P-03-109

Oskarshamn site investigation

RAMAC and BIPS logging in borehole KSH02

Jaana Aaltonen, Christer Gustafsson
Malå Geoscience AB / RAYCON

November 2003

Svensk Kärnbränslehantering AB
Swedish Nuclear Fuel
and Waste Management Co
Box 5864
SE-102 40 Stockholm Sweden
Tel 08-459 84 00
+46 8 459 84 00
Fax 08-661 57 19
+46 8 661 57 19

ISSN 1651-4416
SKB P-03-109

Oskarshamn site investigation

RAMAC and BIPS logging in borehole KSH02

Jaana Aaltonen, Christer Gustafsson
Malå Geoscience AB / RAYCON

November 2003

Keywords: BIPS, RAMAC, Radar, TV.

Contents

1 Introduction

This document reports the data gained in geophysical logging operations, which is one of the activities performed within the site investigation at Oskarshamn. The logging operations presented here includes borehole radar (RAMAC) and TV-logging (BIPS) in the core-drilled borehole KSH02. This report includes measurements from 80 to approximately 1000 m depth in borehole KSH02. The borehole KSH02 is drilled with a diameter of 76 mm. Results from the upper part of KSH02 (0–100 m) is also reported in /1/.

All measurements were conducted by Malå Geoscience AB/RAYCON during June and July 2003 in accordance with the instructions and guidelines from SKB (Activity plan AP PS 400-03-032 and method descriptions SKB MD 222.006 and SKB MD 252.020, SKB internal controlling documents) and under supervision of Leif Stenberg, SKB. The location of borehole KSH02 is shown in Figure 1-1.

The used investigation techniques comprised:

- Borehole radar (Malå Geoscience AB:s RAMAC system), dipole radar antennas.
- Borehole TV system (Raax BIPS system), high resolution, side viewing, colour borehole TV system.

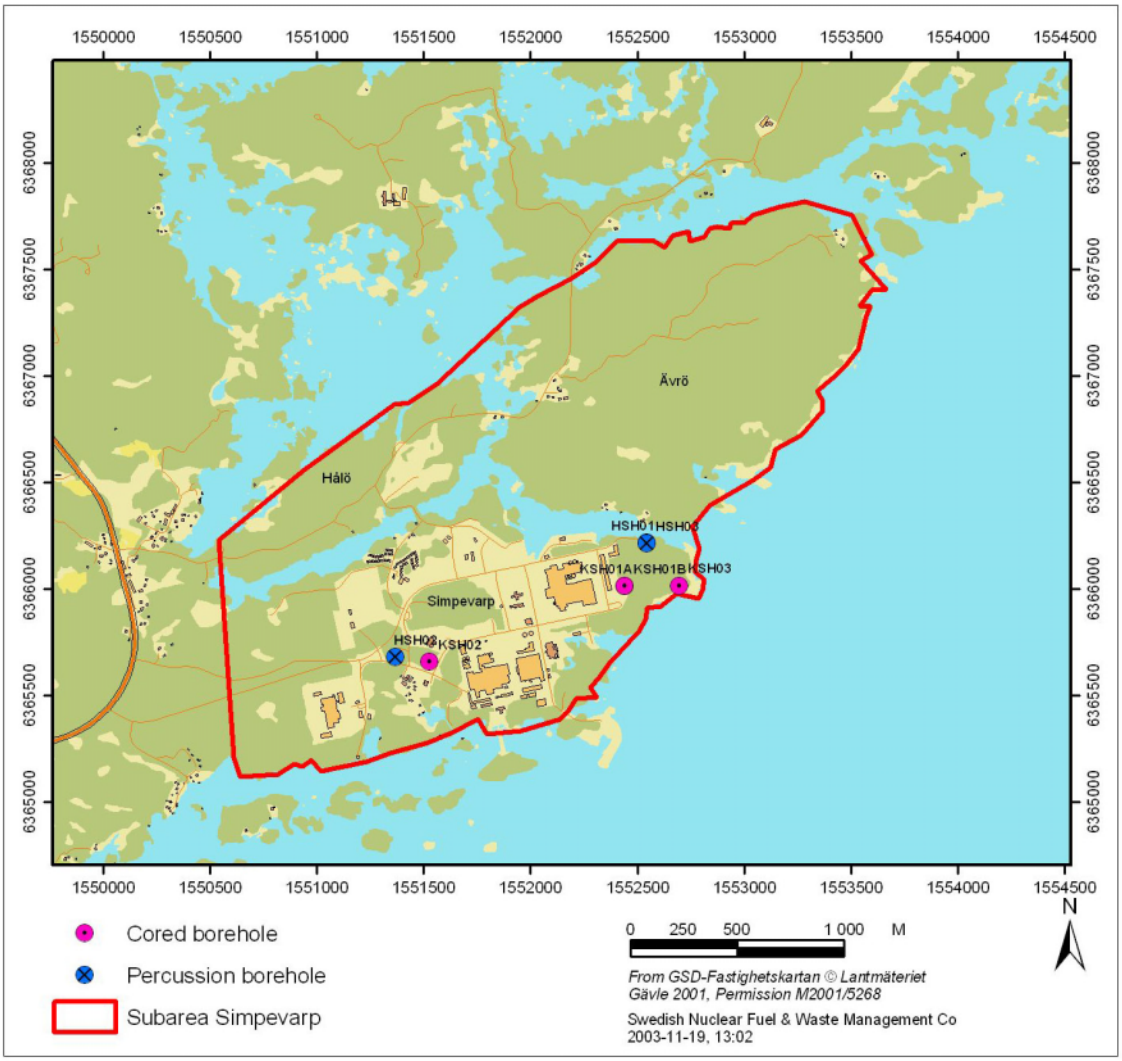


Figure 1-1. *General overview over the Simpevarp subarea in site Oskarshamn.*

2 Objective and scope

The objective of the radar and BIPS surveys is to both receive information of the borehole itself, and from the rock mass around the borehole. Borehole radar was used to investigate the nature and the structure of the rock mass located around the borehole, and BIPS for geological surveying and fracture mapping and orientation.

This field report describes the equipment used as well the measurement procedures. For the BIPS survey, the result is presented as images. Radar data is presented in radargrams and the identified reflectors are listed.

3 Equipment

3.1 Radar measurements RAMAC

The RAMAC GPR system owned by SKB is a fully digital GPR system where emphasis has been laid on fast survey speed and easy field operation. The system operates dipole and directional antennas (see Figure 3-1). A system description is given in the SKB internal document MD 252.021.

The borehole radar system consists of a transmitter and a receiver. During operation an electromagnetic pulse, within the frequency range of 20 MHz up to 250 MHz, is emitted into the bedrock. Once a feature, e.g. a water-filled fracture, with sufficiently different electrical properties is encountered, the pulse is reflected back to the receiver and recorded.

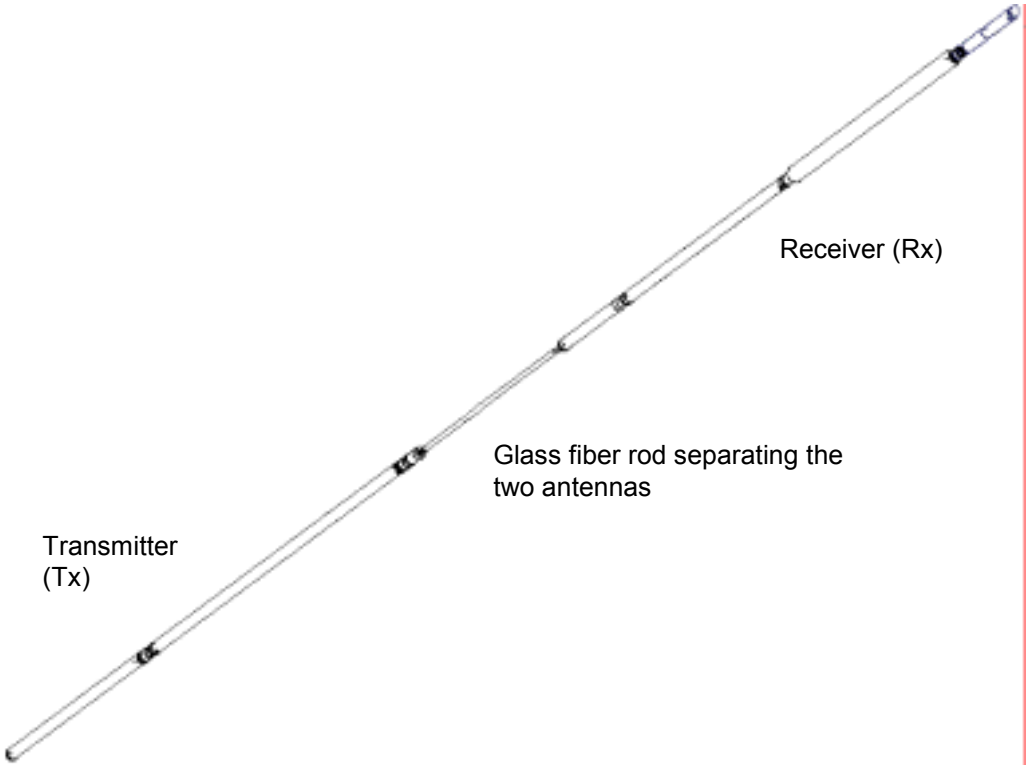


Figure 3-1. *Example of a borehole antenna.*

3.2 TV-Camera, BIPS

The BIPS 1500 system used is owned by SKB and described in SKB internal document MD 222.005. The BIPS method for borehole logging produces a digital scan of the borehole wall. In principle a standard CCD video camera is mounted in the probe in front of a conical mirror (see Figure 3-2). An acrylic window covers the mirror part and the borehole image is reflected through the window and displayed on the cone, from where it is recorded. During the measuring operation, pixel circles are grabbed with a resolution of 360 pixels/circle.

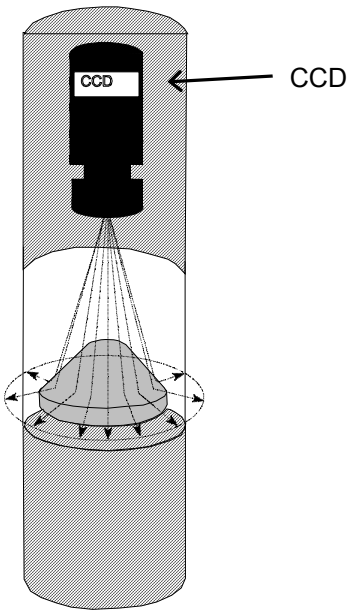


Figure 3-2. *The conical mirror scanning for the BIPS system.*

4 Execution

4.1 Execution of measurements

4.1.1 RAMAC Radar

In the borehole KSH02 measurements were carried out with dipole radar antennas. The dipole antennas have a central frequency of 20 MHz, 100 MHz and 250 MHz.

During logging the dipole antennas (transmitter and receiver) were lowered continuously into the borehole and the data recorded on the field PC along the measured interval. The antennas are kept at a fixed separation by glass fiber rods according to Table 4-1. See also Figure 4-1.

All measurements were performed in accordance with the instructions and guidelines from SKB (internal document MD 252.020). All cleaning of the antennas and cable was performed according to the internal document SKB MD 600.004 before the logging operation.

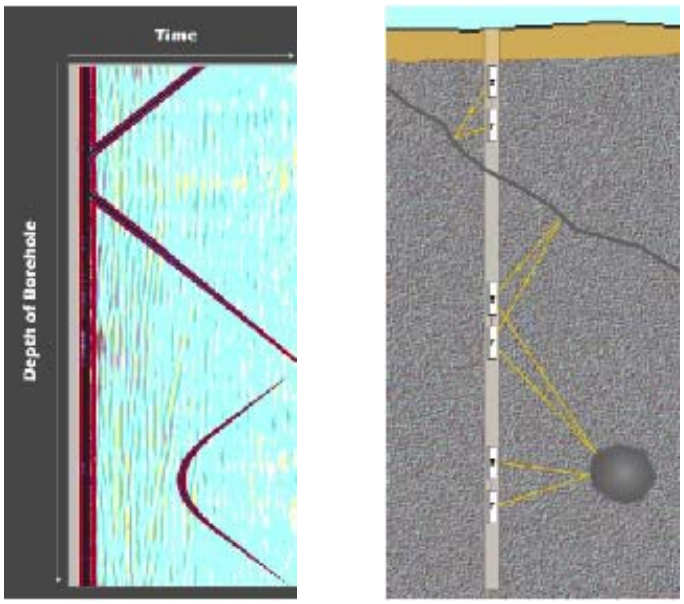


Figure 4-1. *The principle of radar borehole reflection survey and an example of result.*

For more information on system settings for the different antennas used in the investigation of KSH02 see Table 4-1 below.

Table 4-1. Radar logging information from KSH02.

Site:	**Oskarshamn**	**Logging company:**	**RAYCON**	
BH:	**KSH02**	**Equipment:**	**SKB RAMAC**	
Type:	**Dipole**	**Manufacturer:**	**MALÅ GeoScience**	
Operators:	**CG / JA**	**Antenna**		
		250 MHz	**100 MHz**	**20 MHz**
Logging date:		2003-06-30	2003-06-30	2003-06-30
Reference:		T.O.C.	T.O.C.	T.O.C.
Sampling frequency (MHz):		2588	951	257
Number of samples:		619	518	518
Number of stacks:		Auto	Auto	Auto
Signal position:		–0.317	–0.324	–1.347
Logging from (m):		81.5	82.6	86.25
Logging to (m):		998.2	997.6	986.8
Trace interval (m):		0.1	0.2	0.25
Antenna separation (m):		1.5	3.9	10.05

4.1.2 BIPS

All measurements were performed in accordance with the instructions and guidelines from SKB (internal document MD 222.006). All cleaning of the probe and cable was performed according to the internal document SKB MD 600.004 before the logging operation.

During the measurement a pixel circle with a resolution of 360 pixels/circle was used and the digitalized circles was then stored for every 1 mm on a MO-disc in the surface unit. The maximum speed during data collection was 1.5 m/minute.

There is two ways to orientate the BIPS images, with compass or gravity measurements. The compass is used for vertical boreholes and the gravity sensor for inclined boreholes. In KSH02 the compass was used to measure the orientation.

In order to control the quality of the system, calibration measurements were performed in a test pipe before logging the first borehole and after logging the last one for the two field mobilizations. The results showed no difference regarding the colours and focus of the images. Results of the test loggings were included in the delivery of the raw data.

4.1.3 Length measurements

During logging the depth recording for the RAMAC and BIPS systems is taken care of by a measuring wheel mounted on the cable winch. During the BIPS logging were the reference marks in the borehole is visible on the image the logging cable is marked with red scotch tape. These tape marks are then used for controlling the RAMAC radar measurements.

In Figure 4-2 the divergence between the individual length measurements is plotted for KSH02. The resulting Table 5-2 is adjusted according to this divergence in length.

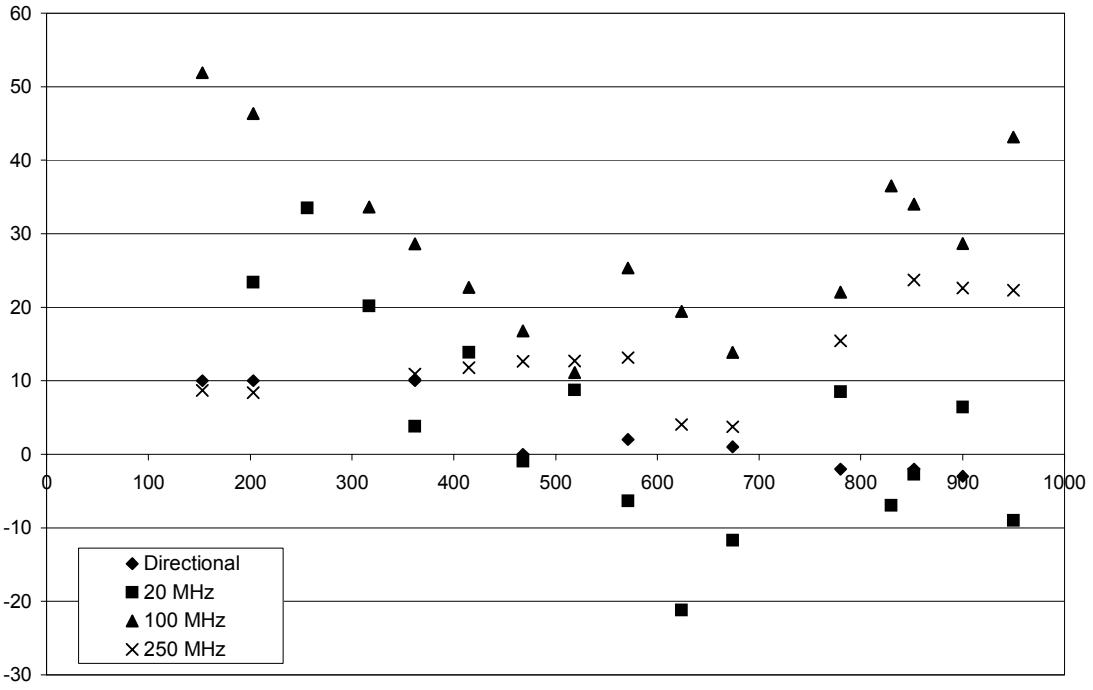


Figure 4-2. *Illustration of the divergence in length measurements for the different radar antennas used on KSH02. The result from the directional antenna is not presented in this report due to malfunction in the system.*

4.2 Analyses and interpretation

4.2.1 Radar

The result from radar measurements is most often presented in the form of a radargram where the position of the probes is shown along one axis and the propagation is shown along the other axis. The amplitude of the received signal is shown in the radargram with a grey scale where black color corresponds to the large positive signals and white color to large negative signals. Grey color corresponds to no reflected signals.

The presented data in this report is adjusted for the measurement point of the antennas. The measurement point is defined to be the central point between the transmitter and the receiver antenna.

The two basic patterns to interpret in borehole measurements are point and plane reflectors. In the reflection mode, borehole radar essentially gives a high-resolution image of the rock mass, showing the geometry of plane structures which may or may not, intersect the borehole (contact between layers, thin marker beds, fractures) or showing the presence of local features around the borehole (cavities, lenses etc).

The distance to a reflecting object or plane is determined by measuring the difference in arrival time between the direct and the reflected pulse. The basic assumption is that the speed of propagation is the same everywhere.

There are several ways to determine the radar wave propagation velocity. Each of them has its advantages and its disadvantages. In this project the velocity determination was performed by keeping the transmitter fixed in the borehole while moving the receiver downwards in the borehole. The result is plotted in Figure 4-3 and the calculation shows a velocity of 120 m/micro seconds. The velocity measurement was performed in borehole KSH01B with the 100 MHz antennas /1/.

