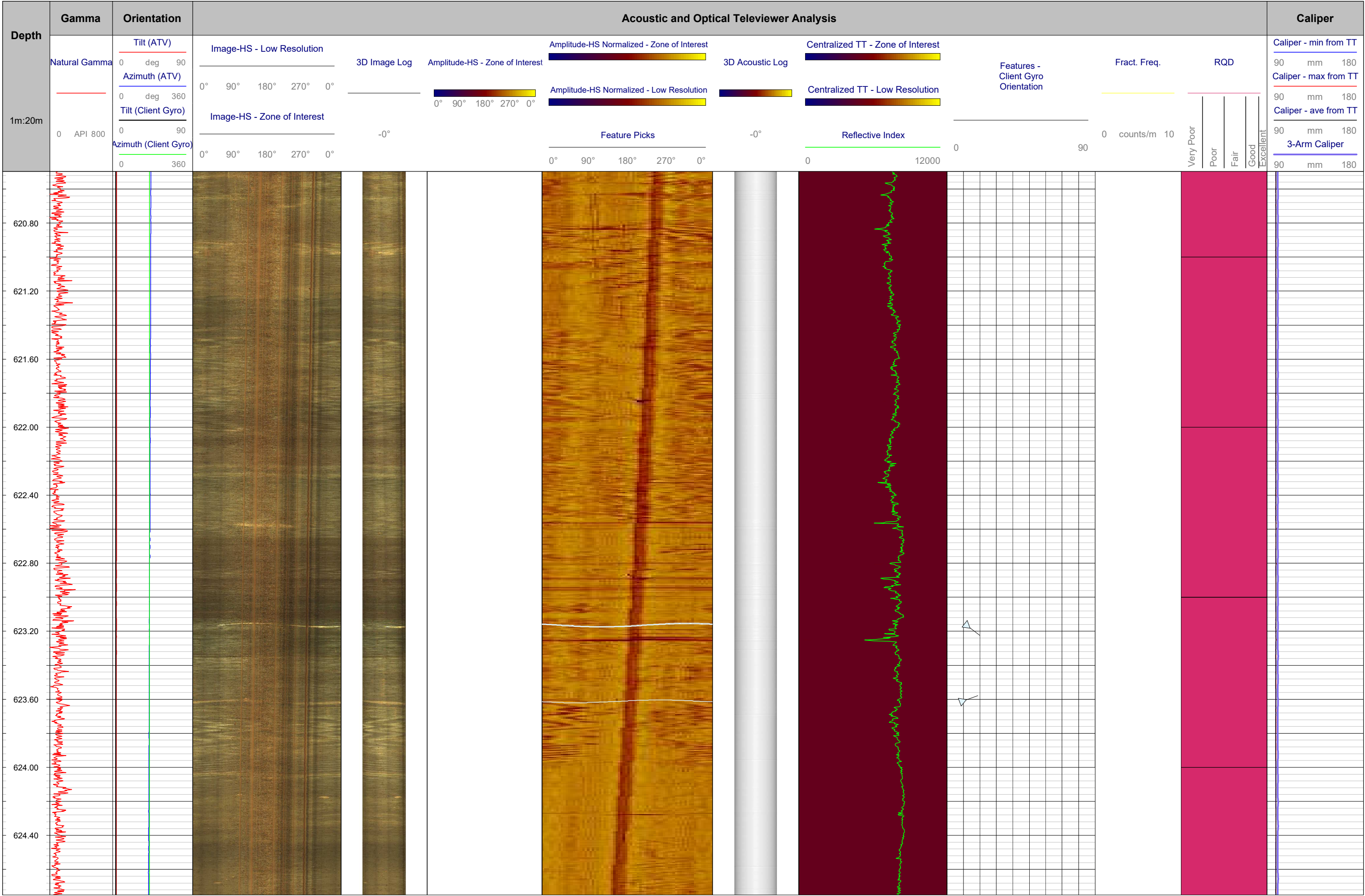


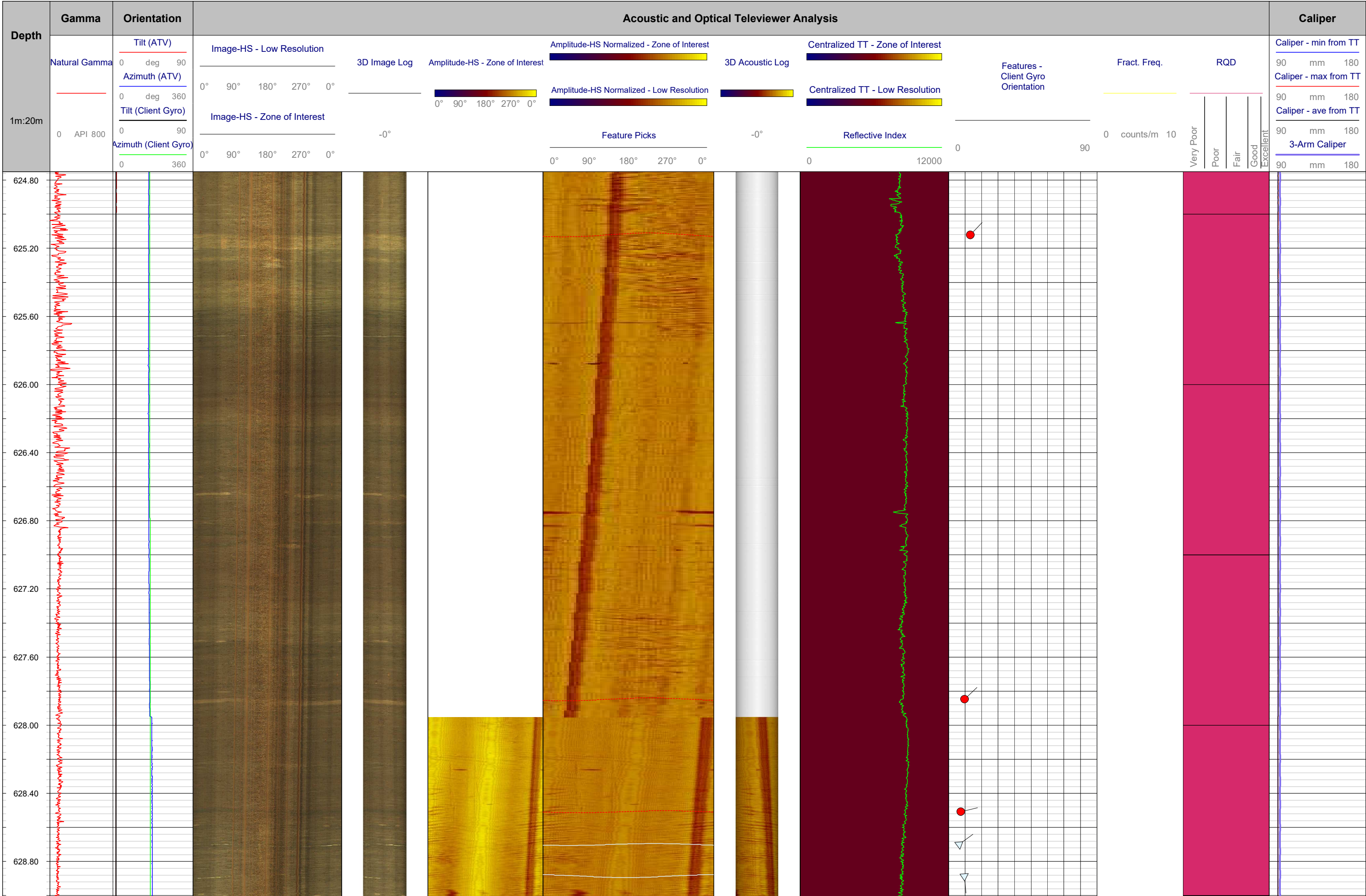


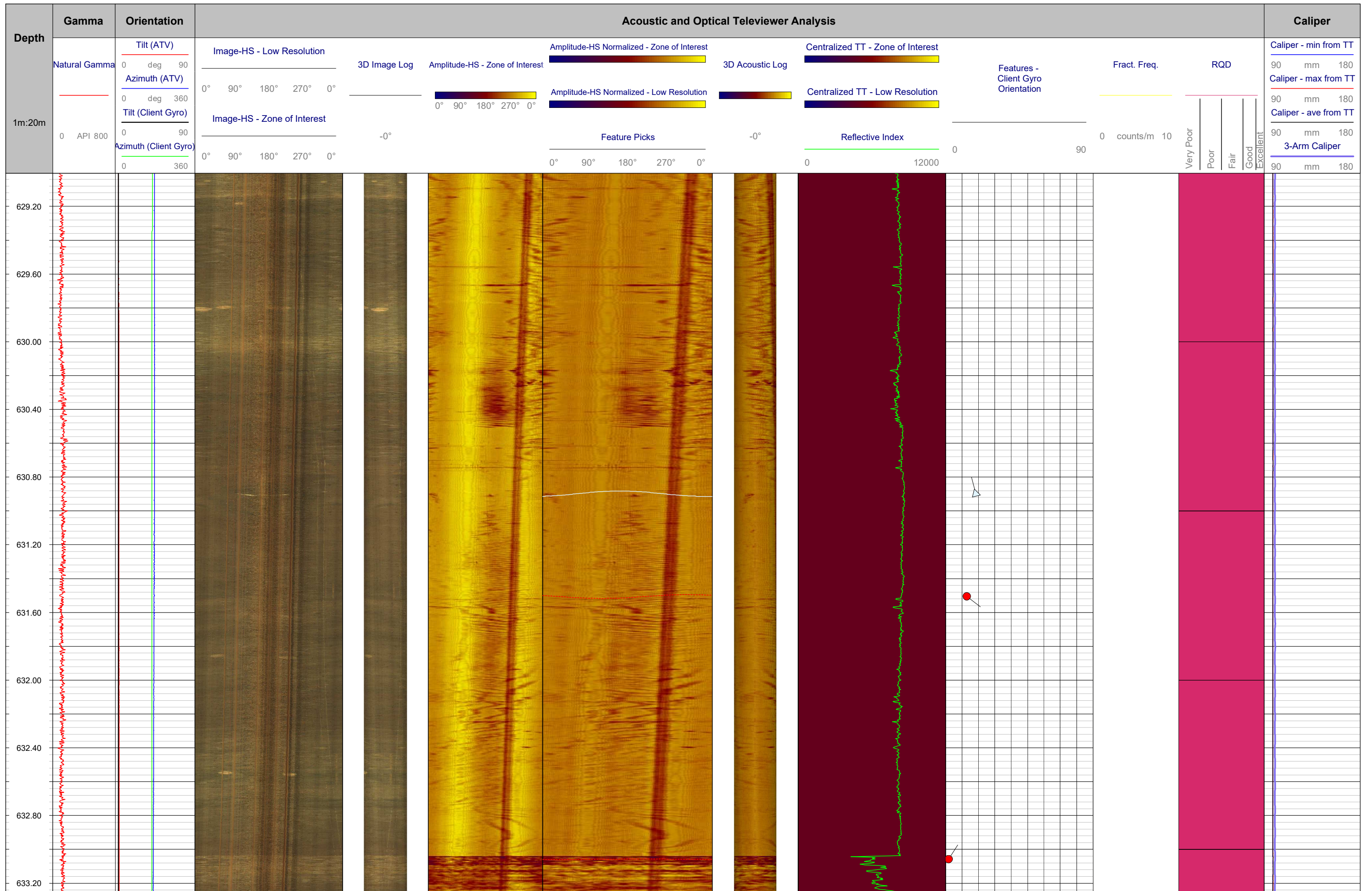


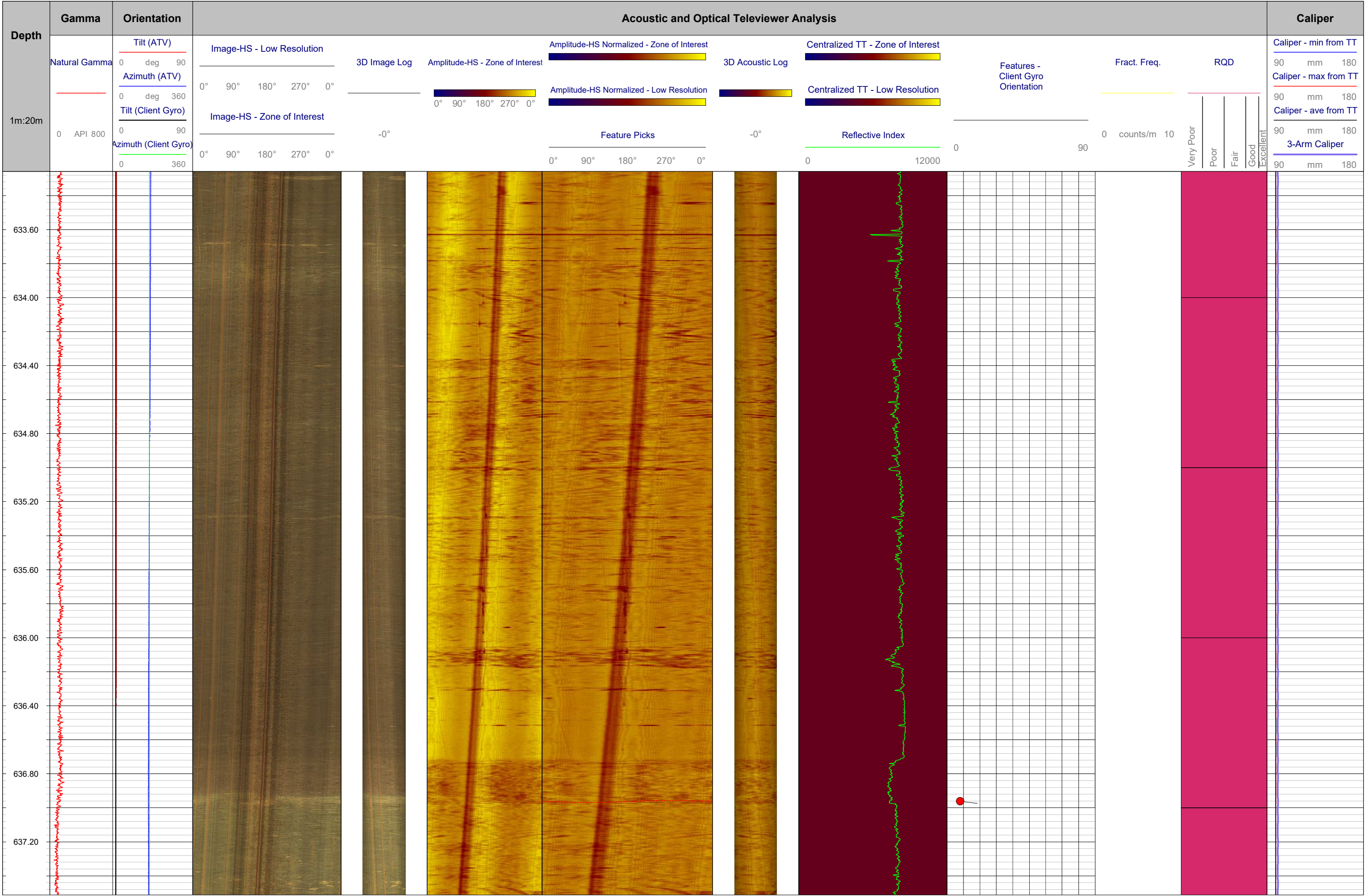


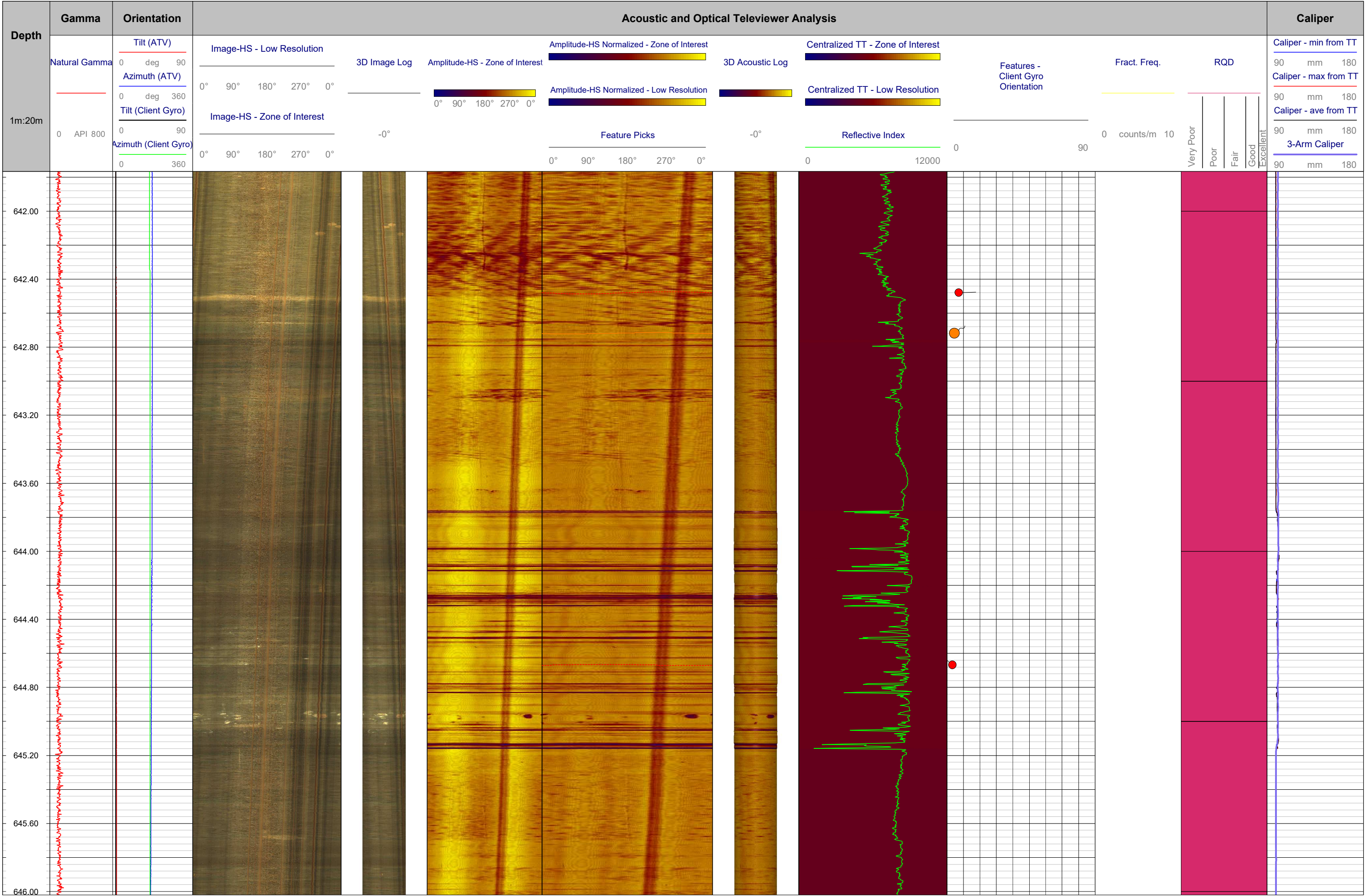


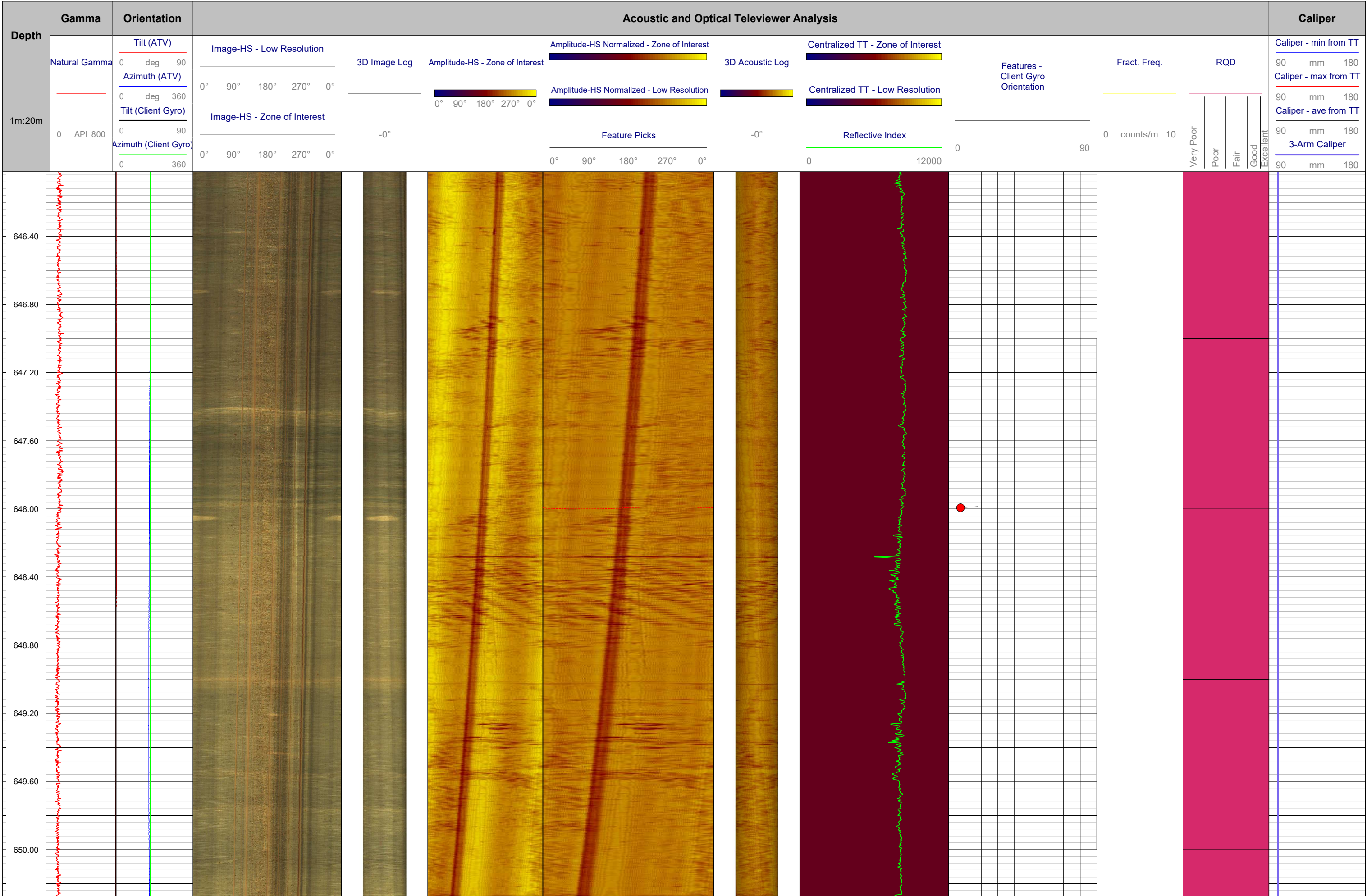