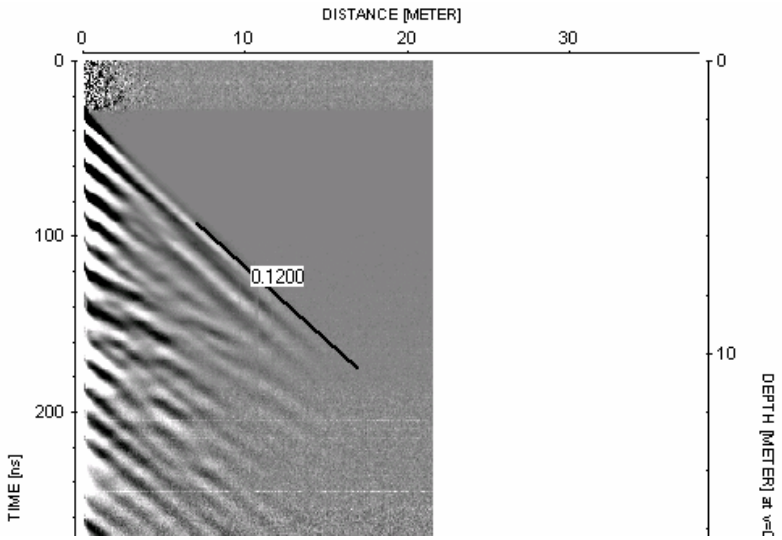


Figure 4-3. *Results from velocity measurements in KSH01B with 100 MHz dipole antennas /1/.*

The visualization of data in Appendix 1 is made with REFLEX, a Windows based processing software for filtering and analysis of radar data. The processing steps are shown in Table 4-2.

For the interpretation of the intersection angle between the borehole axis and the planes visible on the radargrams the RadinterSKB software has been used.

The interpreted intersection points and intersection angles of the detected structures are presented in the Table 5-2 and also visible on the radargrams in Appendix 1.

Table 4-2. Processing steps for borehole radar data in KSH02.

Site:	**Oskarshamn**	**Logging company:**	**RAYCON**	
BH:	**KSH02**	**Equipment:**	**SKB RAMAC**	
Type:	**Dipole**	**Manufacturer:**	**MALÅ GeoScience**	
Interpret:	**JA**	**Antenna**		
		250 MHz	**100 MHz**	**20 MHz**
Processing:		DC removal	DC removal	DC removal
		Move start time	Move start time	Move start time
		Gain	Gain	Gain
		Energy decay	Dewow	Energy decay
		Dewow		Dewow

4.2.2 BIPS

The visualization of data is made with BDPP, a Windows based processing software for filtering, presentation and analysis of BIPS data. As no fracture mapping of the BIPS image is performed, the raw data was delivered on a CD-ROM together with printable pictures in *.pdf format before the field crew left the investigation site. The used scale is 5 m of BIPS images/A4. The printed results were delivered with measured length, together with adjusted length according to the length marks visible in the BIPS image. For printing of the BIPS images the printing software PDPP from RaaX was used.

5 Results and data delivery

The results from the radar and BIPS measurements were delivered as raw data on CD-ROM:s to SKB directly after the termination of the field activities. The information of the measurements was registered in SICADA, and the CD-ROM:s stored by SKB.

RAMAC radar data was delivered as raw data (fileformat *.rd3) with corresponding information files (file format *.rad) whereas the data processing steps and results are presented in this report. The BIPS data was delivered as *.bip files with the images and with corresponding *.bdt text files with information of for instance depth correction. Note that these *.bdt files are not delivered in their final form. Malå Geoscience Raycon makes a length correction, but corrections for deviation etc are made by SKB themselves.

The delivered raw and processed data have been inserted in the database of SKB (SICADA). The SICADA reference to the present activity is Field Note 102.

5.1 RAMAC logging

The results of the interpretation of the radar measurements are presented in Table 5-1 to 5-3. Radar data from the dipole antennas in KSH02 are also visualized in Appendix 1. It should be remembered that the images in Appendix 1 only composite pictures of all events 360 degrees around the borehole, and do not reflect the orientation of the structures.

Only the larger clearly visible structures are interpreted in RadinterSKB. A number of minor structures also exist, indicated in Appendix 1. It should also be pointed out that reflections interpreted will always get an intersection point with the borehole, but being located further away, they may in some cases not reach the borehole. As seen in Appendix 1 the listed structures in Table 5-1 can be identified in the data from more than one antenna frequency

The data quality from KSH02 (as seen in Appendix 1) is relatively satisfying, but in some parts of lower quality due to more conductive conditions. A conductive environment makes the radar wave to attenuate, which decreases the penetration. This is for instance seen quite clearly in the data from KSH02 from a depth of 280 to 305 m.

As also seen in Appendix 1 the resolution and penetration of radar waves depend of the antenna frequency used. Low antenna frequency gives less resolution but higher penetration rate compared to a higher frequency.

In Table 5-1 below the identified structures are listed for KSH02. As seen the distribution is quite even.

Table 5-1. Distribution of identified structures in KSH02.

Intersection Depth	KSH02
0–50	1
50–100	2
100–150	3
150–200	3
200–250	1
250–300	1
300–350	3
350–400	2
400–450	2
450–500	3
500–550	0
550–600	3
600–650	3
650–700	3
700–750	4
750–800	2
800–850	5
850–900	3
900–950	5
950–1000	4

Table 5-2 summarises the interpretation of radar data from KSH02. Many structures in KSH02 can be identified in the data from more than one antenna frequency.

Table 5-2. Model information from dipole antennas 20, 100 and 250 MHz in KSH02.

Site:	**Oskarshamn**		
Borehole name:	**KSH02**		
Nominal velocity (m/µs):	**120.0**		
Object type	**Name**	**Intersection depth**	**Intersection angle**
PLANE	A	92.6	37
PLANE	B	94.4	22
PLANE	C	108.1	19
PLANE	D	125.7	53
PLANE	E	170.6	24
PLANE	EE	218.1	25
PLANE	EEE	16.5	10
PLANE	EEEE	135.3	15
PLANE	F	174.7	17
PLANE	FF	276.7	72
PLANE	G	302.2	59
PLANE	GG	188.1	10
PLANE	H	344.2	44
PLANE	I	345.6	29
PLANE	J	364.3	56
PLANE	K	401.9	15
PLANE	L	395.5	55
PLANE	M	423.7	33
PLANE	N	467.5	51
PLANE	O	476.7	60
PLANE	P	498.8	69
PLANE	Q	556.0	69
PLANE	R	578.5	90
PLANE	S	590.8	50
PLANE	T	603.6	58
PLANE	TT	620.2	73
PLANE	U	635.0	74
PLANE	V	656.3	70
PLANE	W	678.3	49
PLANE	X	695.6	70
PLANE	Y	702.9	62
PLANE	Z	707.4	62
PLANE	1	727.5	66
PLANE	2	739.6	75
PLANE	3	759.7	53
PLANE	4	780.5	75
PLANE	5	807.7	60
PLANE	5a	809.5	24
PLANE	6	828.8	61
PLANE	6a	828.4	23
PLANE	7	837.6	60
PLANE	8	853.5	77
PLANE	9	895.8	23
PLANE	10	860.4	19
PLANE	11	911.2	54
PLANE	12	999.3	12
PLANE	13	923.7	44
PLANE	14	941.7	77
PLANE	15	976.9	87
PLANE	16	995.5	41
PLANE	17	963.4	63
PLANE	18	920.9	41
PLANE	19	906.8	35

Names in table according to Appendix 1.

In the first column of Appendix 1 the amplitude of the first arrival is plotted against the borehole length, for the 250 MHz dipole antenna. The x-axis represents the amplitude, with low amplitudes to the left and higher amplitudes to the right. The y-axis corresponds to the borehole length of the radargrams. The amplitude variation along the borehole indicates changes in conductivity of the material. A decrease in this amplitude may indicate crushed zones, clay or parts with higher water content, which attenuates the signal due to higher conductivity in the media. Larger decreases in amplitude are presented in Table 5-3 below.

Table 5-3. Decrease in radar amplitude in boreholes KSH02.

KSH02
80
100–105
110
170
190
280–310
330
345–350
365
390–410
445
490
510–520
550
570
580
590
620
635
645
655
710
730
735–745
760
780
810
860
890
970
995

5.2 BIPS logging

To get best possible borehole length accuracy the BIPS images is adjusted to the reference marks along the borehole. The BIPS raw data was delivered on a CD together with printable pictures in *.pdf format before the field crew left the investigation site.

The printed results were delivered with measured length together with adjusted length according to the length marks visible in the BIPS image. The BIPS images from KSH02 are presented in Appendix 2. The black length number is the recorded length and the red length number is the adjusted length according to the length mark visible in the BIPS image. U stands for the up direction of the borehole, D for the down direction of the borehole, L stands for the left side and R for the right side of the borehole. The up and down is measured during logging by using the magnetic sensor in the probe.

To control the quality of the system a calibration measurement was performed in a test pipe before start of the logging of the first borehole and after the finish of the last logging. The results showed no difference according the colors and focus of the images. Results of the test loggings were included together with the delivery of the raw data in *.pdf format.

The images for KSH02 are of very good quality compared to previous measurements in core-drilled boreholes in the program. The earlier observed impregnations on the borehole wall are in this borehole more or less absent. The only notes during the measurements are the rotation of the camera for the first 100 m (see Figure 5-1). If the probe rotates there is always a risk that the automatic orientation device in the camera is not perfectly accurate.

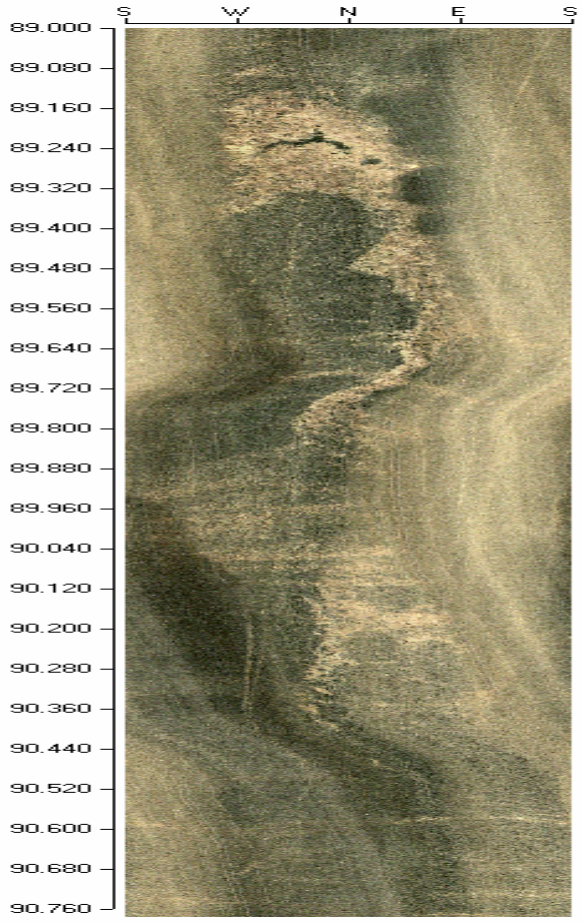
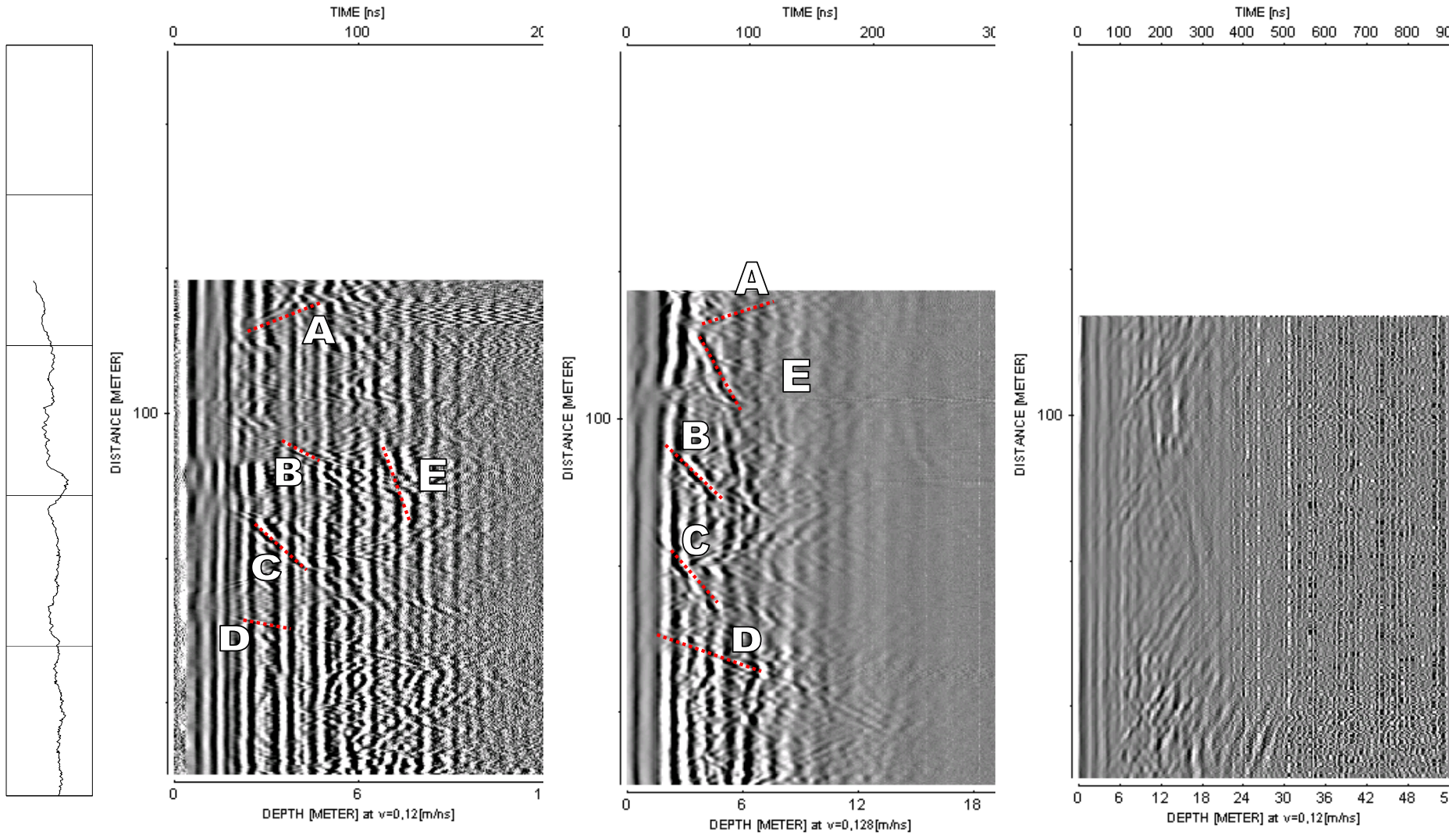


Figure 5-1. *Effects on the BIPS data due to rotating camera.*

References

/1/ **Aaltonen J, Gustafsson C, Nilsson P, 2003.** Oskarshamn site investigation. RAMAC and BIPS logging and deviation measurements in boreholes KSH01A, KSH01B and the upper part of KSH02. SKB P-03-73. Svensk Kärnbränslehantering AB.

OSKARSHAMN KSH02 with interpretation

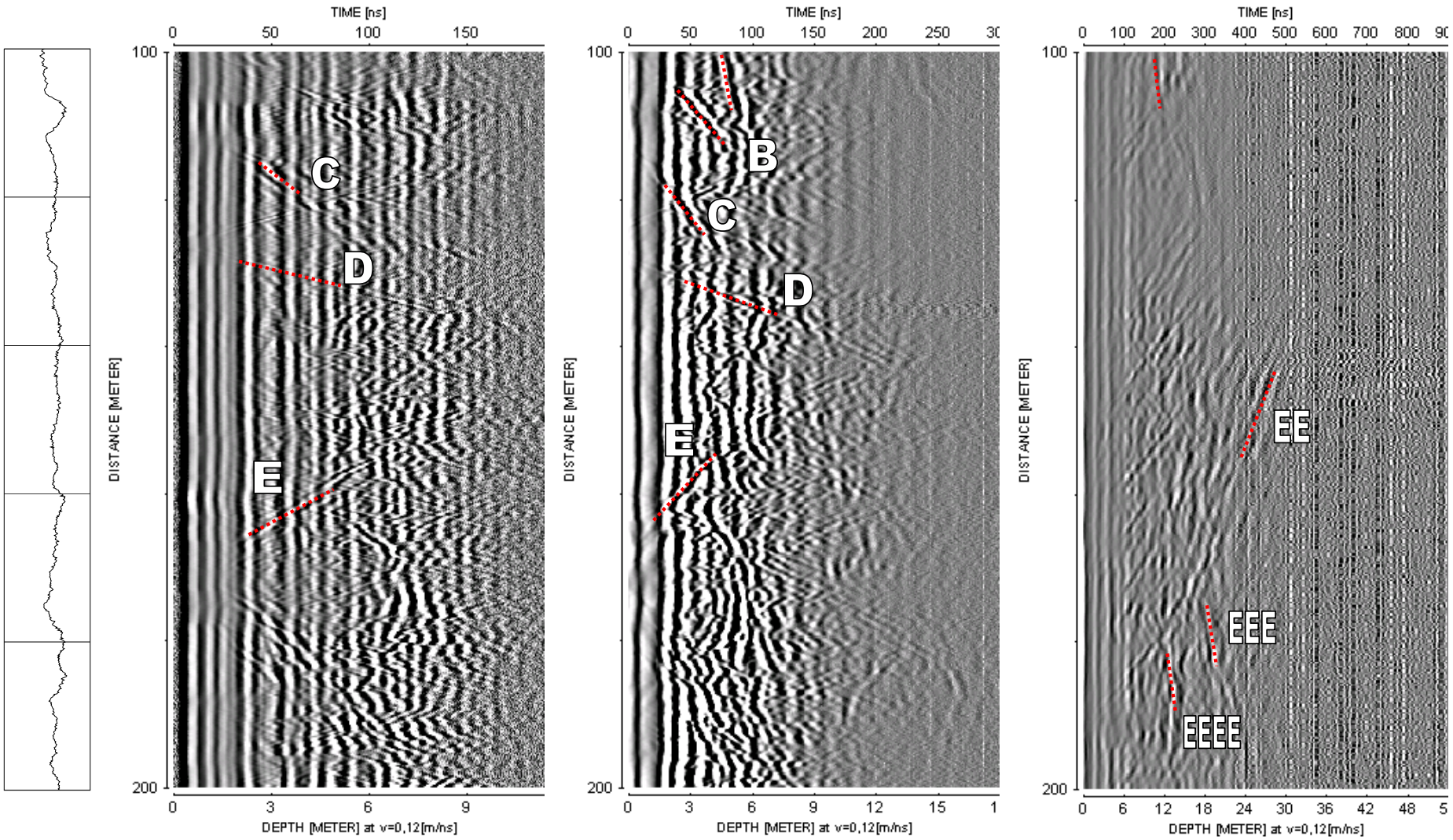


250 MHz

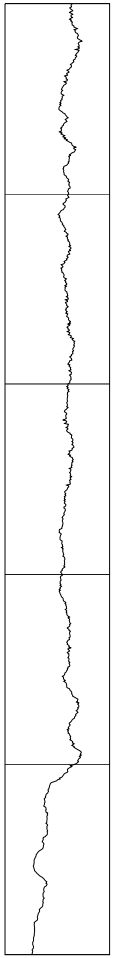
100 MHz

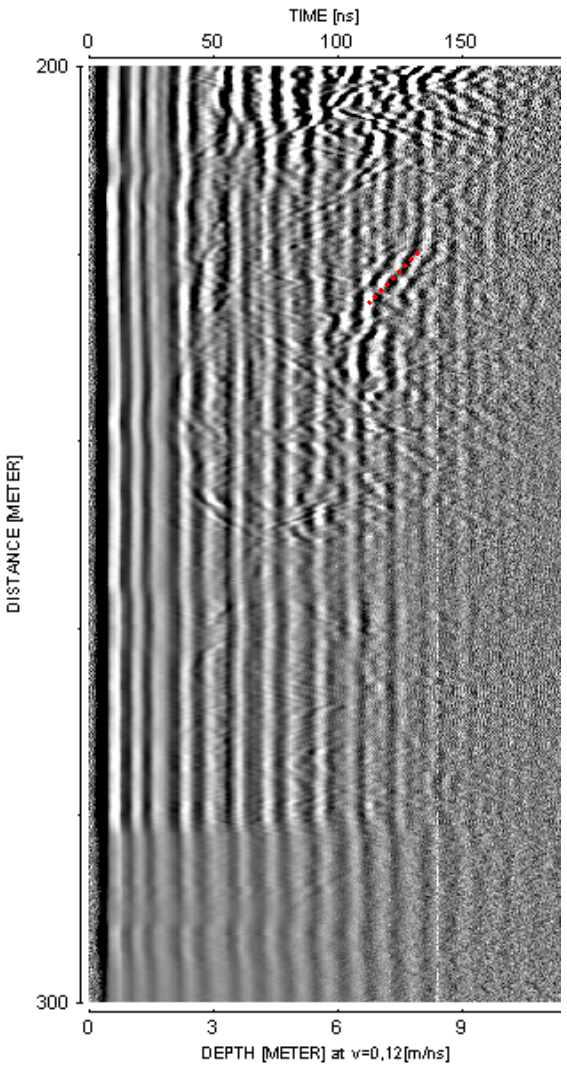
20 MHz

OSKARSHAMN KSH02 with interpretation

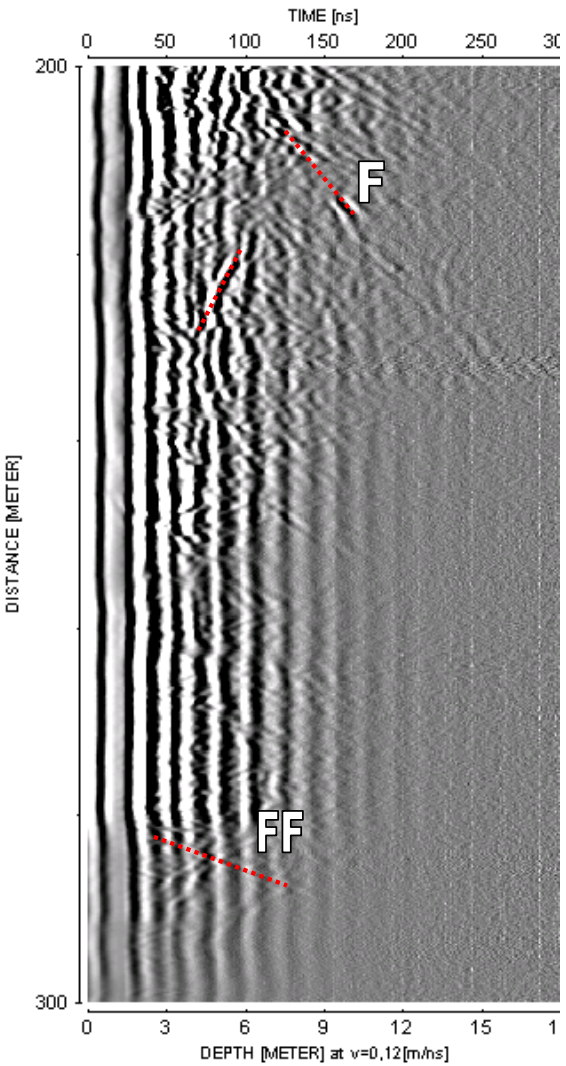


OSKARSHAMN KSH02 with interpretation

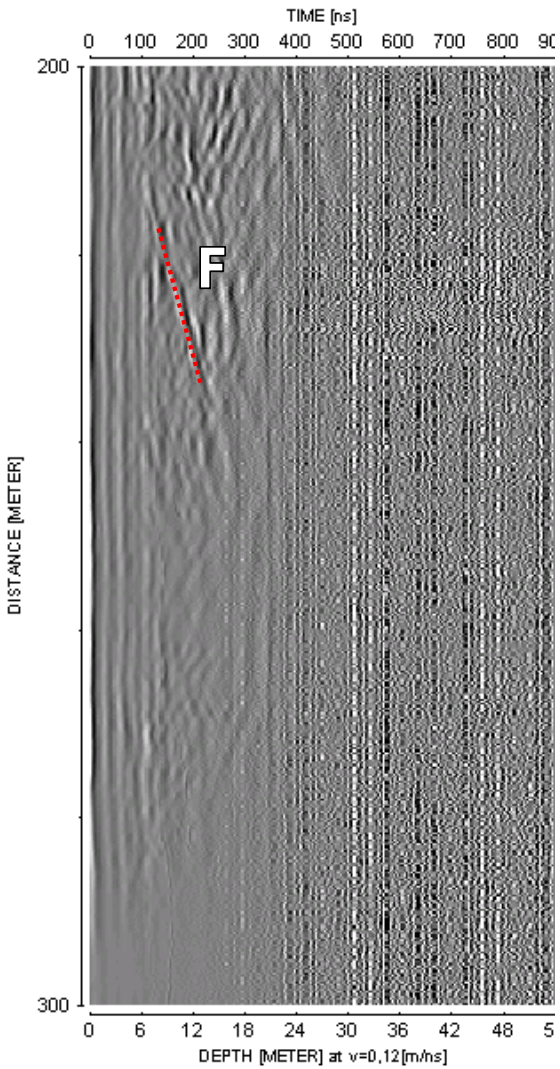




250 MHz

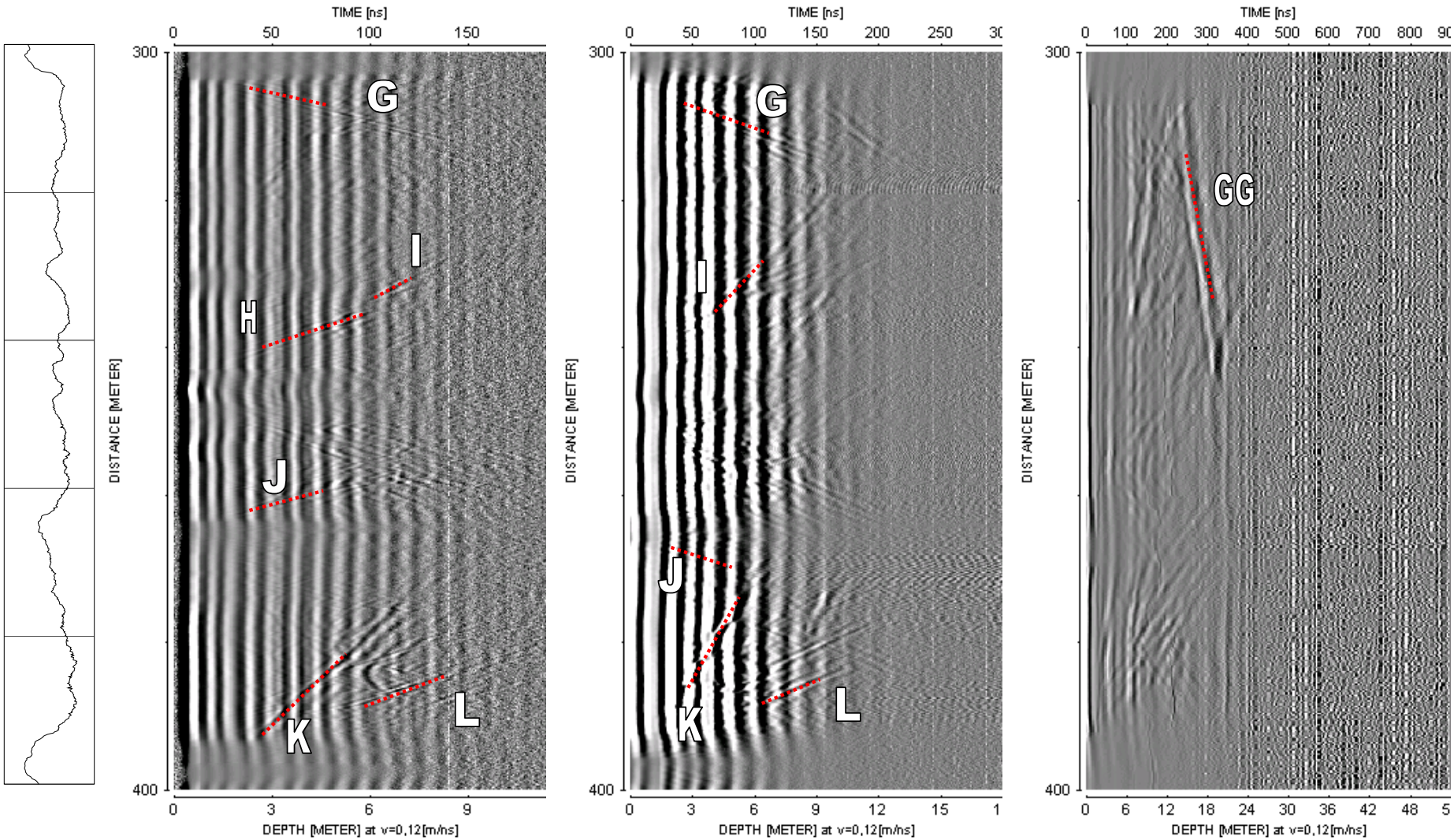


100 MHz



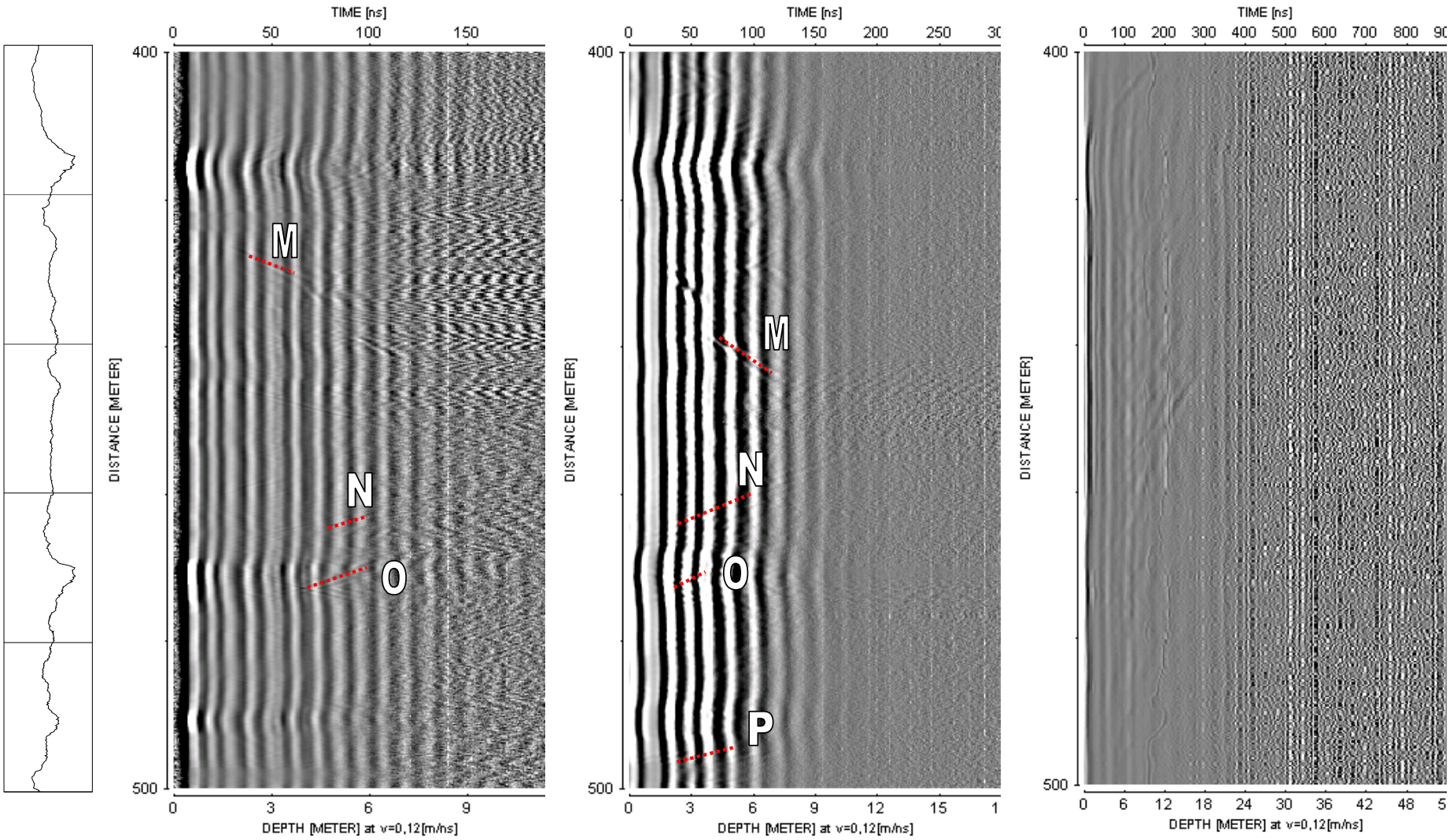
20 MHz

OSKARSHAMN KSH02 with interpretation



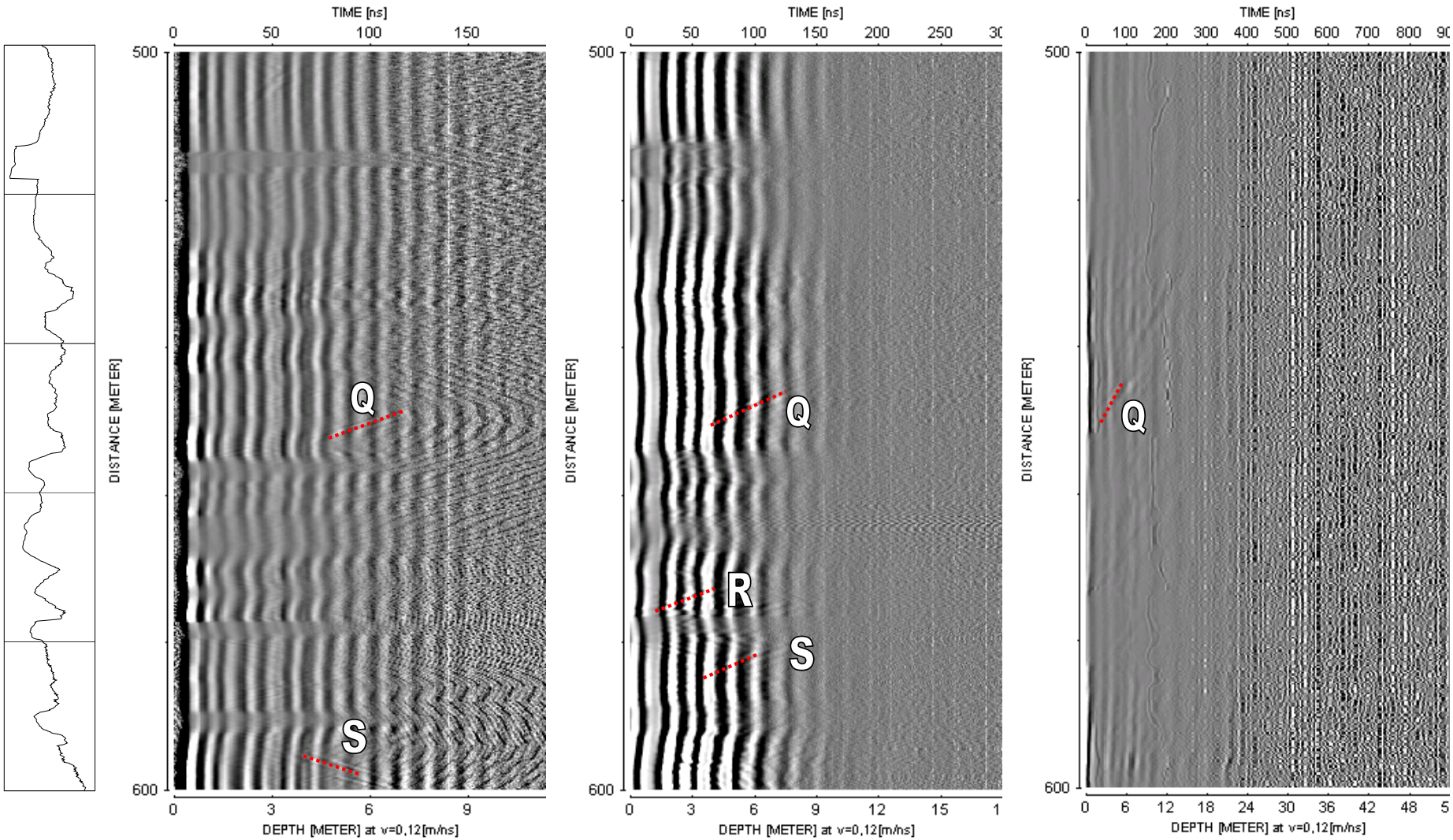
250 MHz **100 MHz** **20 MHz**

OSKARSHAMN KSH02 with interpretation

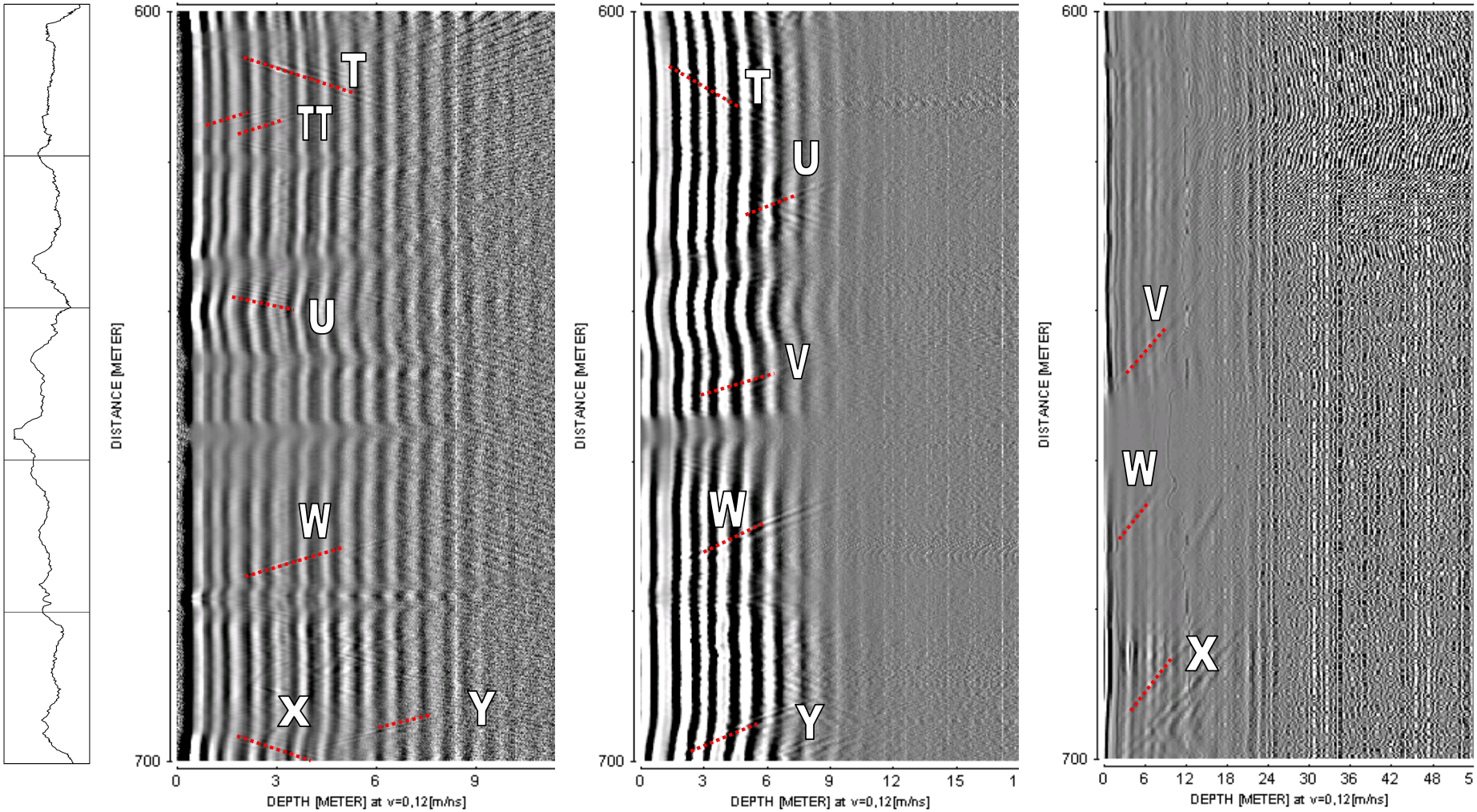


250 MHz **100 MHz** **20 MHz**