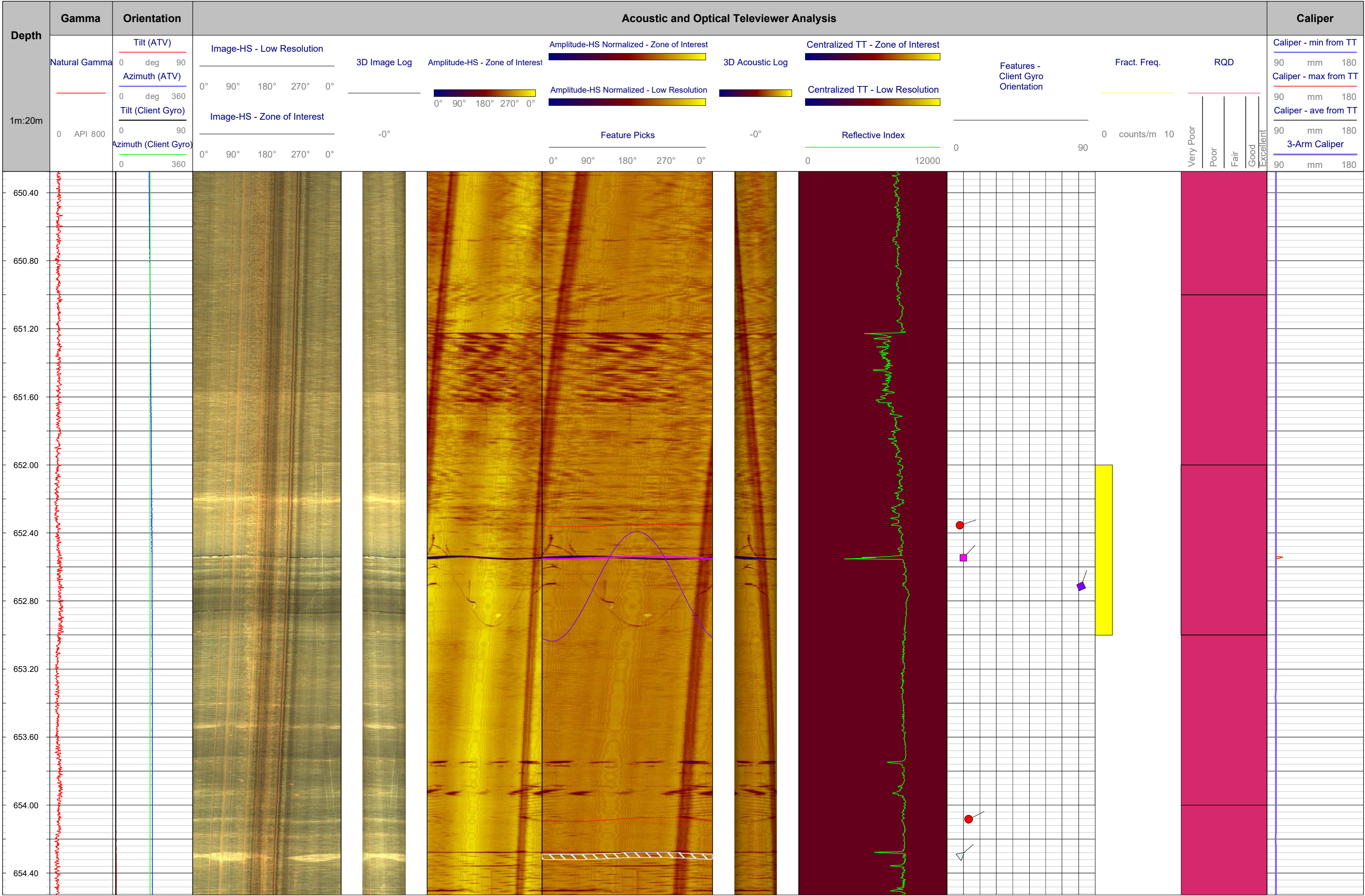


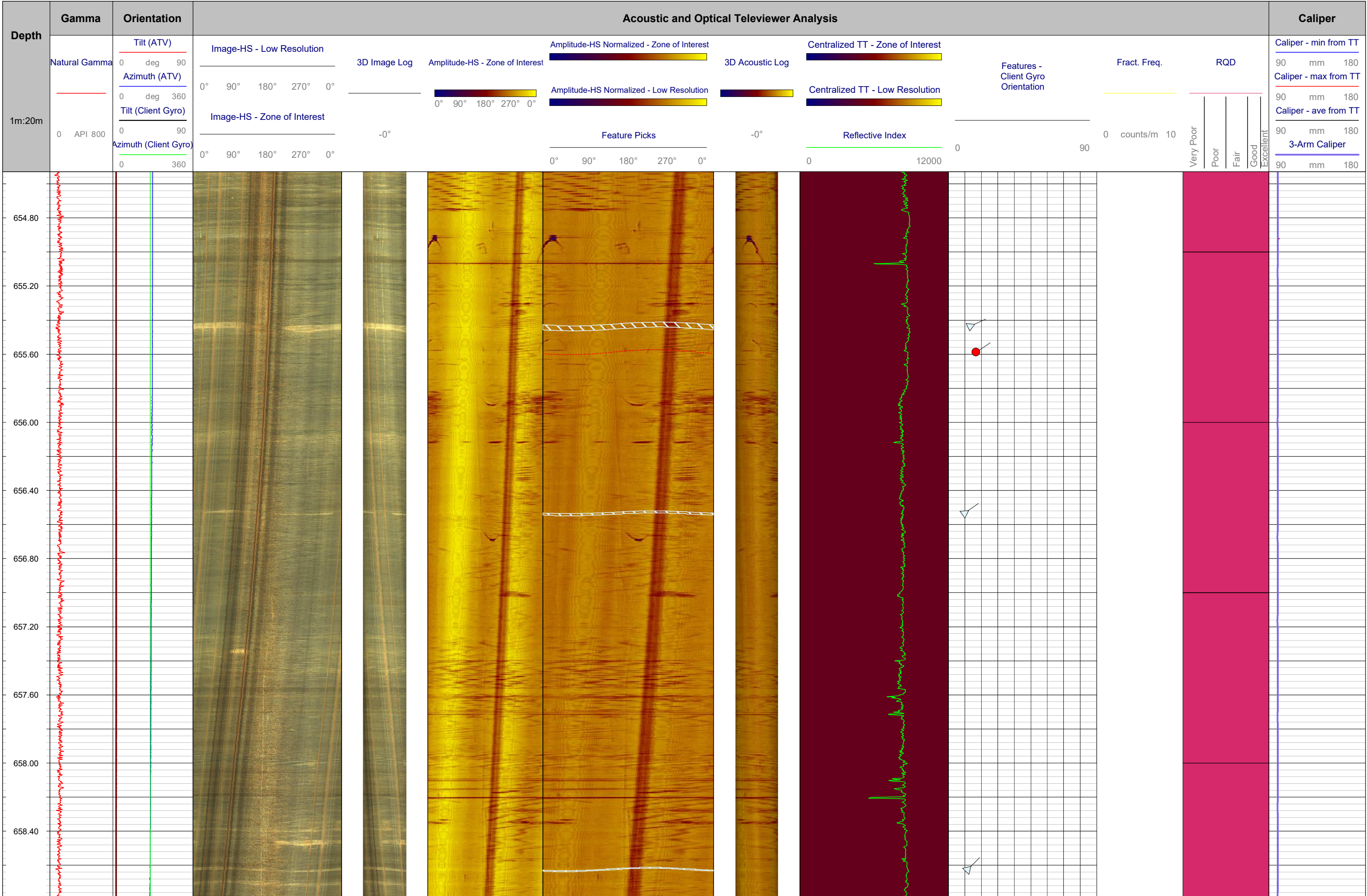


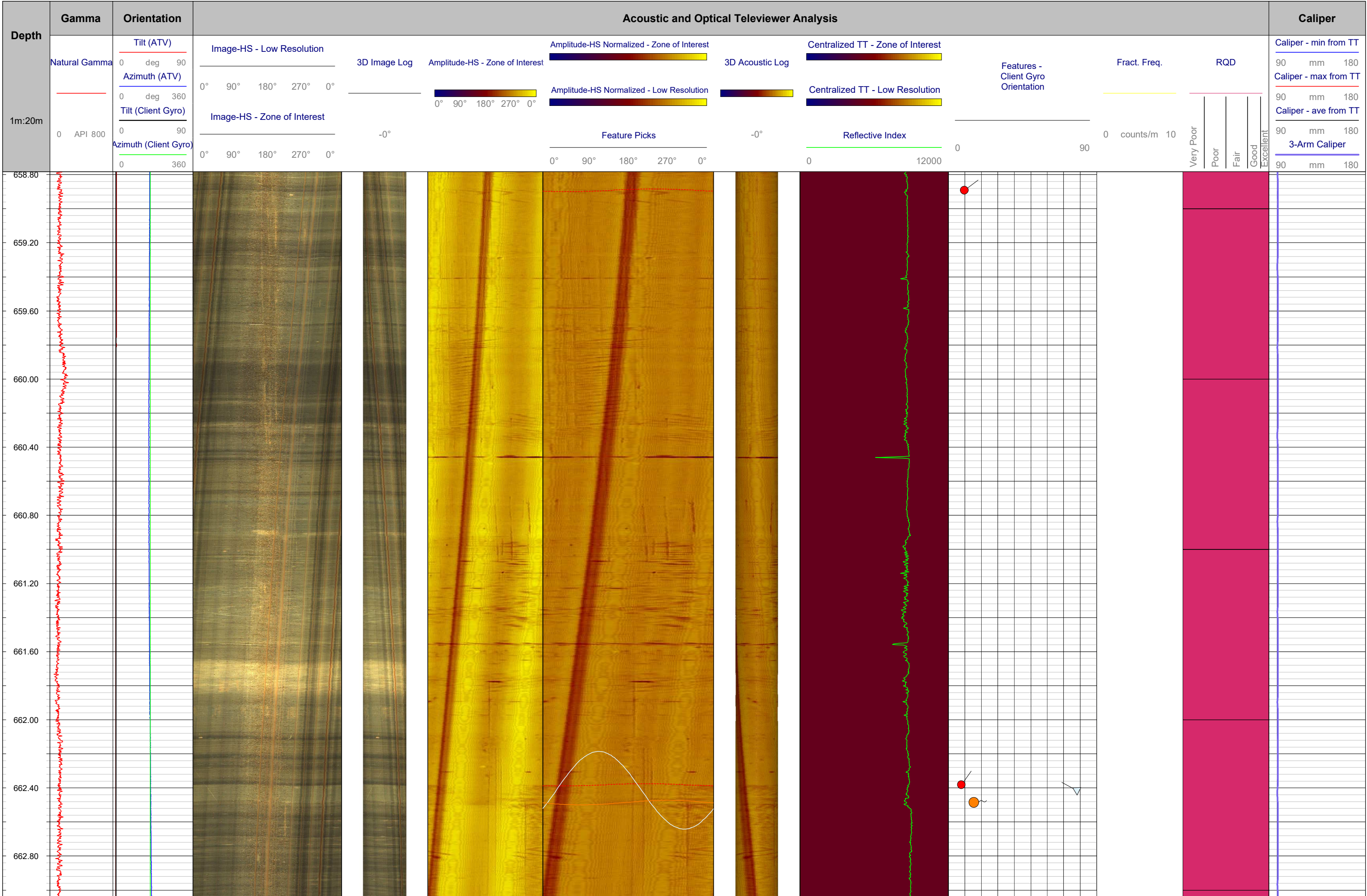


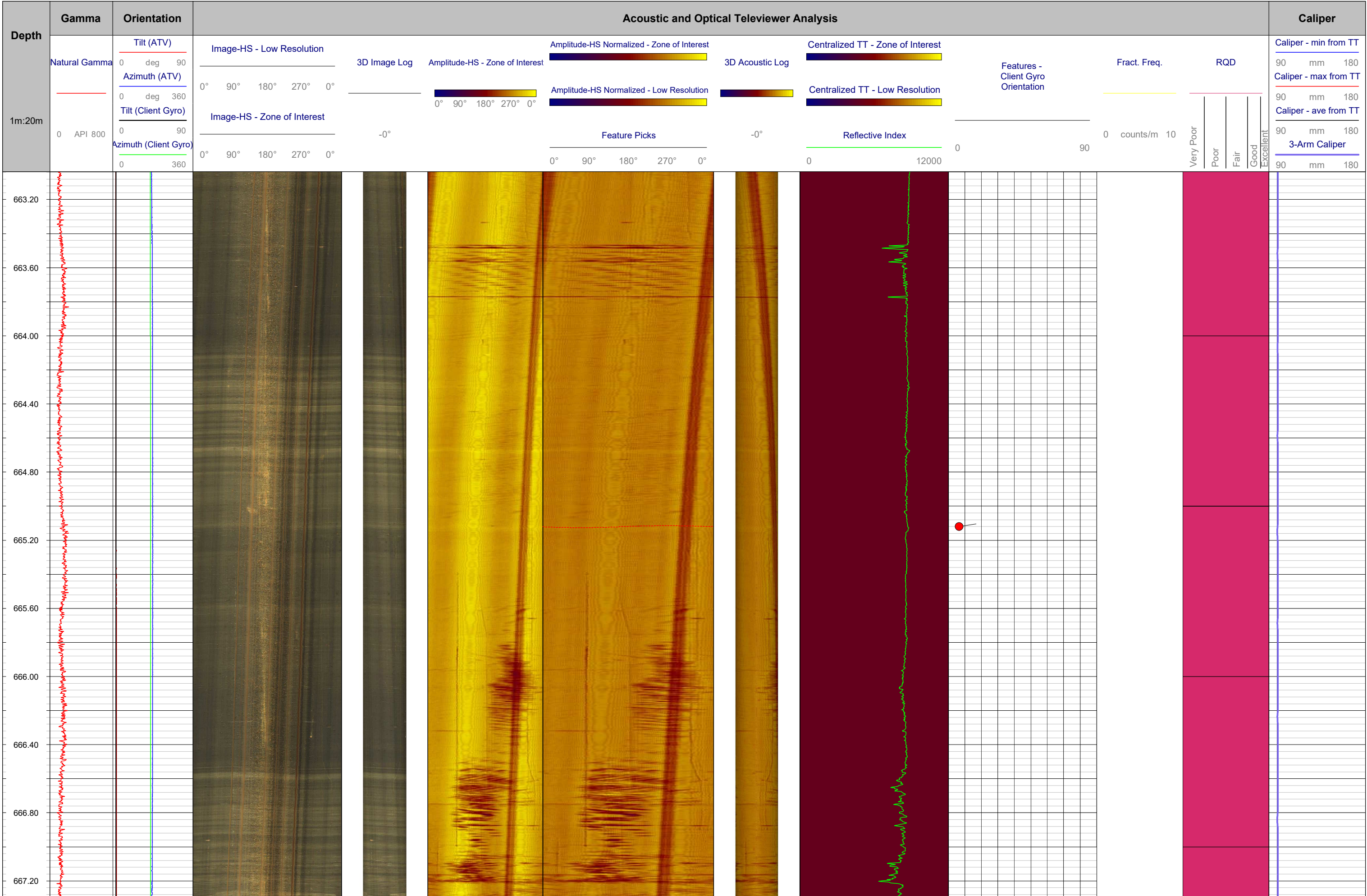


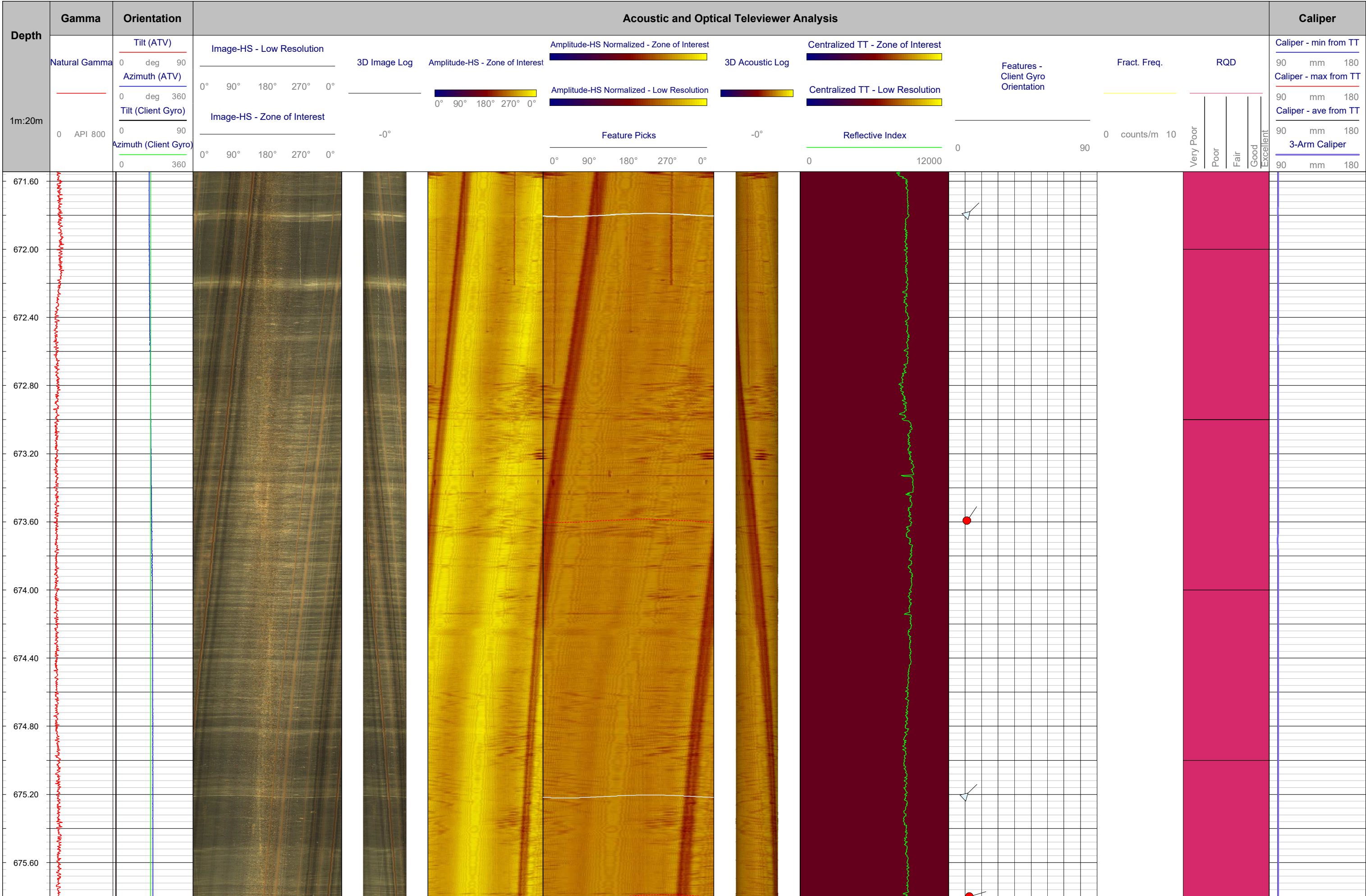