OSKARSHAMN KSH02 with interpretation

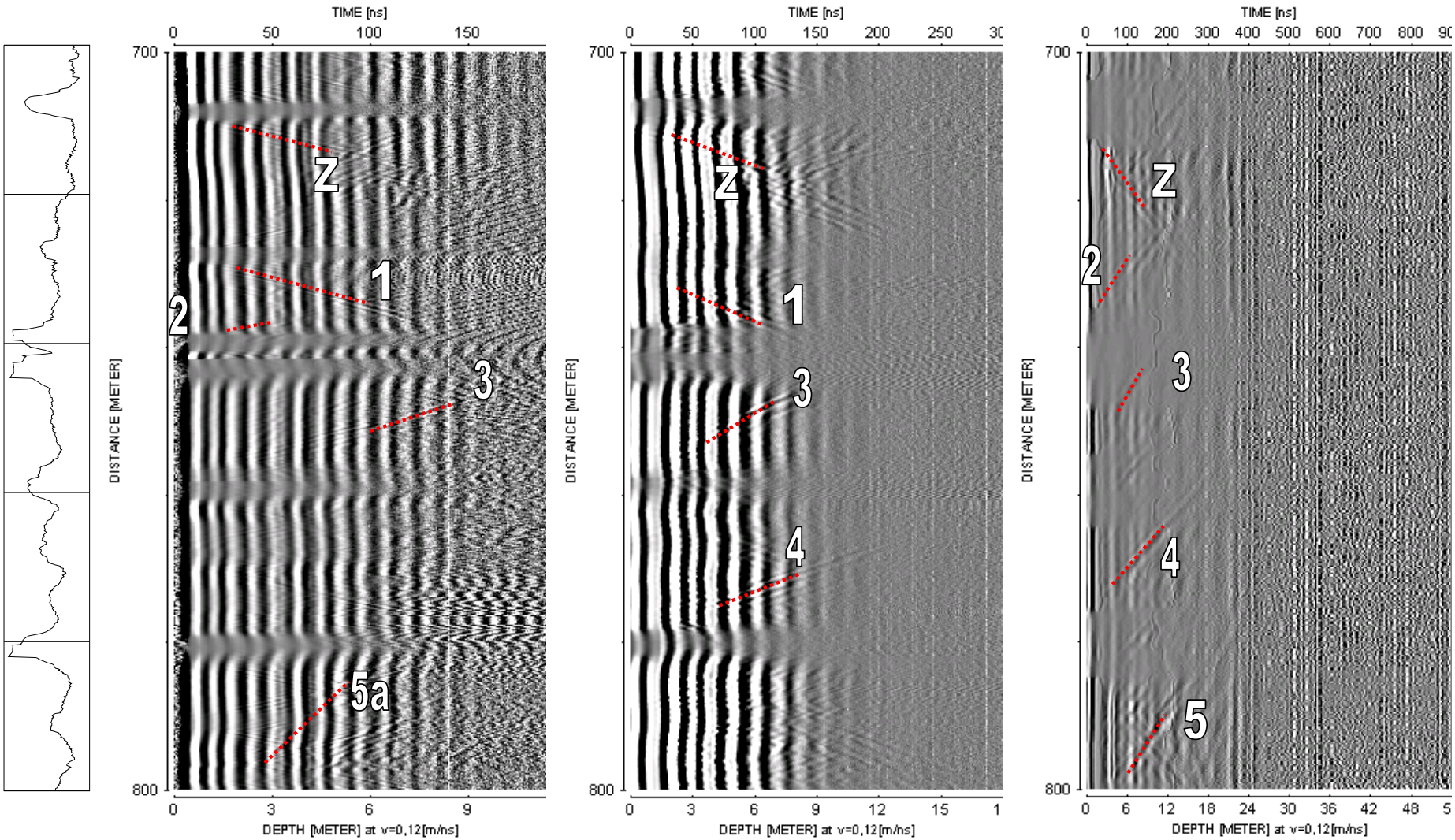


OSKARSHAMN KSH02 with interpretation



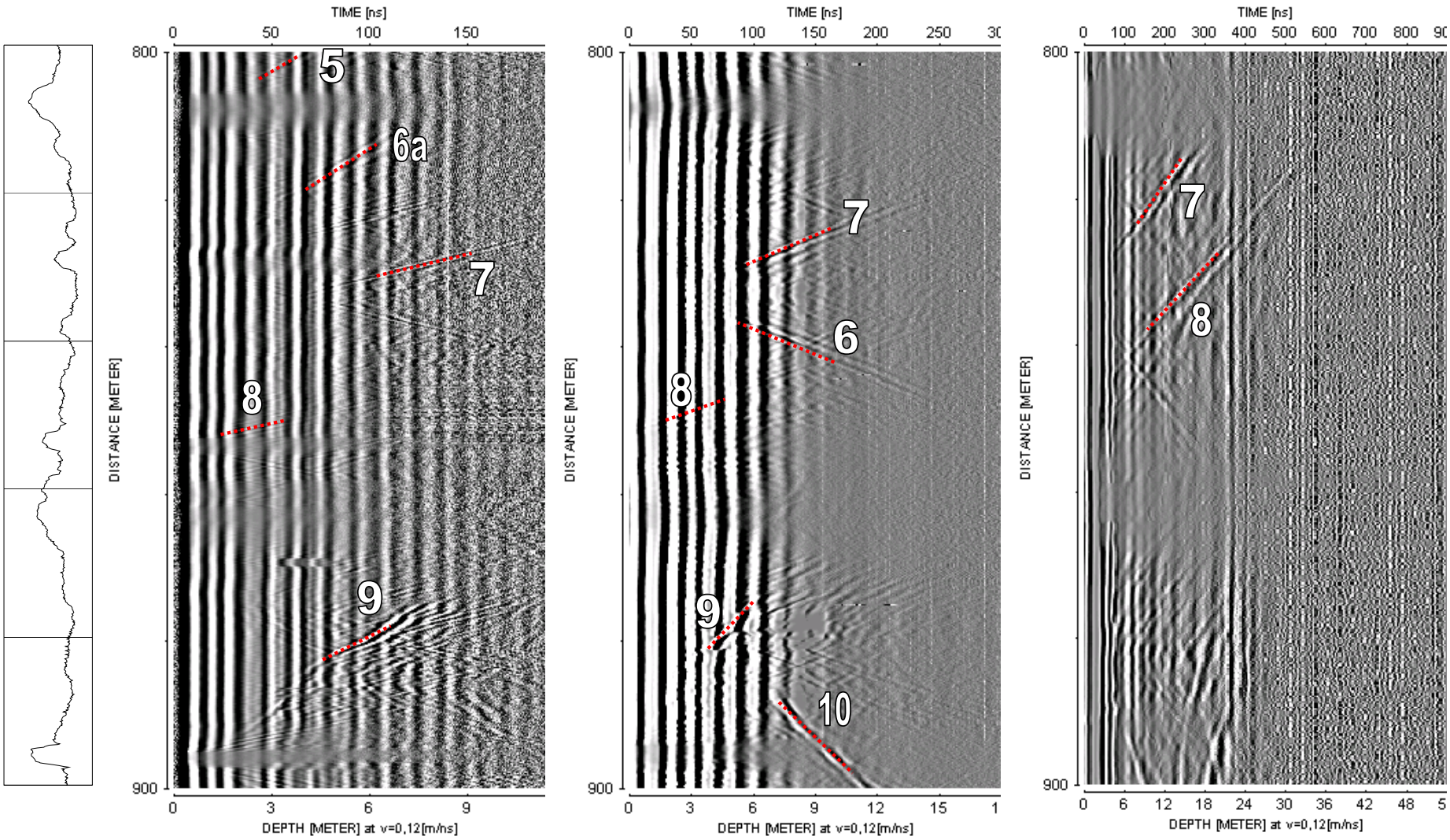
250 MHz **100 MHz** **20 MHz**

OSKARSHAMN KSH02 with interpretation



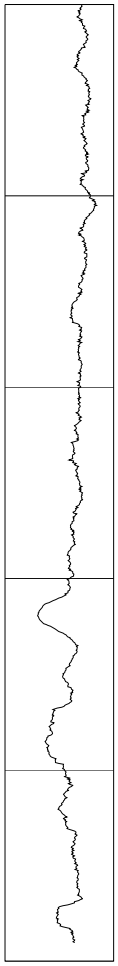
250 MHz **100 MHz** **20 MHz**

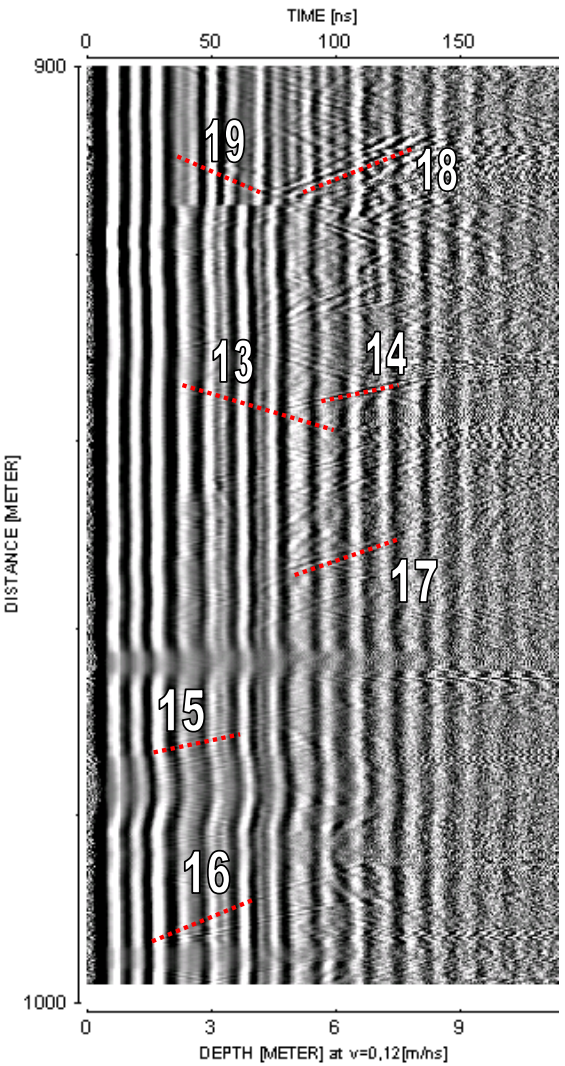
OSKARSHAMN KSH02 with interpretation



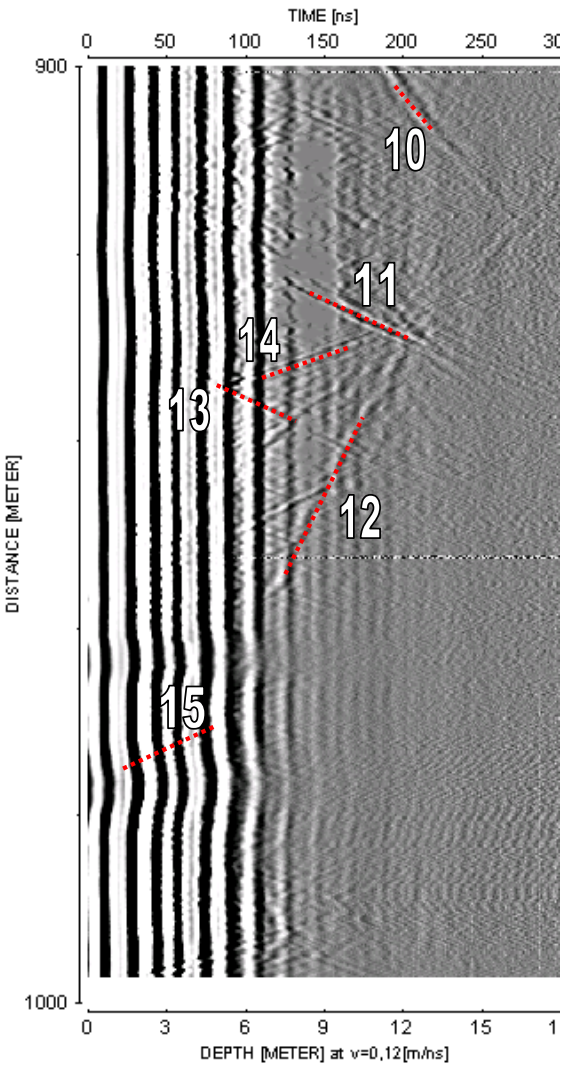
250 MHz **100 MHz** **20 MHz**

OSKARSHAMN KSH02 with interpretation

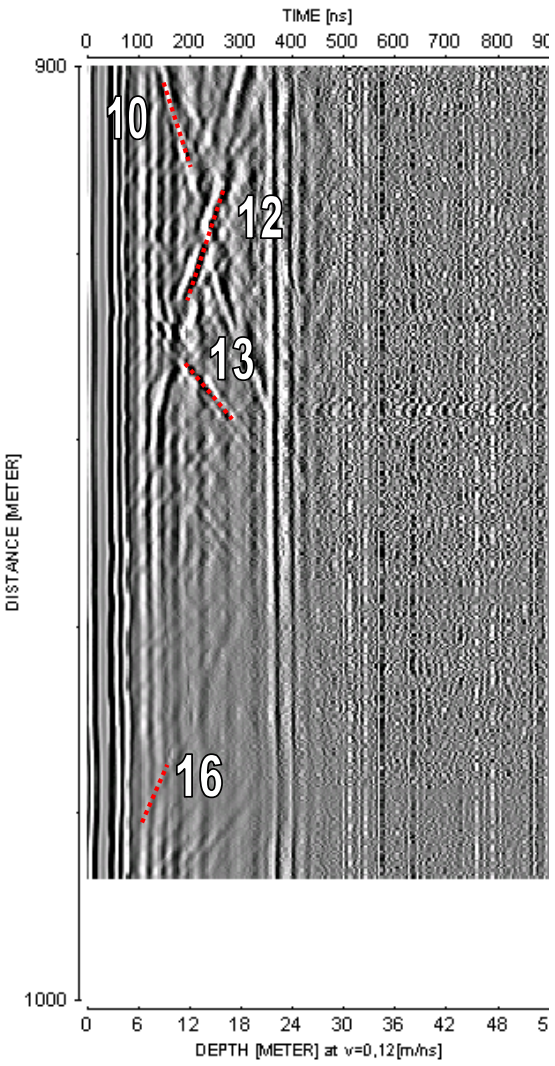




250 MHz

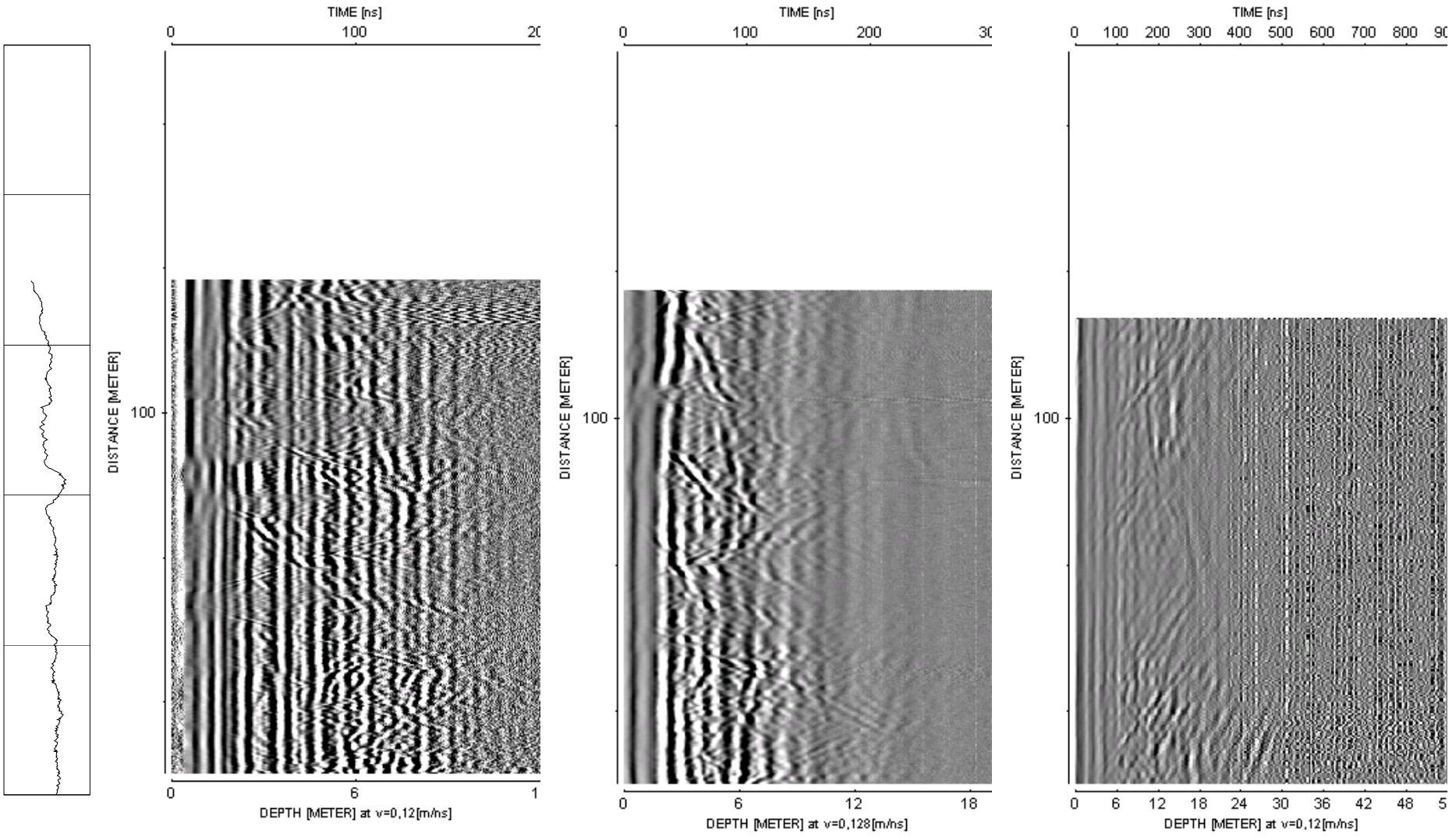


100 MHz



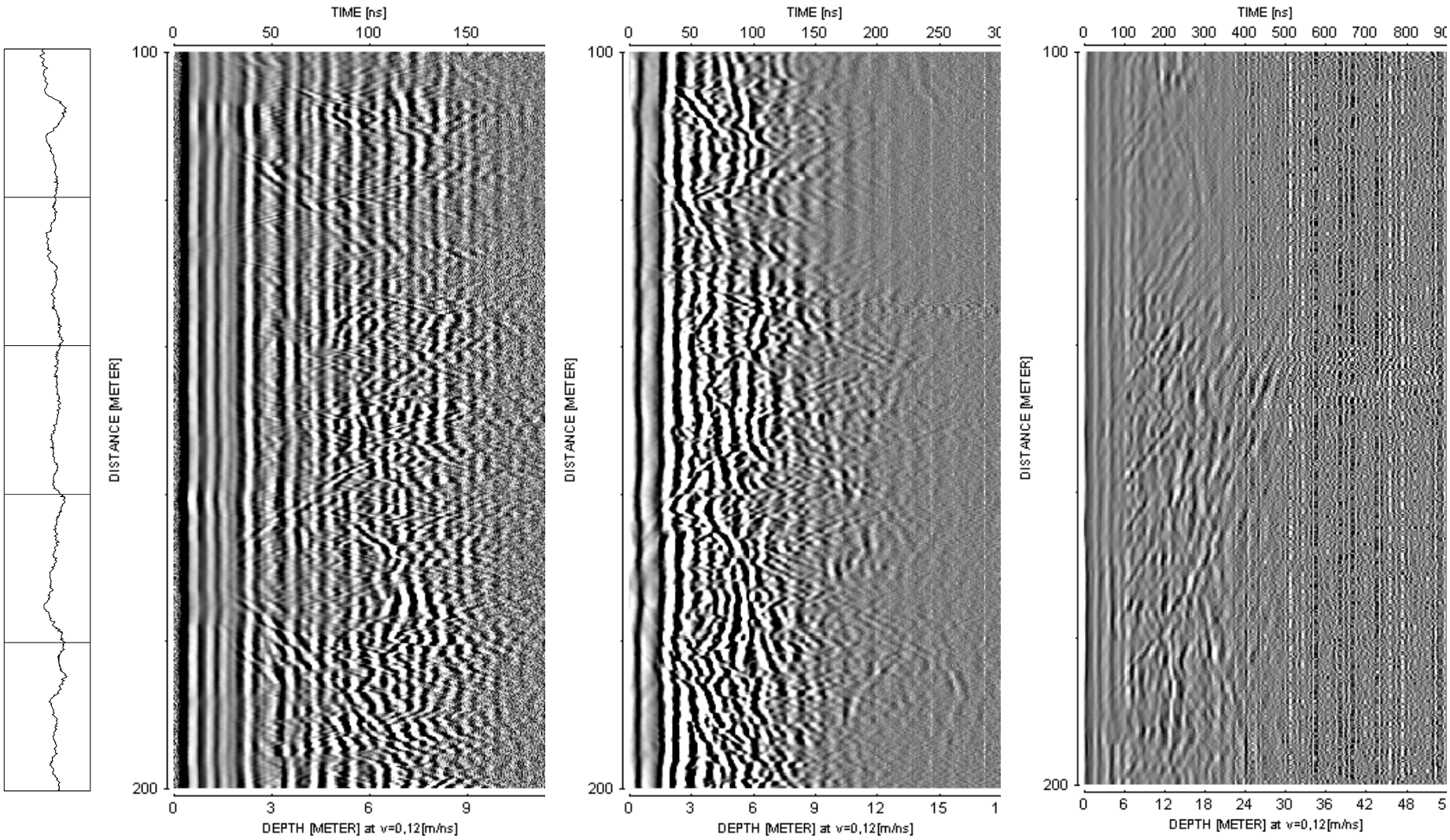
20 MHz

OSKARSHAMN KSH02

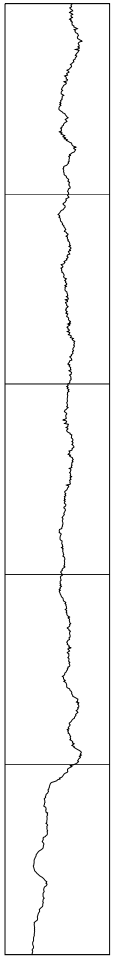


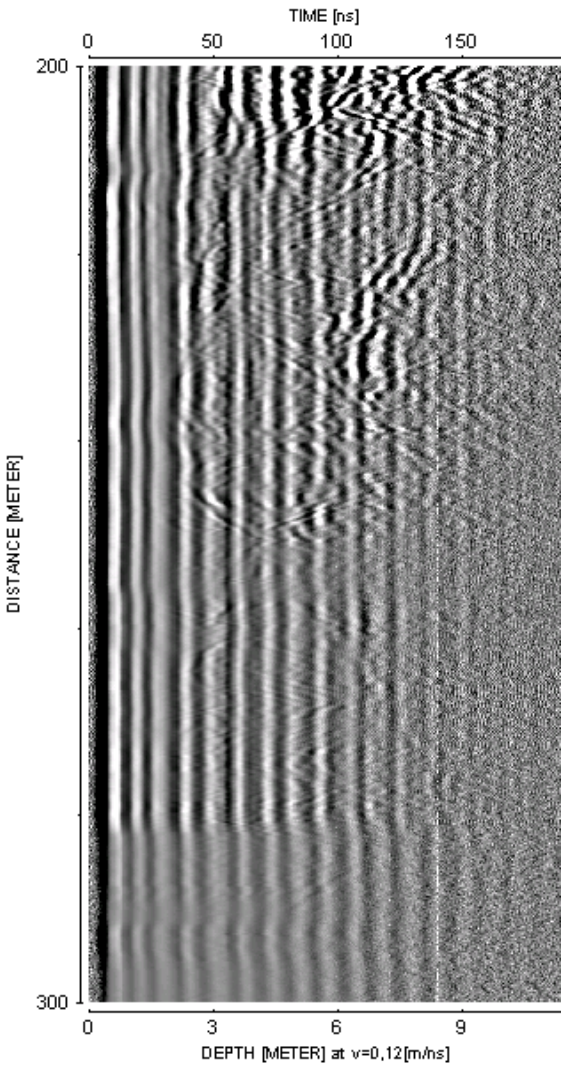
250 MHz **100 MHz** **20 MHz**

OSKARSHAMN KSH02

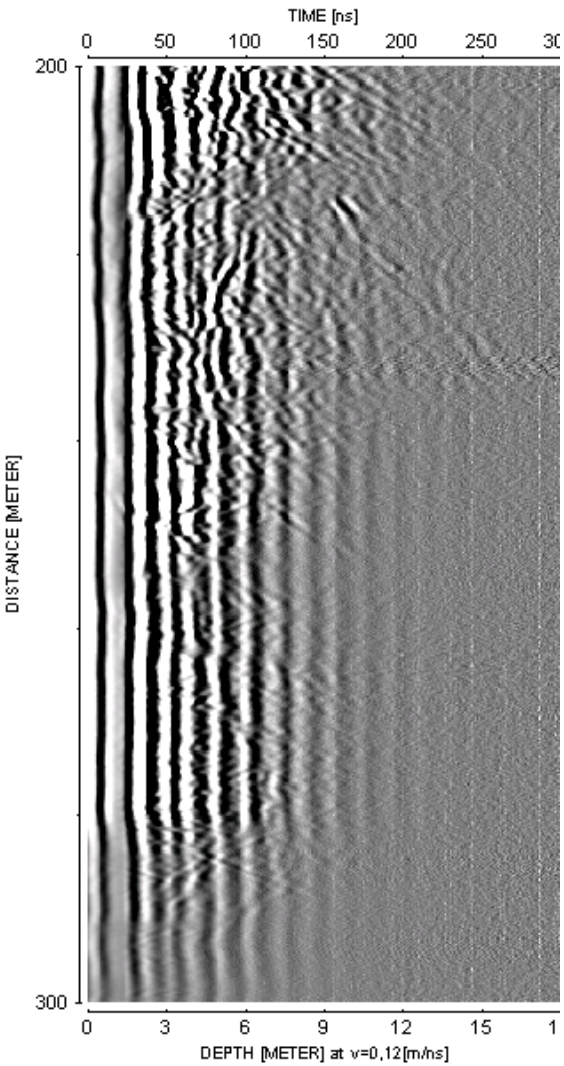


OSKARSHAMN KSH02

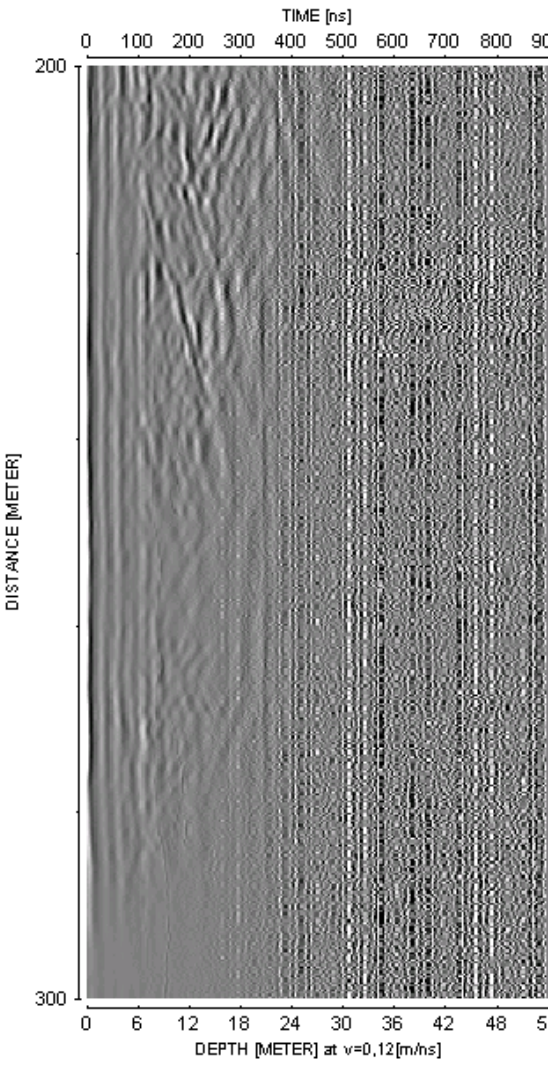




250 MHz

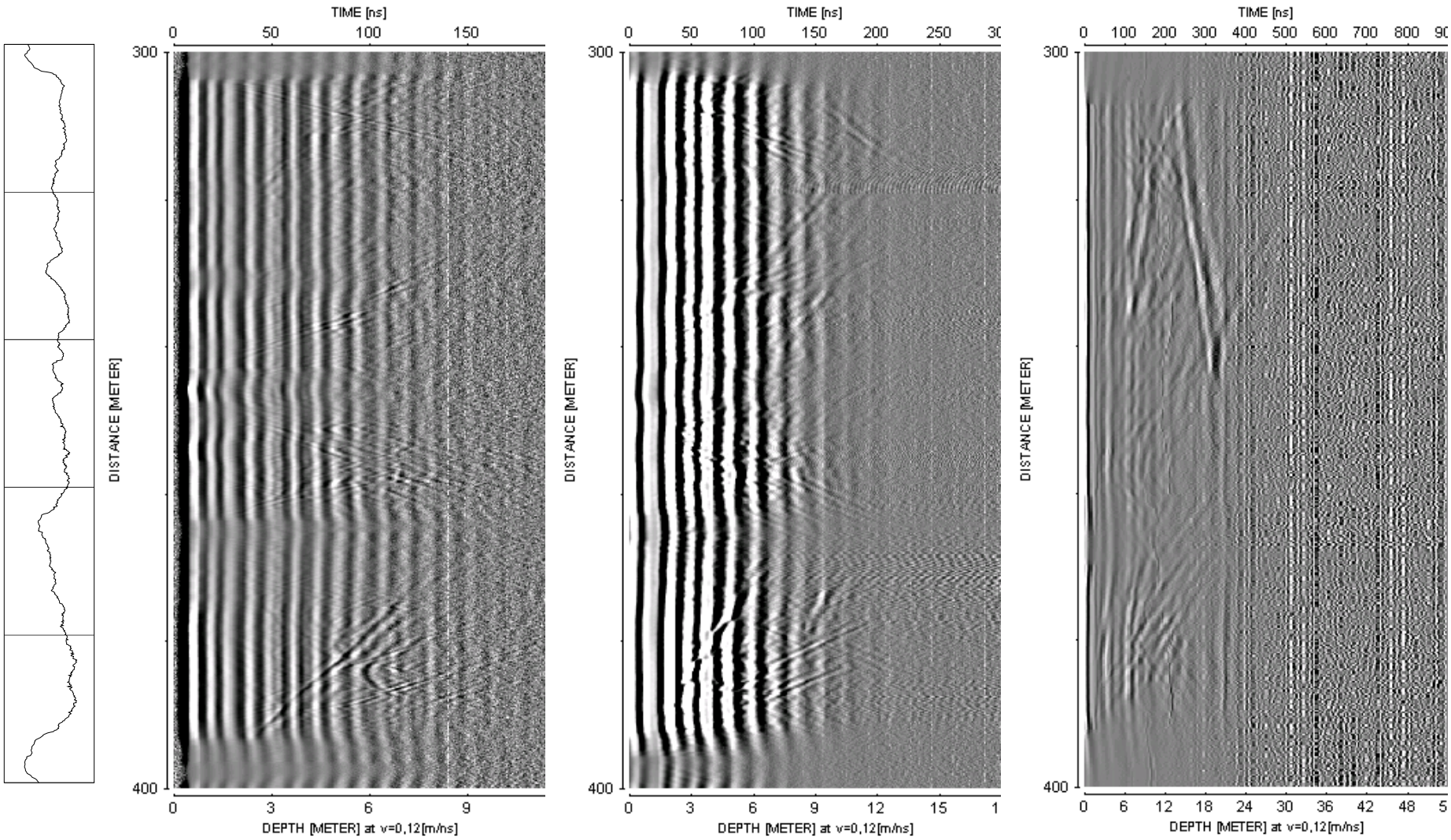


100 MHz

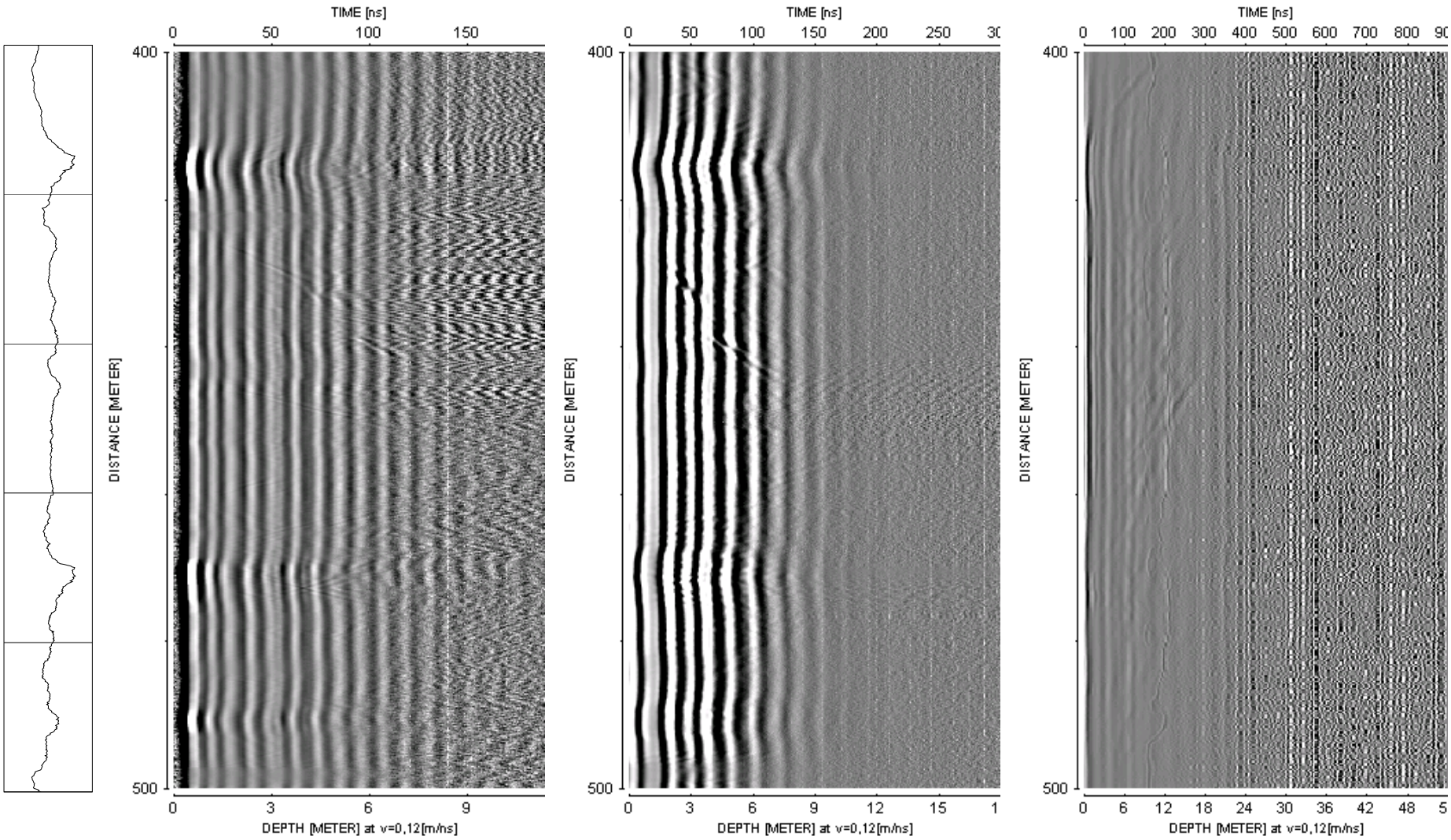


20 MHz

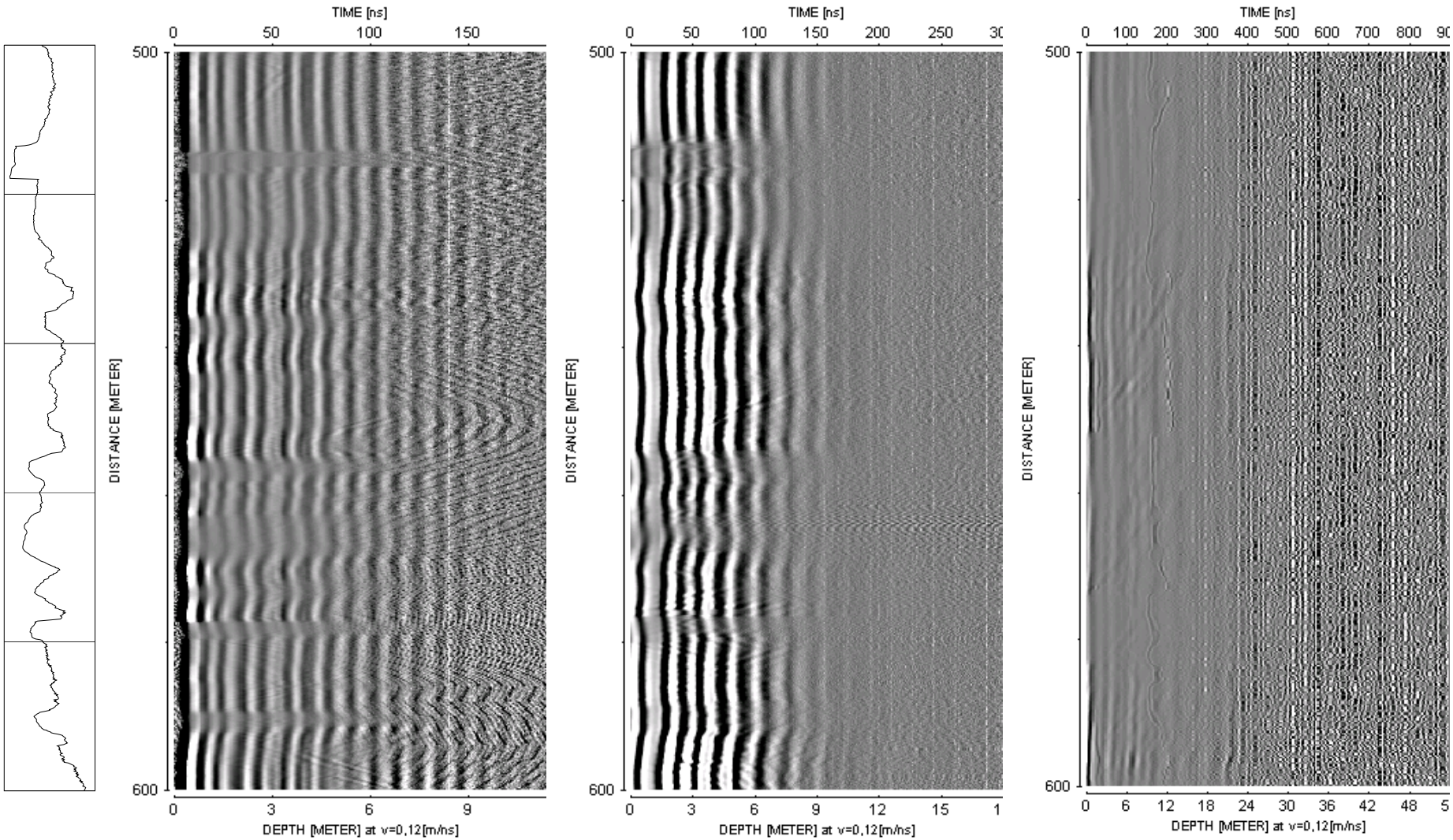
OSKARSHAMN KSH02



OSKARSHAMN KSH02

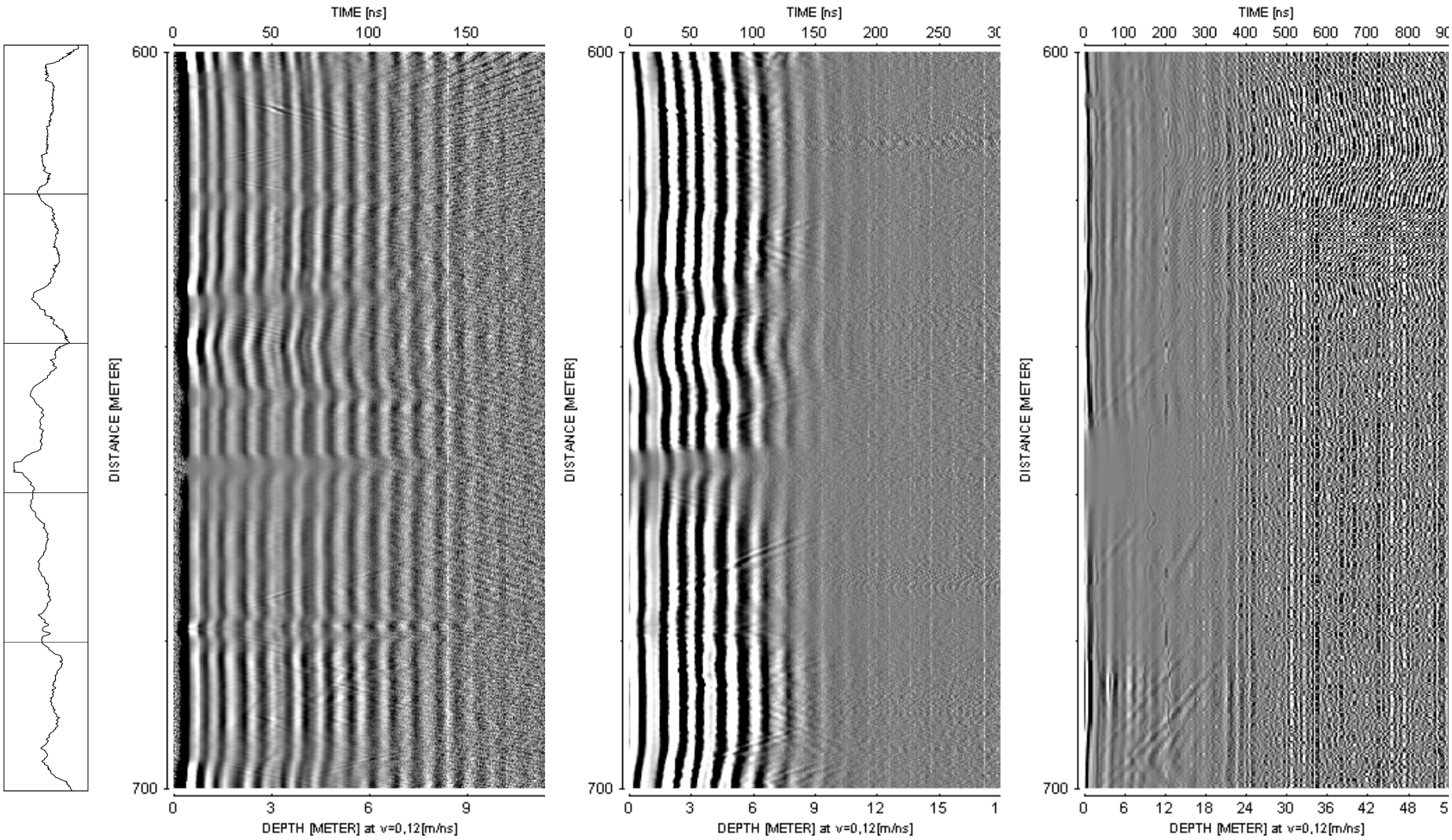


OSKARSHAMN KSH02



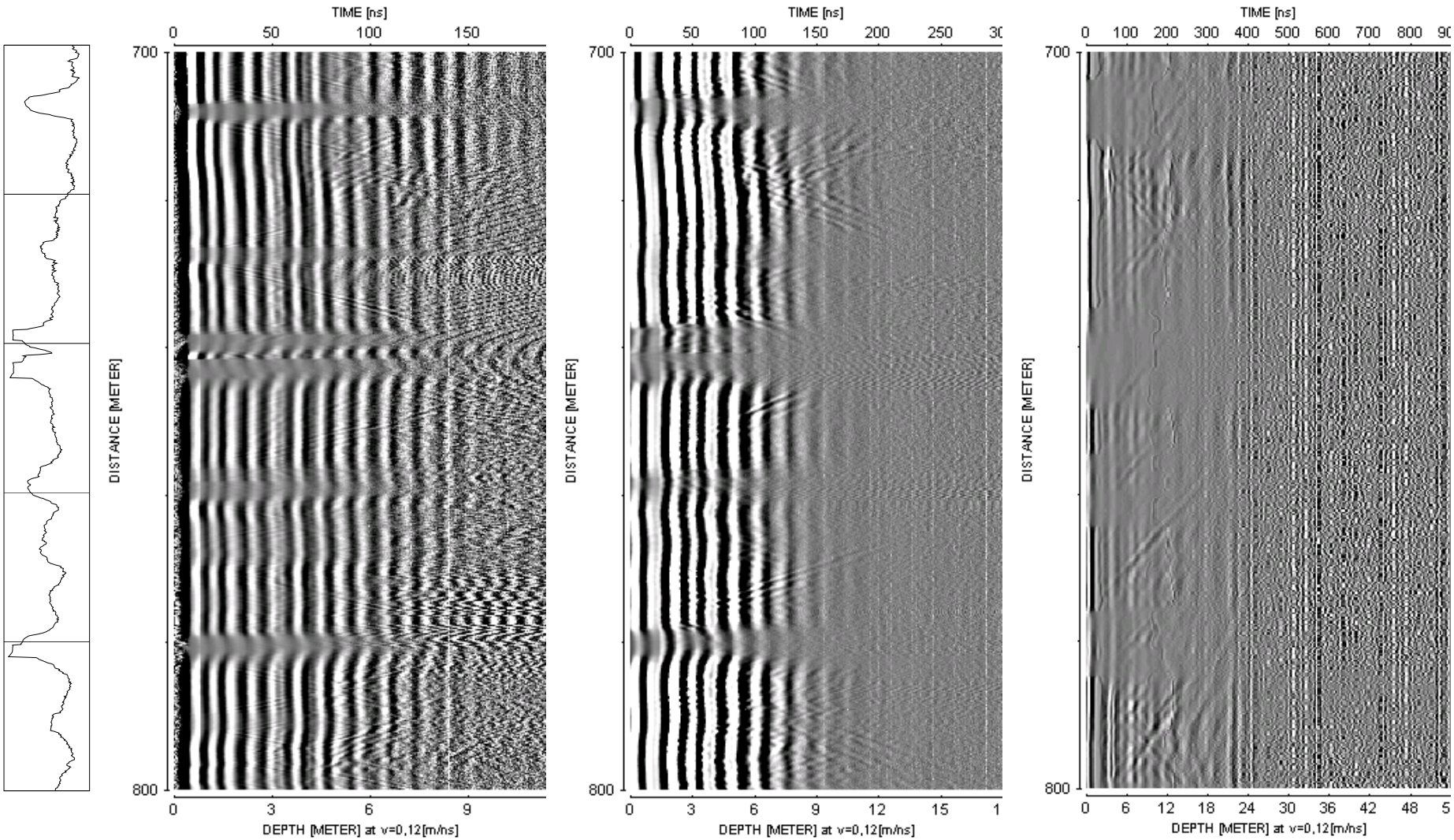
250 MHz **100 MHz** **20 MHz**

OSKARSHAMN KSH02

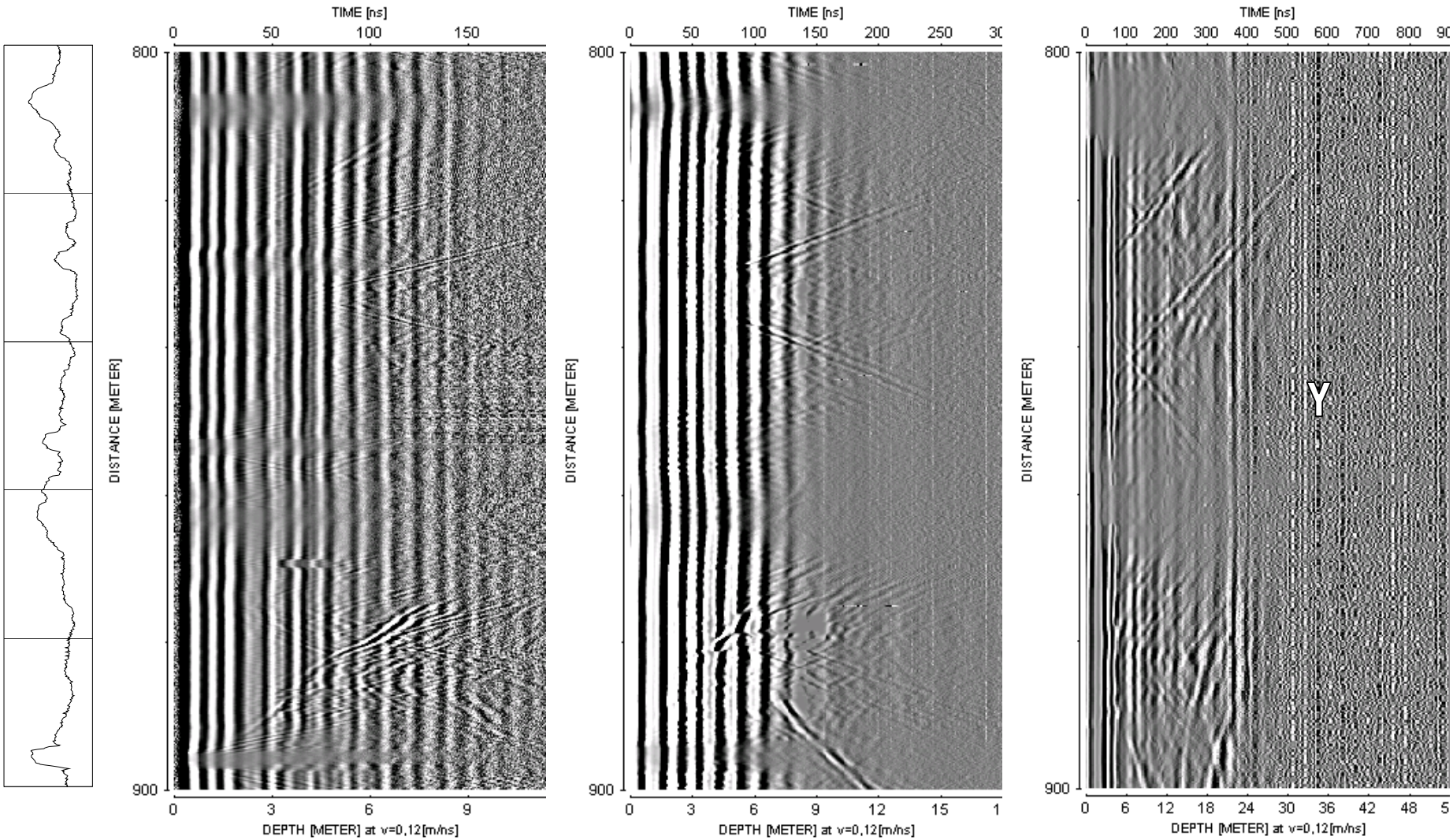


250 MHz **100 MHz** **20 MHz**

OSKARSHAMN KSH02

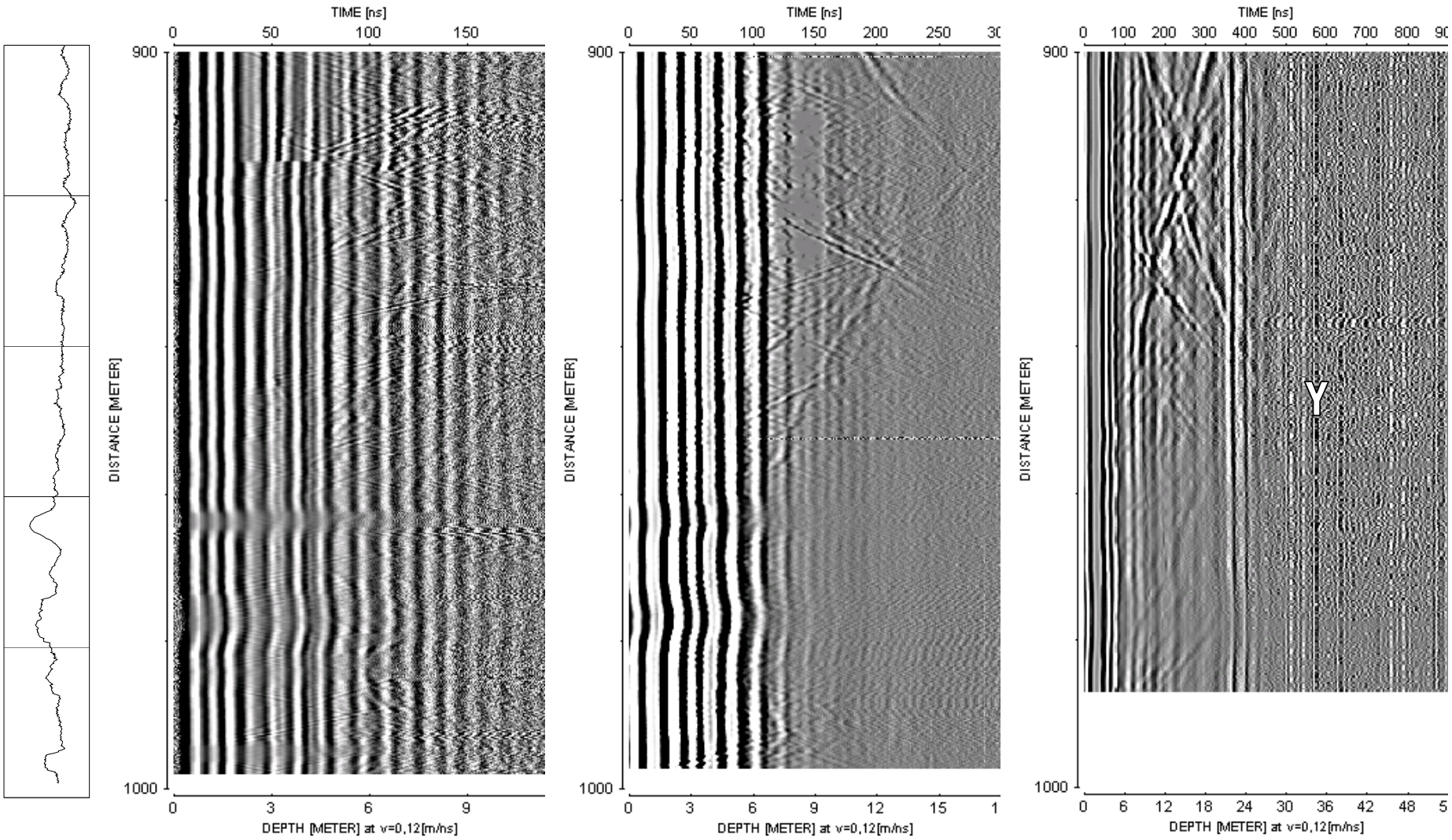


OSKARSHAMN KSH02