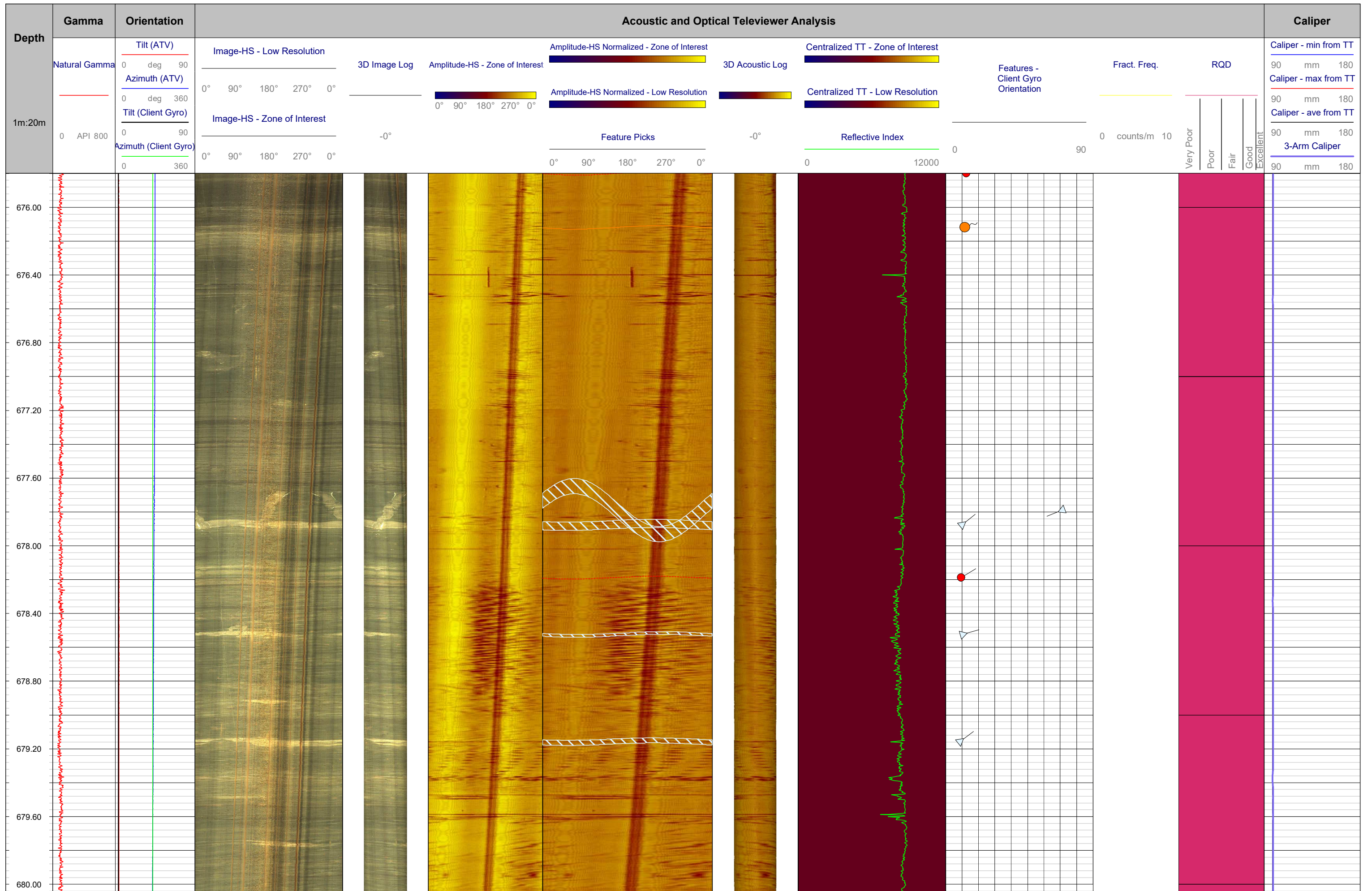


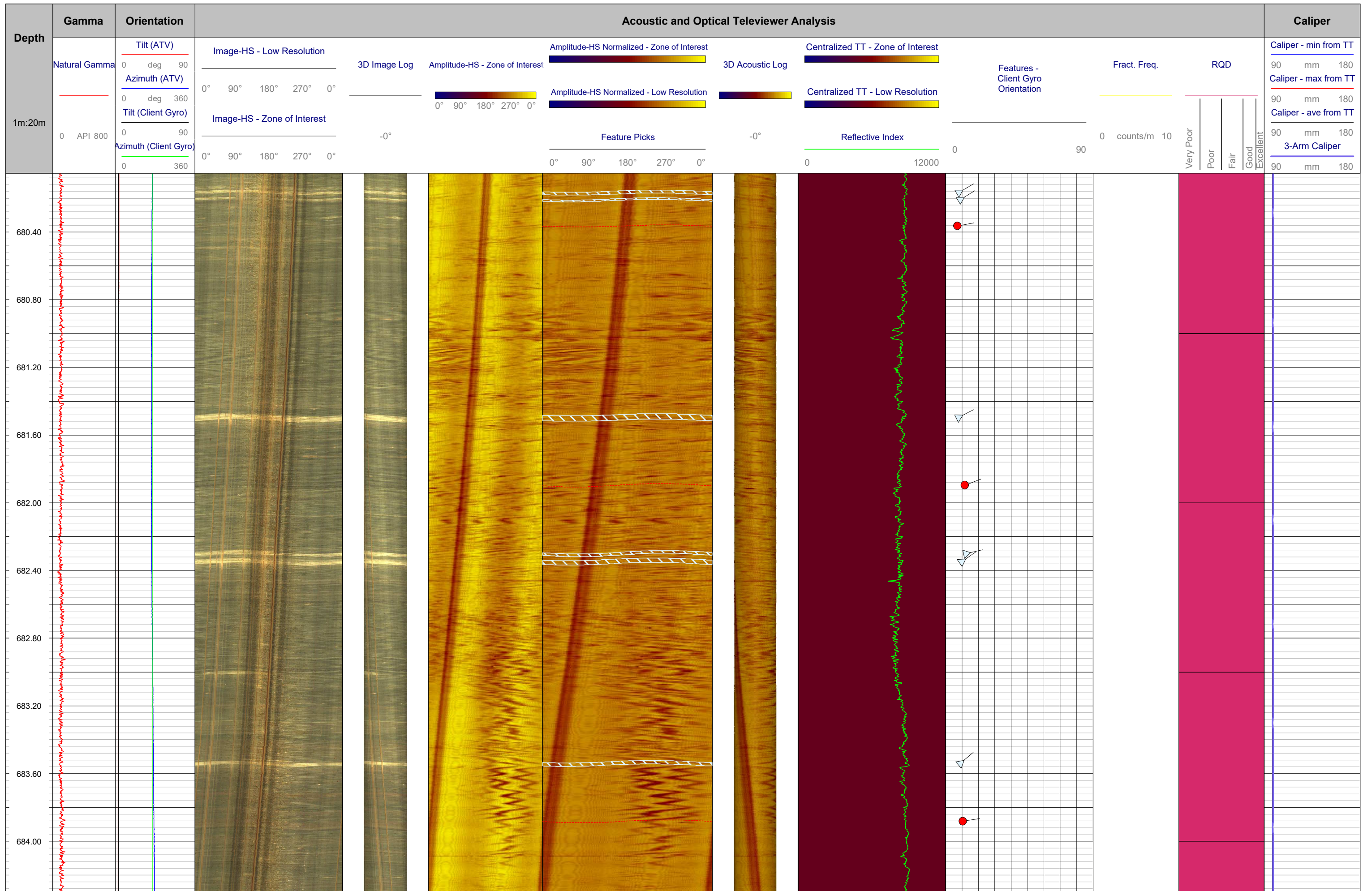


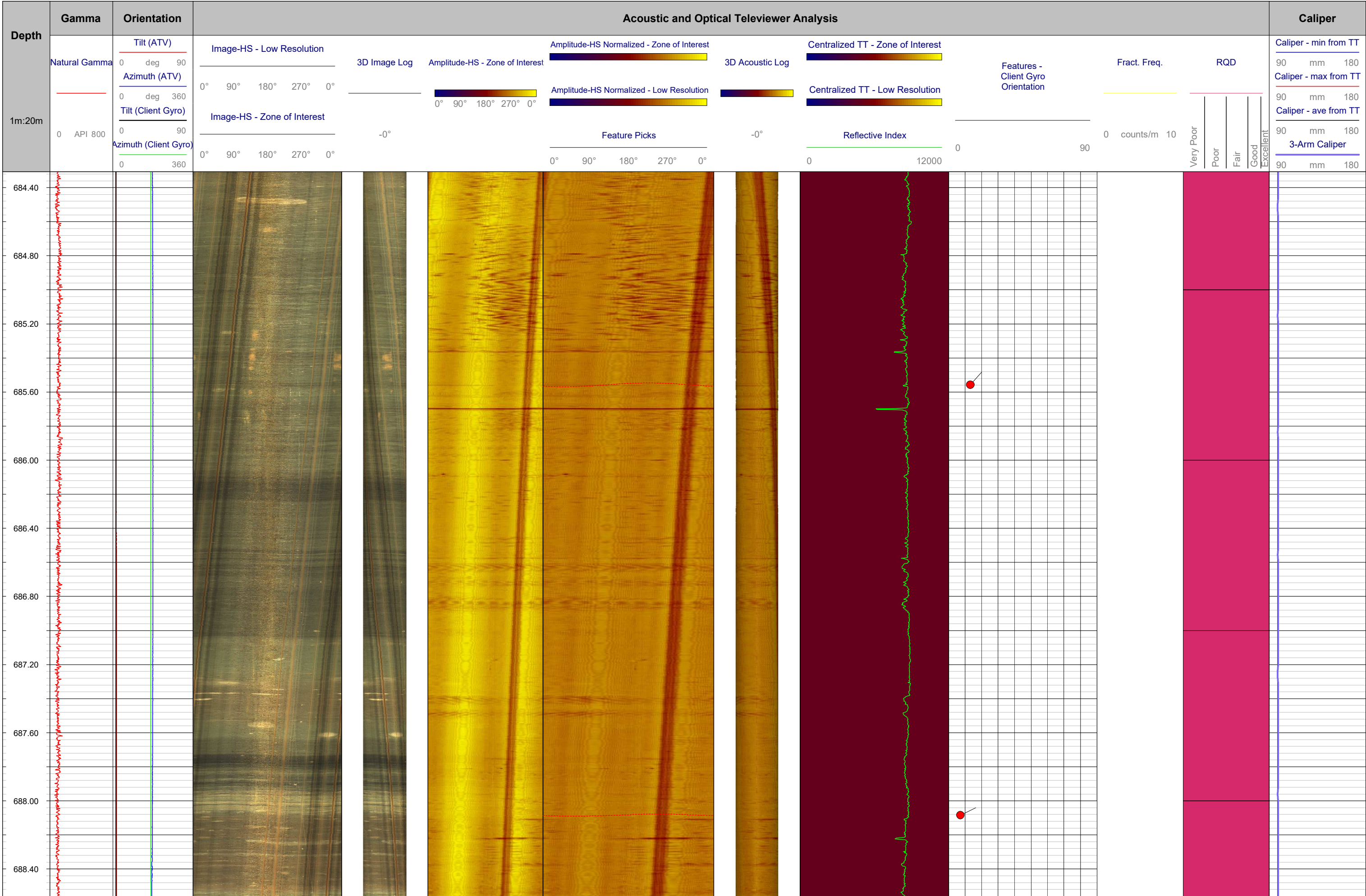


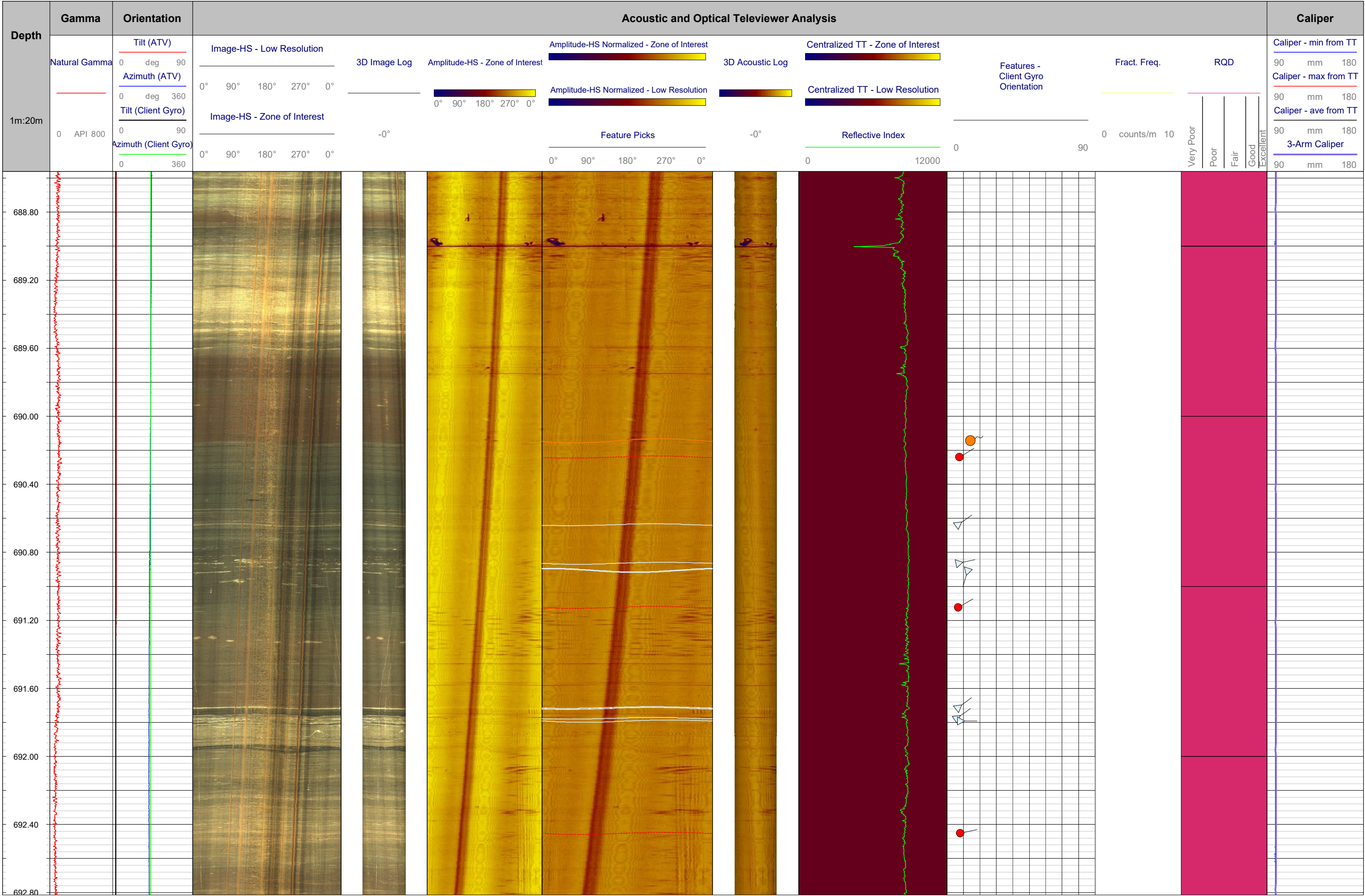


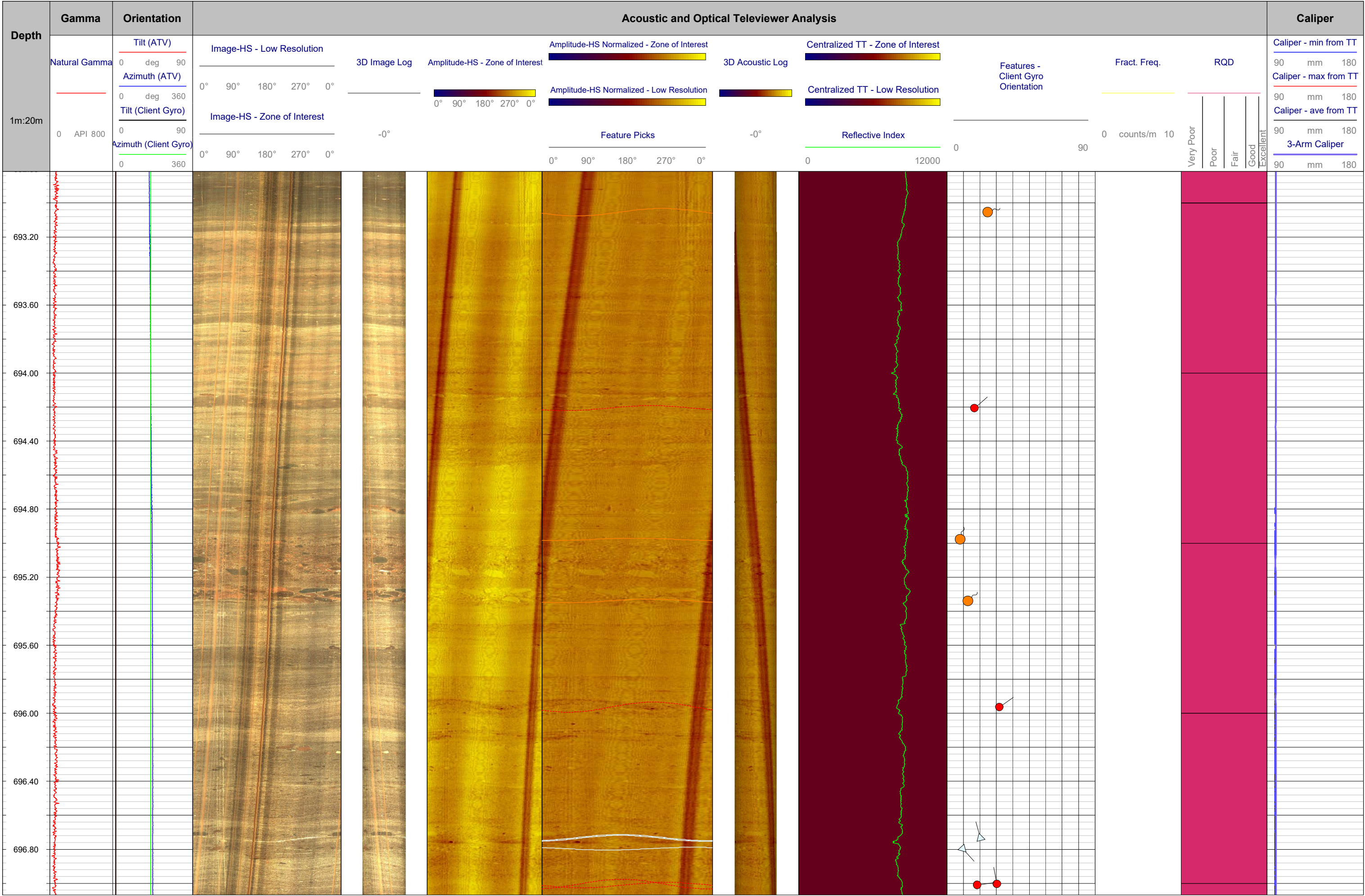


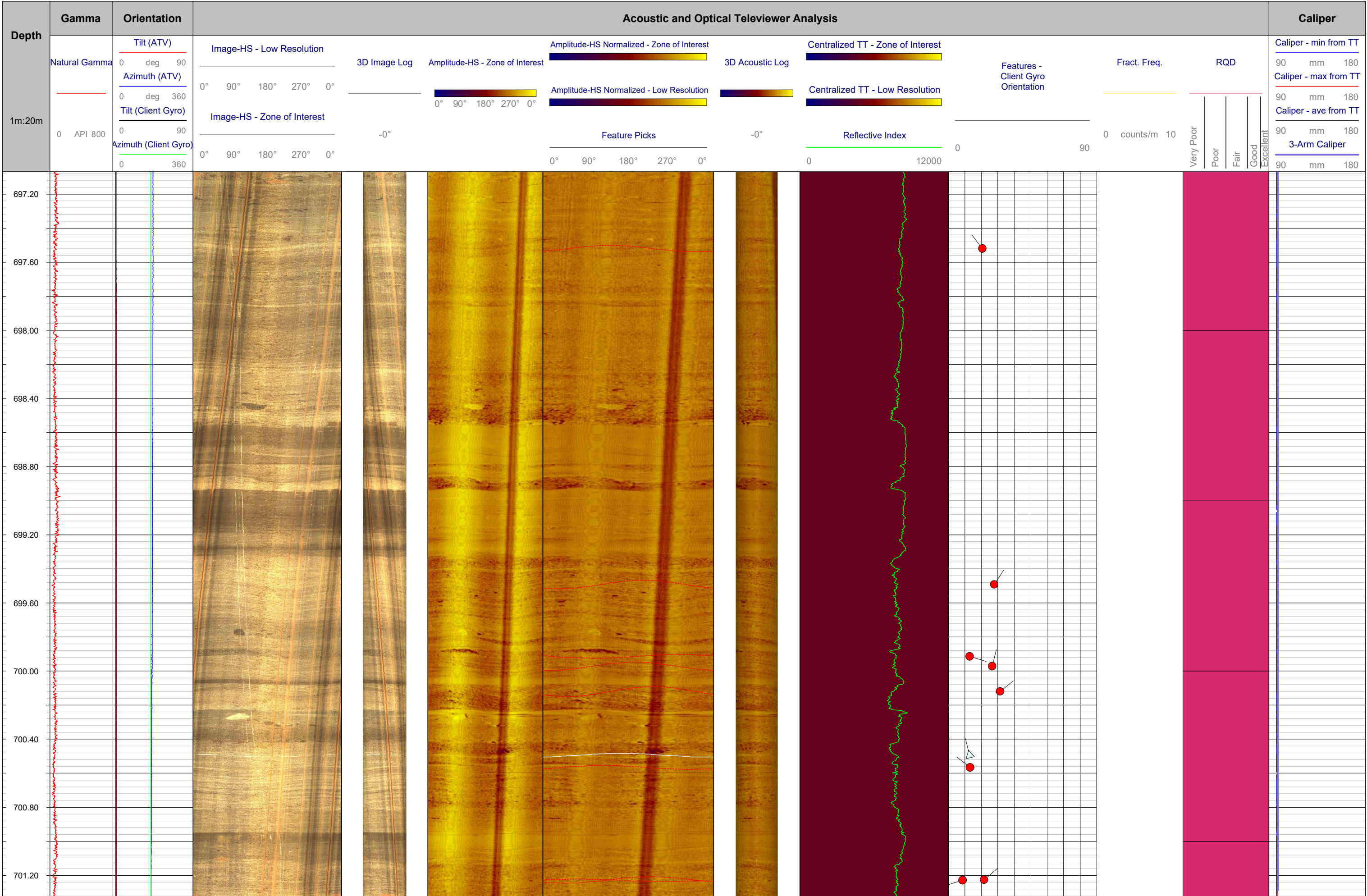