250 MHz **100 MHz** **20 MHz**

OSKARSHAMN KSH02



250 MHz

100 MHz

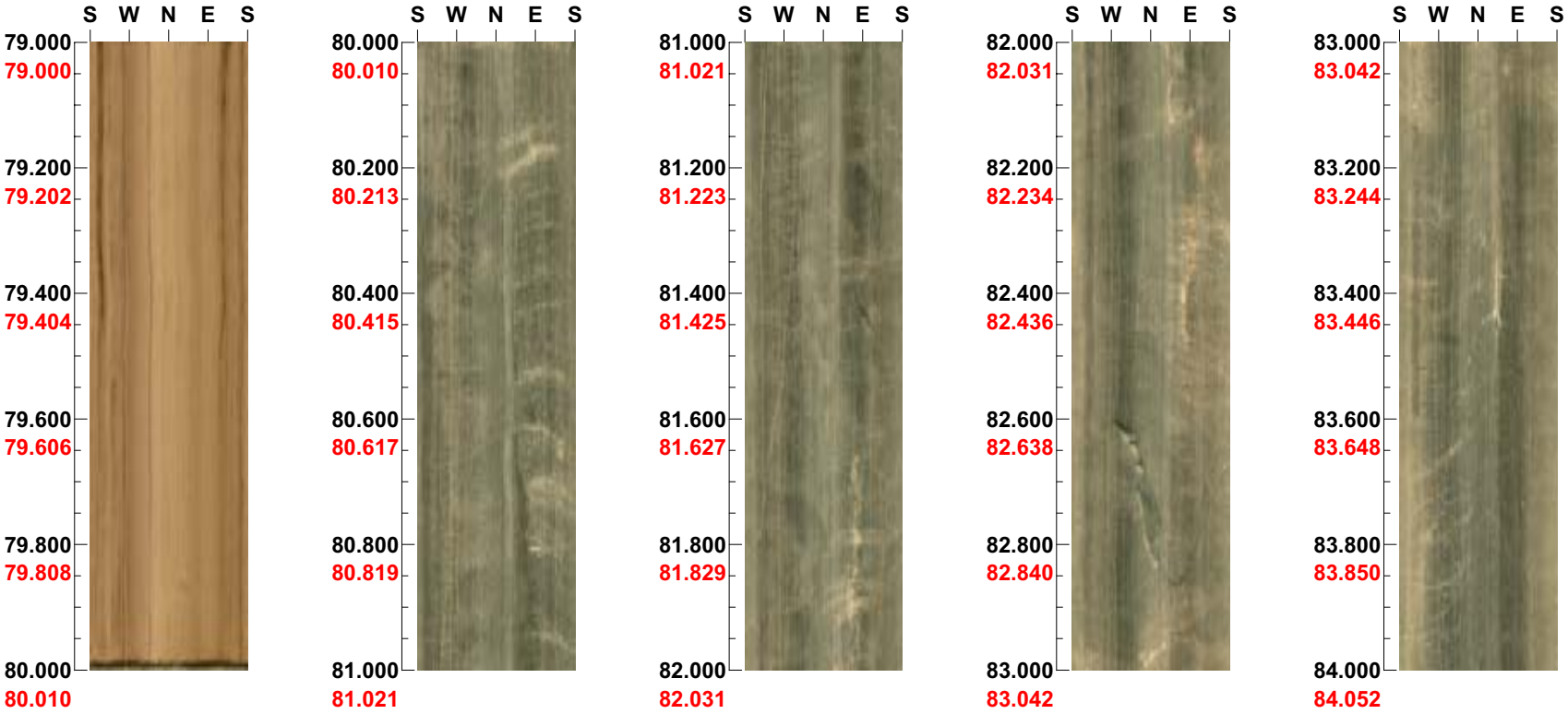
20 MHz

Project name: Simpevarp

Image file	**: c:\work\r5156s~1\data\ksh02\bips\ksh027~1.bip**
BDT file	**: c:\work\r5156s~1\data\ksh02\bips\ksh027~1.bdt**
Locality	**: SIMPAN**
Bore hole number	**: KSH02**
Date	**: 03/06/29**
Time	**: 22:06:00**
Depth range	**: 79.000 - 573.444 m**
Azimuth	**: 0**
Inclination	**: -85**
Diameter	**: 76.0 mm**
Magnetic declination	**: 0.0**
Span	**: 4**
Scan interval	**: 0.25**
Scan direction	**: To bottom**
Scale	**: 1/10**
Aspect ratio	**: 105 %**
Pages	**: 99**
Color	**:**  **+0 +0 +0**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

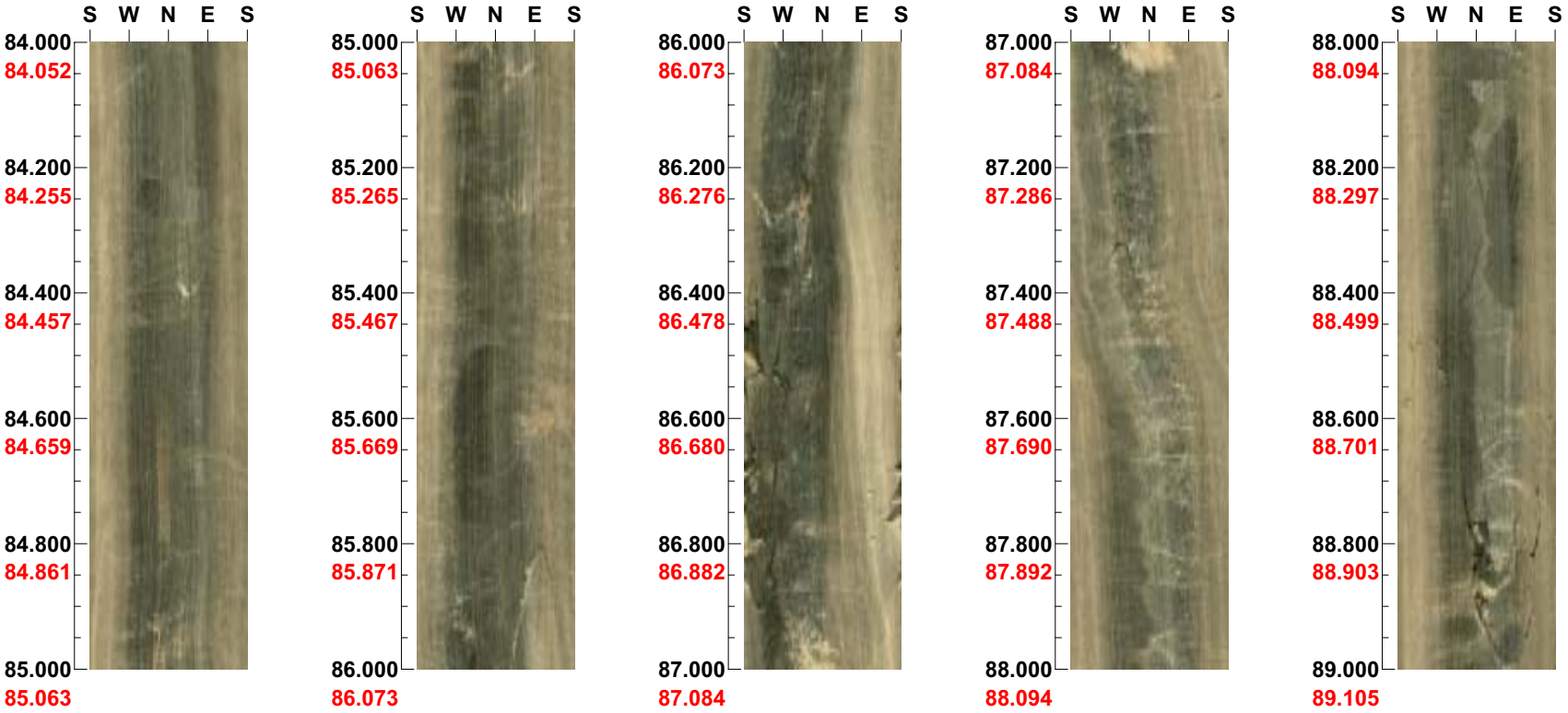
Depth range: 79.000 - 84.000 m



(1 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

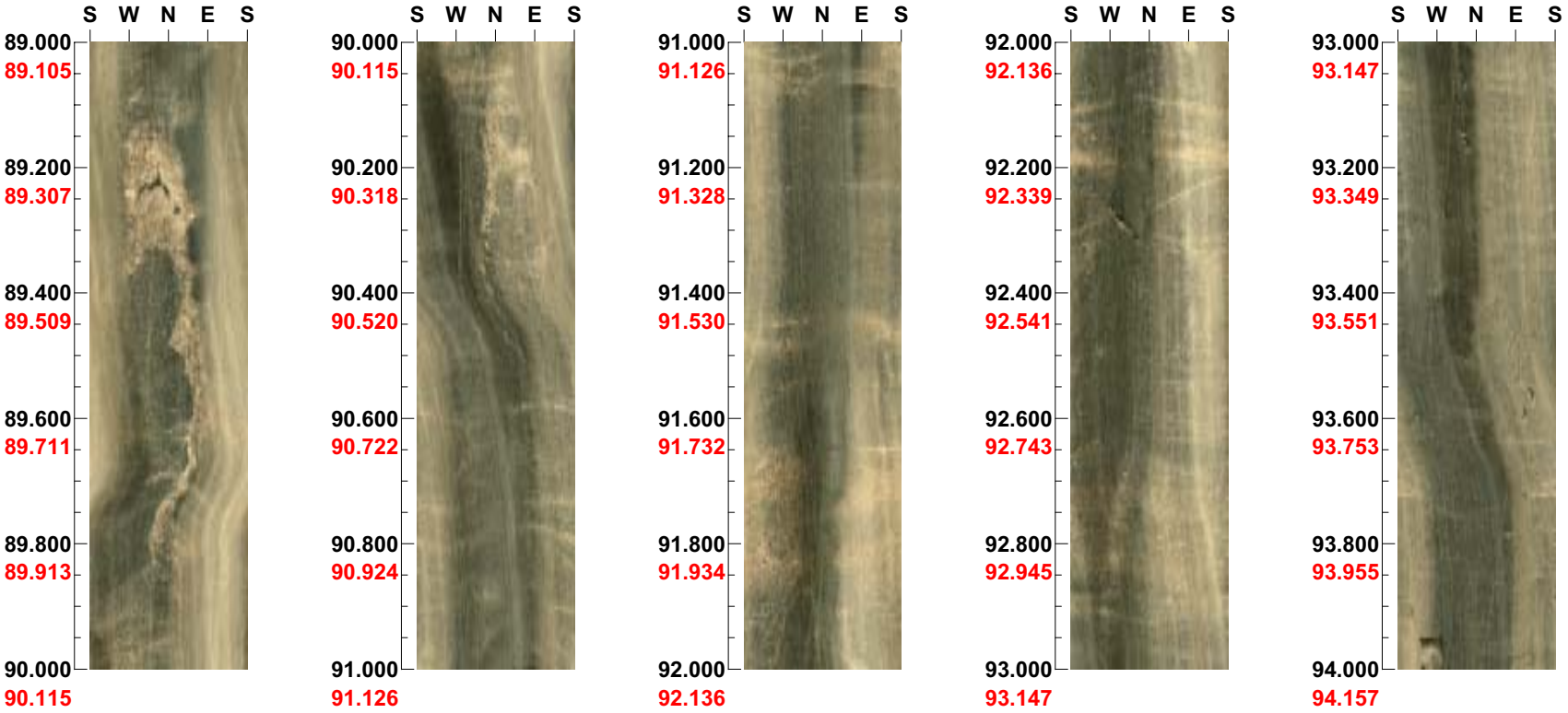
Depth range: 84.000 - 89.000 m



(2 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

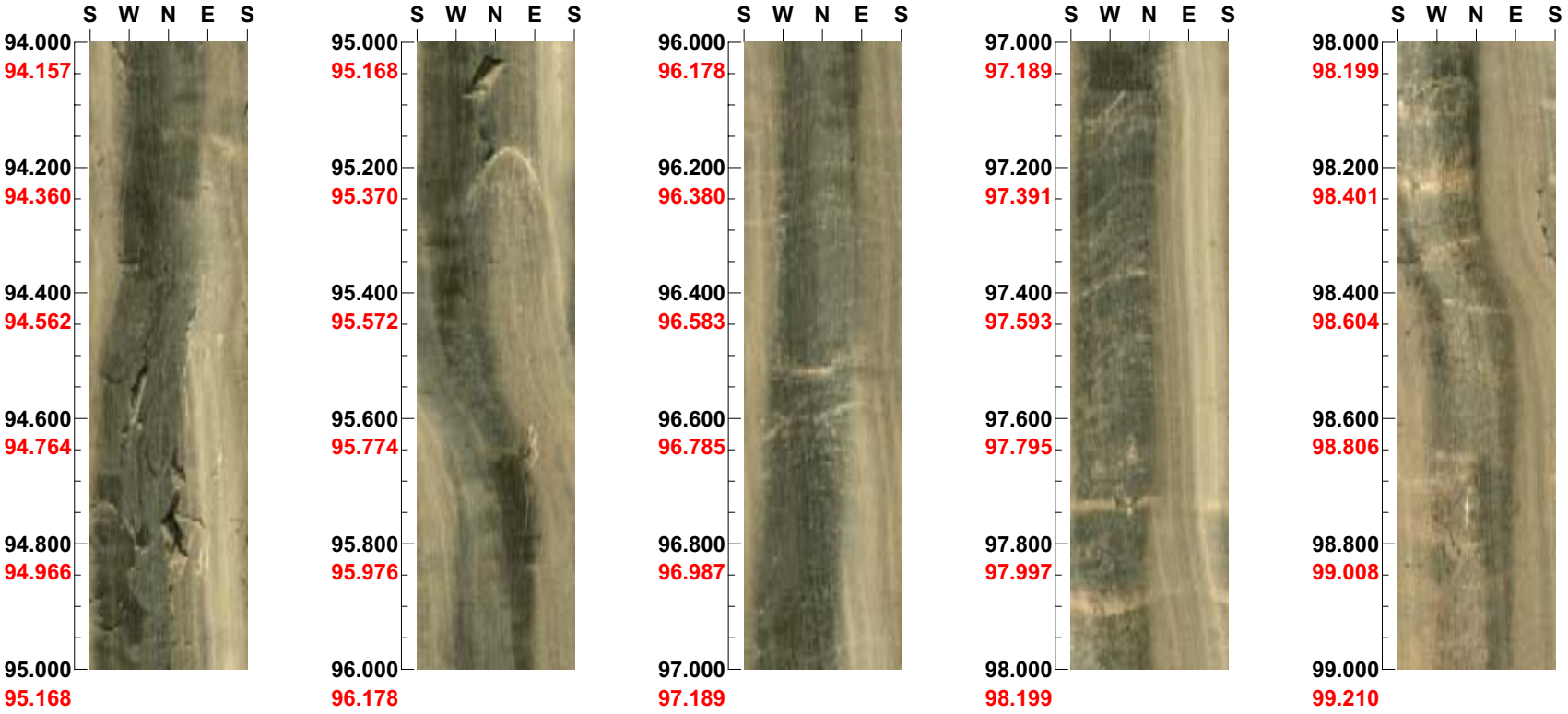
Depth range: 89.000 - 94.000 m



(3 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

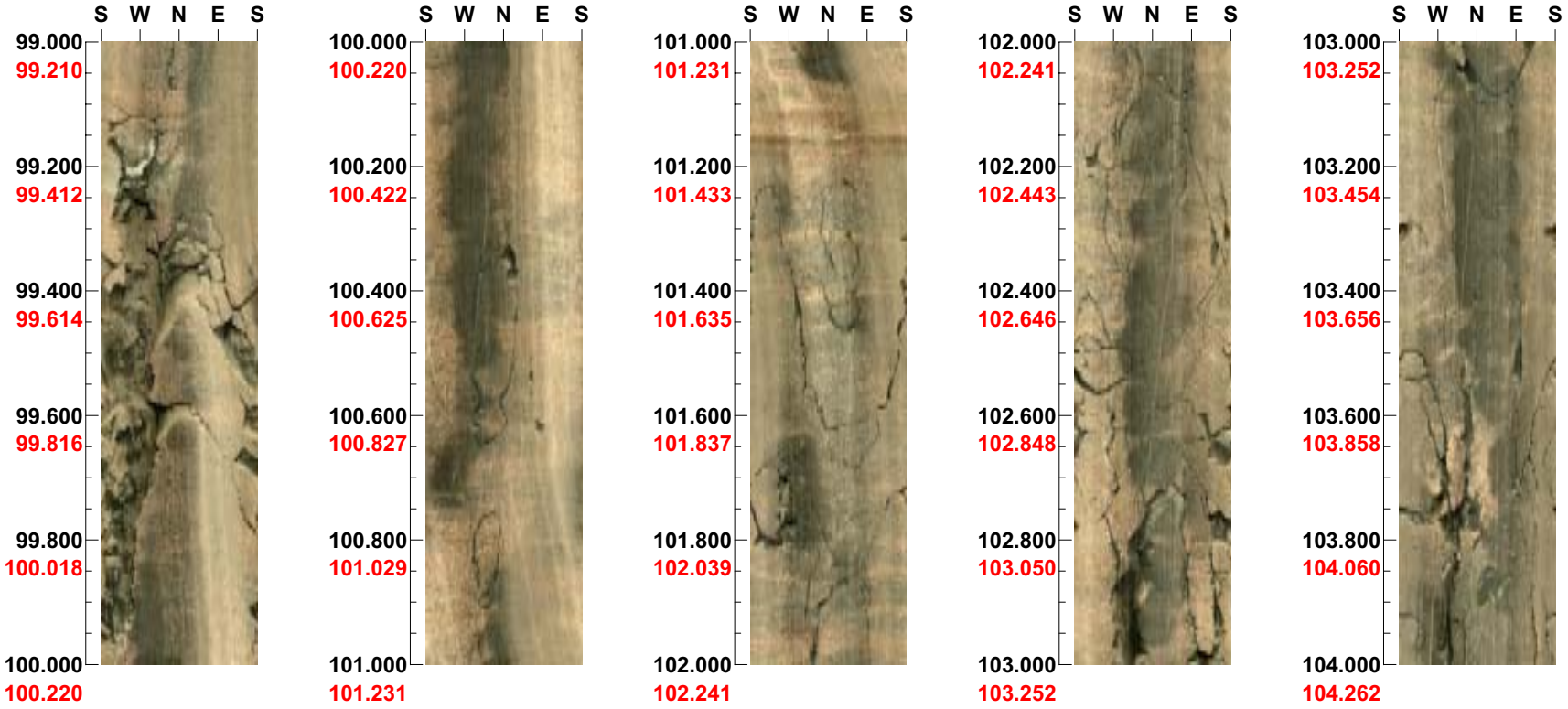
Depth range: 94.000 - 99.000 m



(4 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

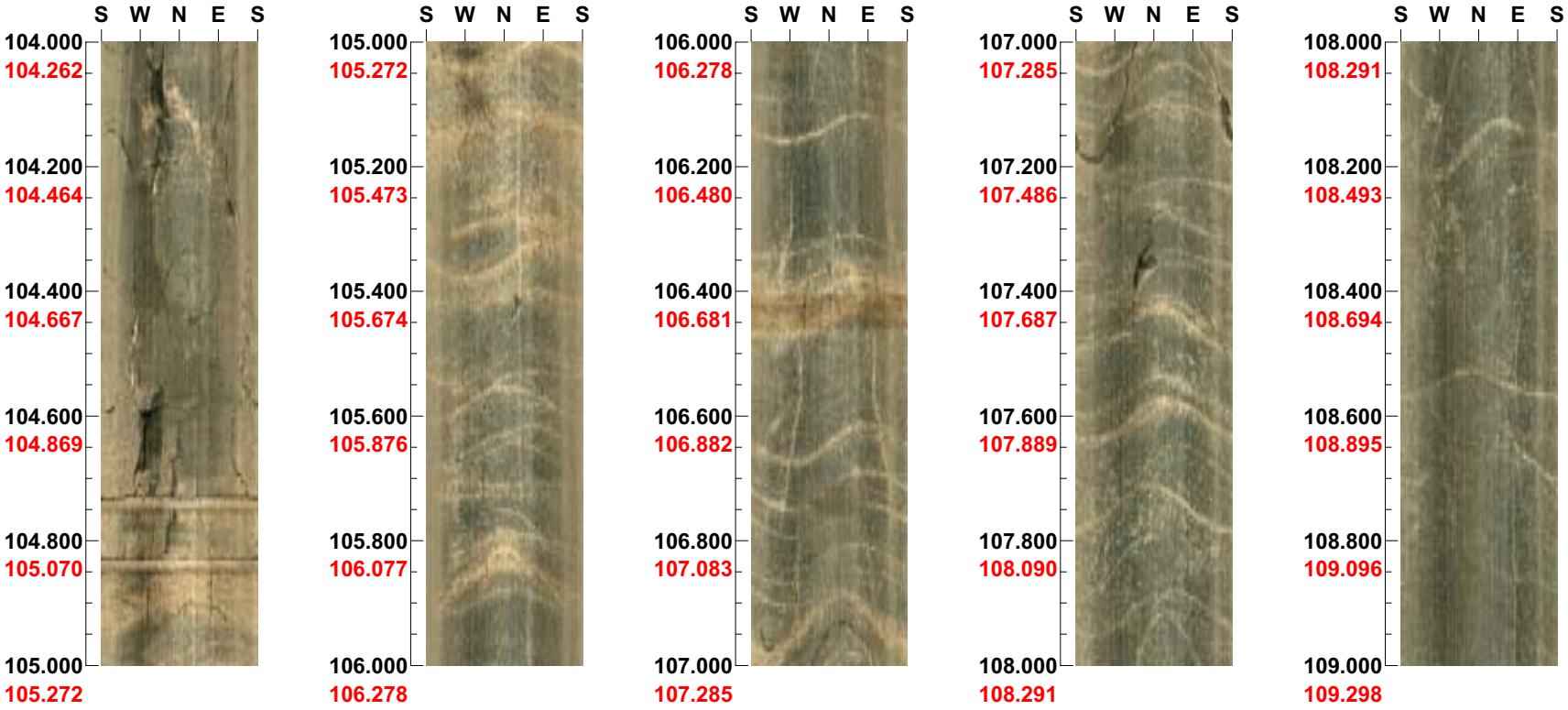
Depth range: 99.000 - 104.000 m