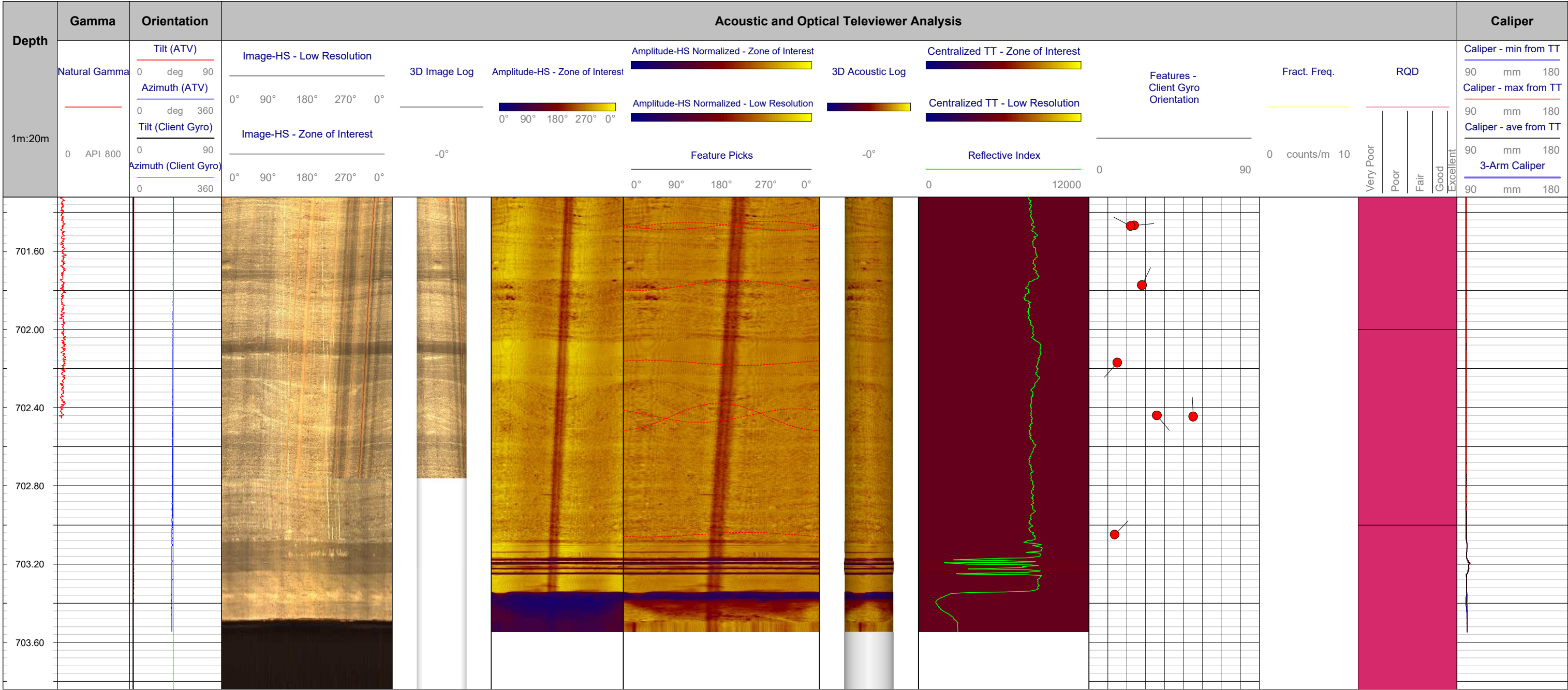












ACOUSTIC AND OPTICAL TELEVIEWER PLOT



Company:	Kinterra	Total Depth:	763.83 m	UTM X (Easting):	---
Project:	White Pine	Surveyed Depth:	762.15 m	UTM Y (Northing):	---
Hole ID:	WP586	Hole Diameter:	96 mm	UTM Z (Elevation):	---
Acquisition date(s):	Mar 27, 2024; Mar 28, 2024	Bit Size:	HQ	Location:	White Pine, MI
Field Personnel:	Z. Roselle; R. Smith	Hole Type:	Diamond		
Data Analysts:	K. Smylie	Casing Depth:	7.58 m		
Survey Day(s):	2	Fluid Level:	---		

Probes:			Notes:
Manufacturer	Model	Serial	UTM coordinates not provided High resolution data collected between (692m - EOH for the ATV) & (666 m - EOH for the OTV) Lower resolution data collected between (Casing - 692 m for the ATV) & (Casing - 666 m for the OTV) 3-Arm Caliper matched to ATV synthetic caliper Borehole fluid becomes murky making it difficult to make out features in OTV image. Minor Breakouts visible from 755 m - 758 m Client Gyro extended to EOH.
ALT	QL OBI-2G Optical Televiewer	174009	
M. Sopris	2GDA Density	3813	
ALT	QL Spectral Gamma	213503	
QSA Global	Source Cesium 137	4098CO	
ALT	QLABI40GR	201705	
M. Sopris	2CAA 3-Arm Caliper	4262	