(5 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

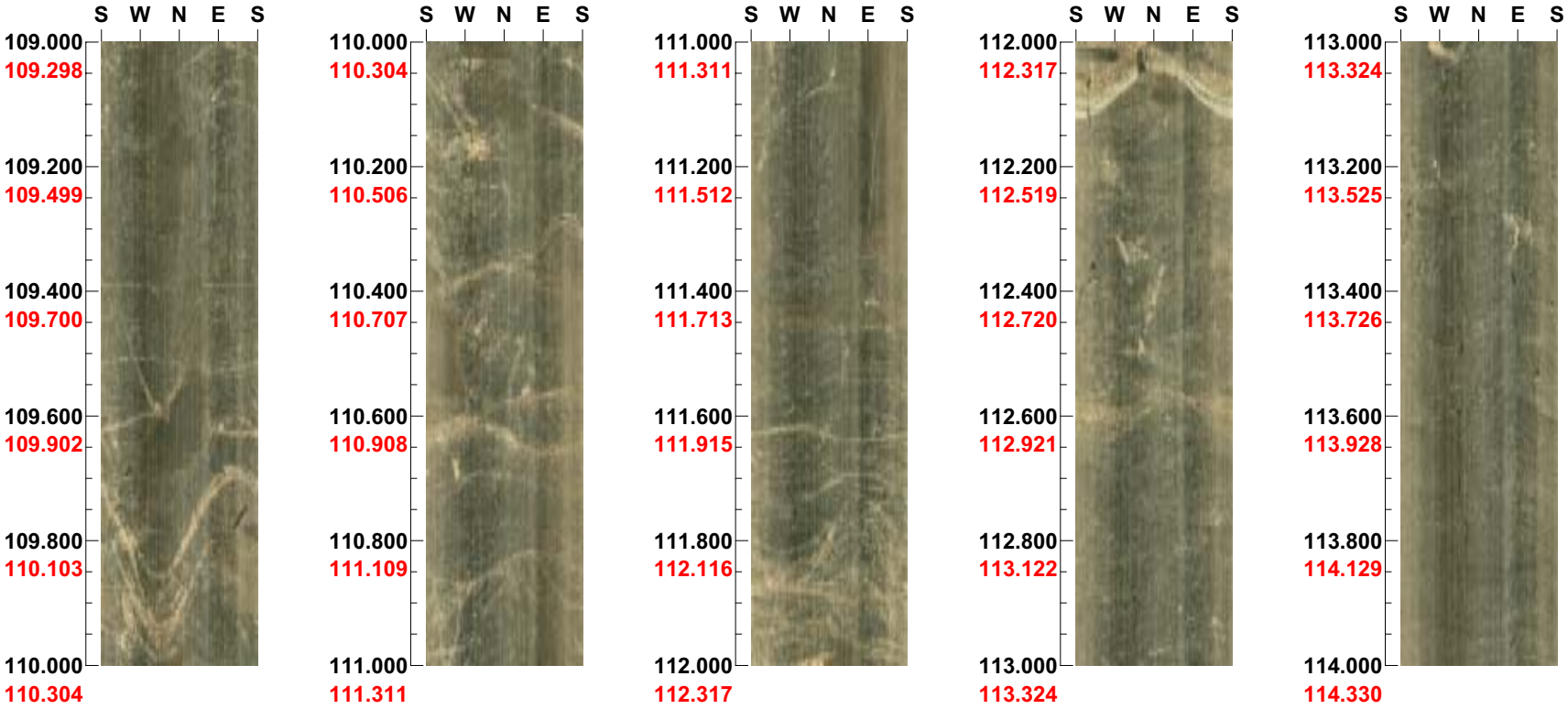
Depth range: 104.000 - 109.000 m



Scale: 1/10 **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

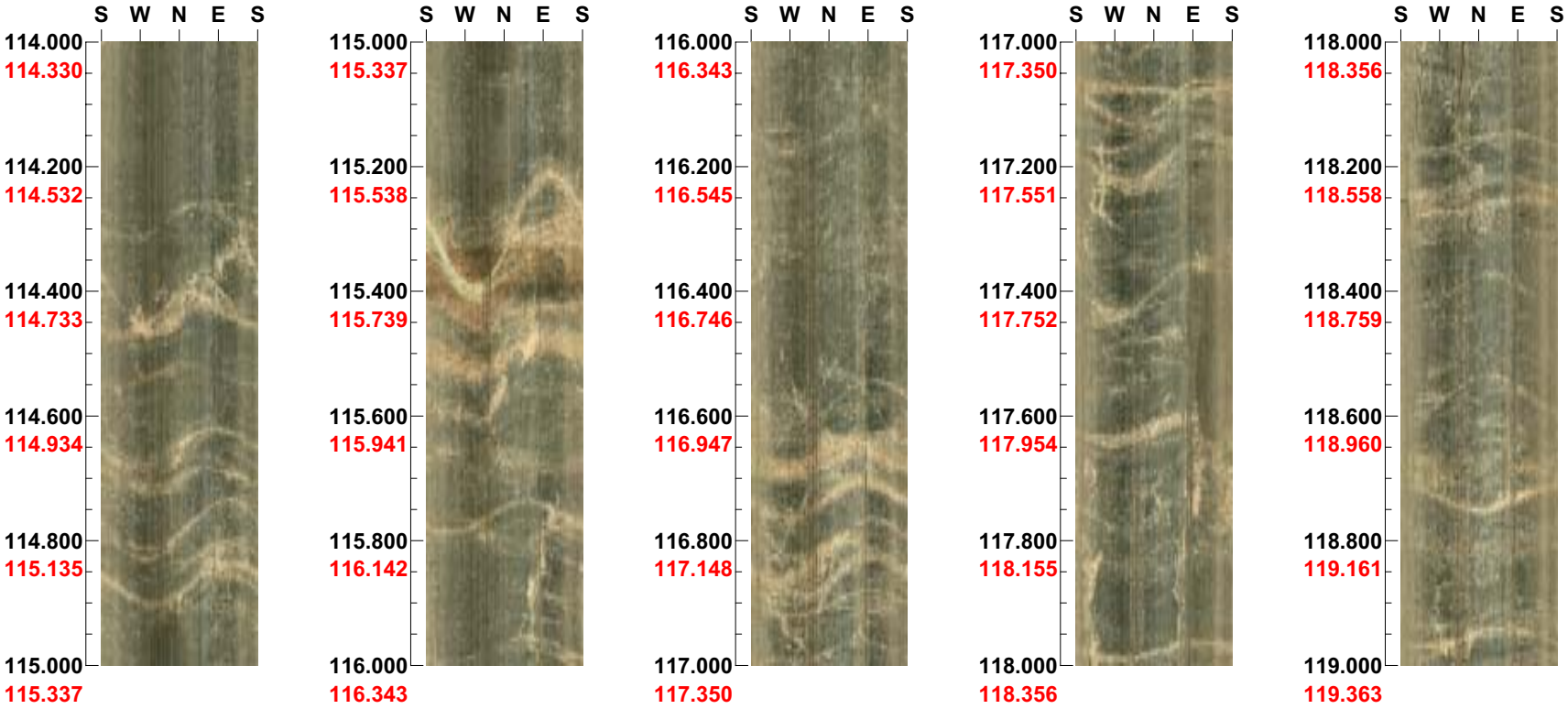
Depth range: 109.000 - 114.000 m



(7 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

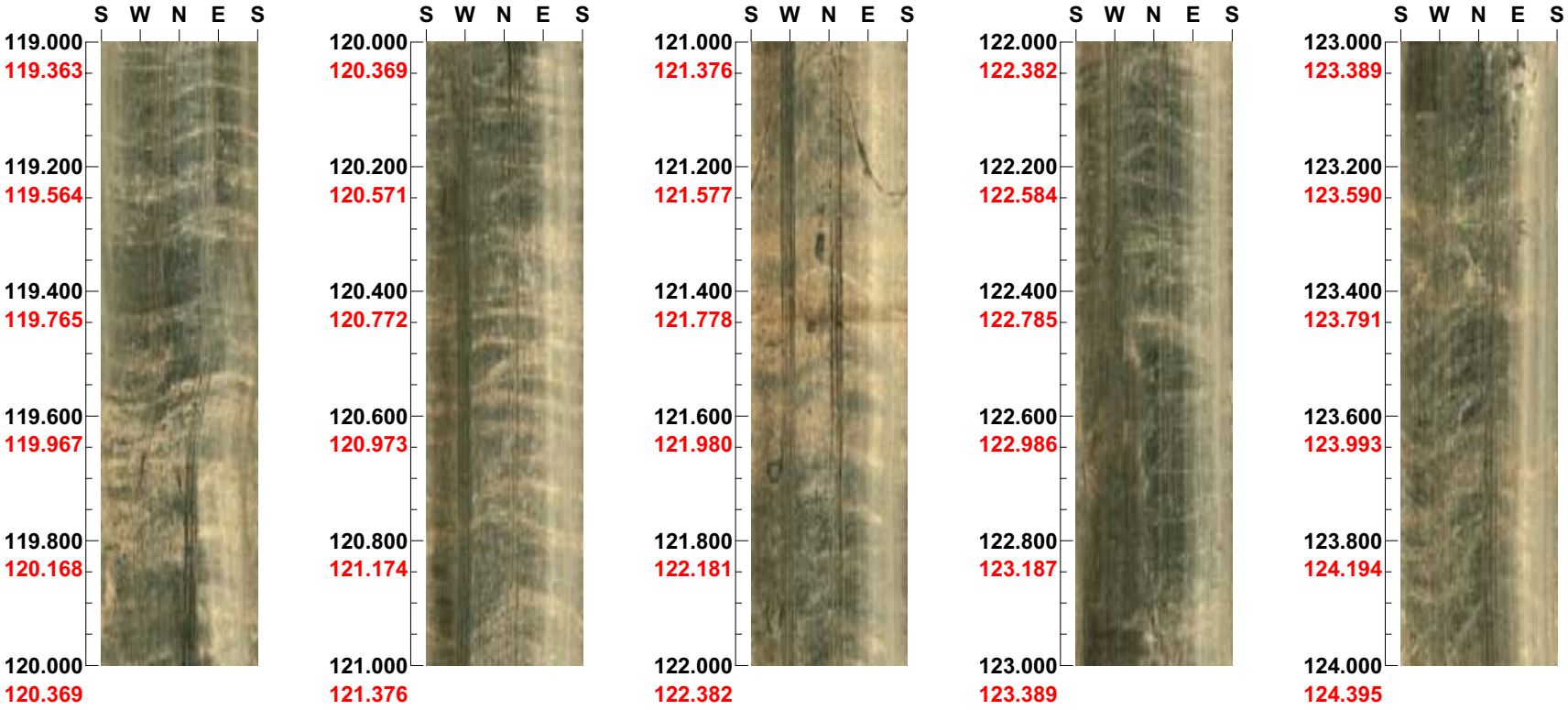
Depth range: 114.000 - 119.000 m



(8 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

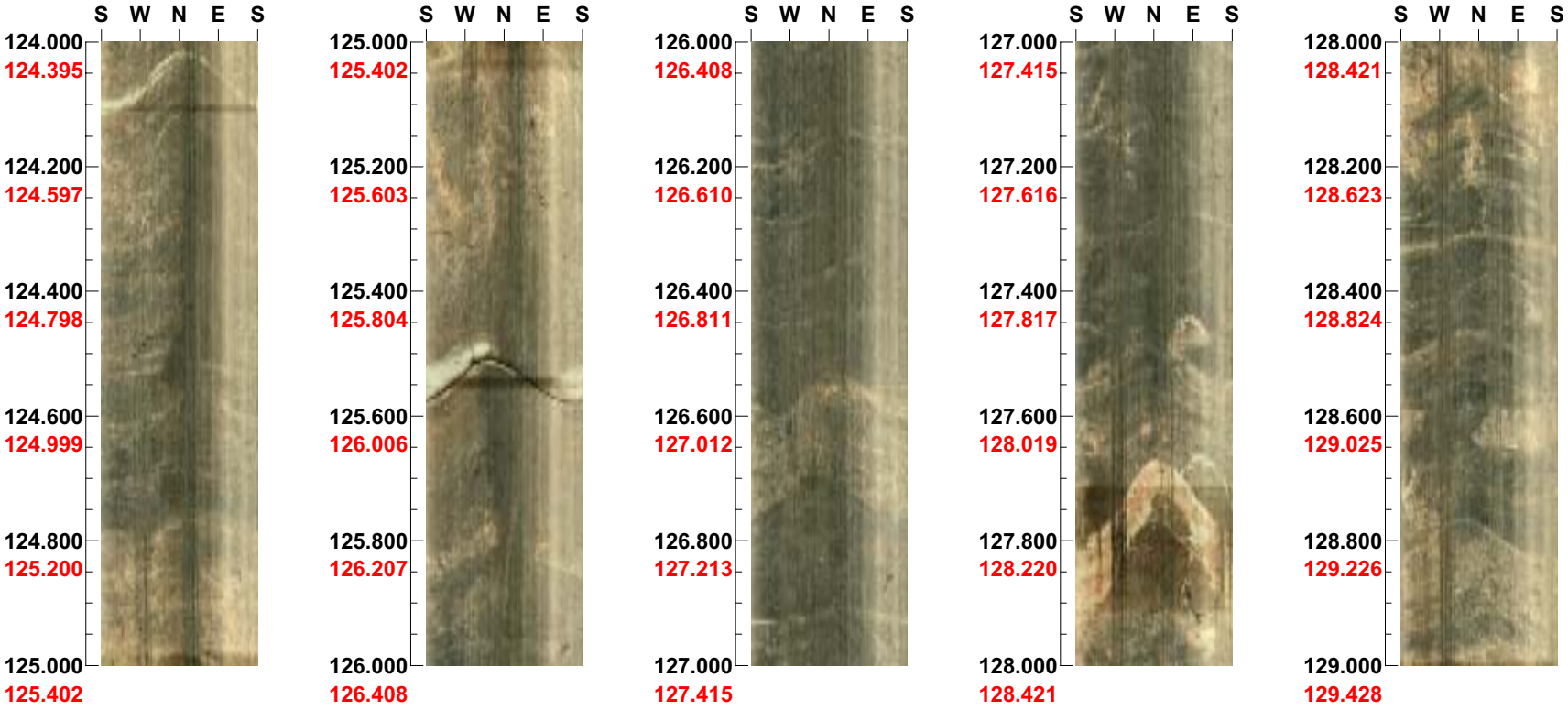
Depth range: 119.000 - 124.000 m



(9 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

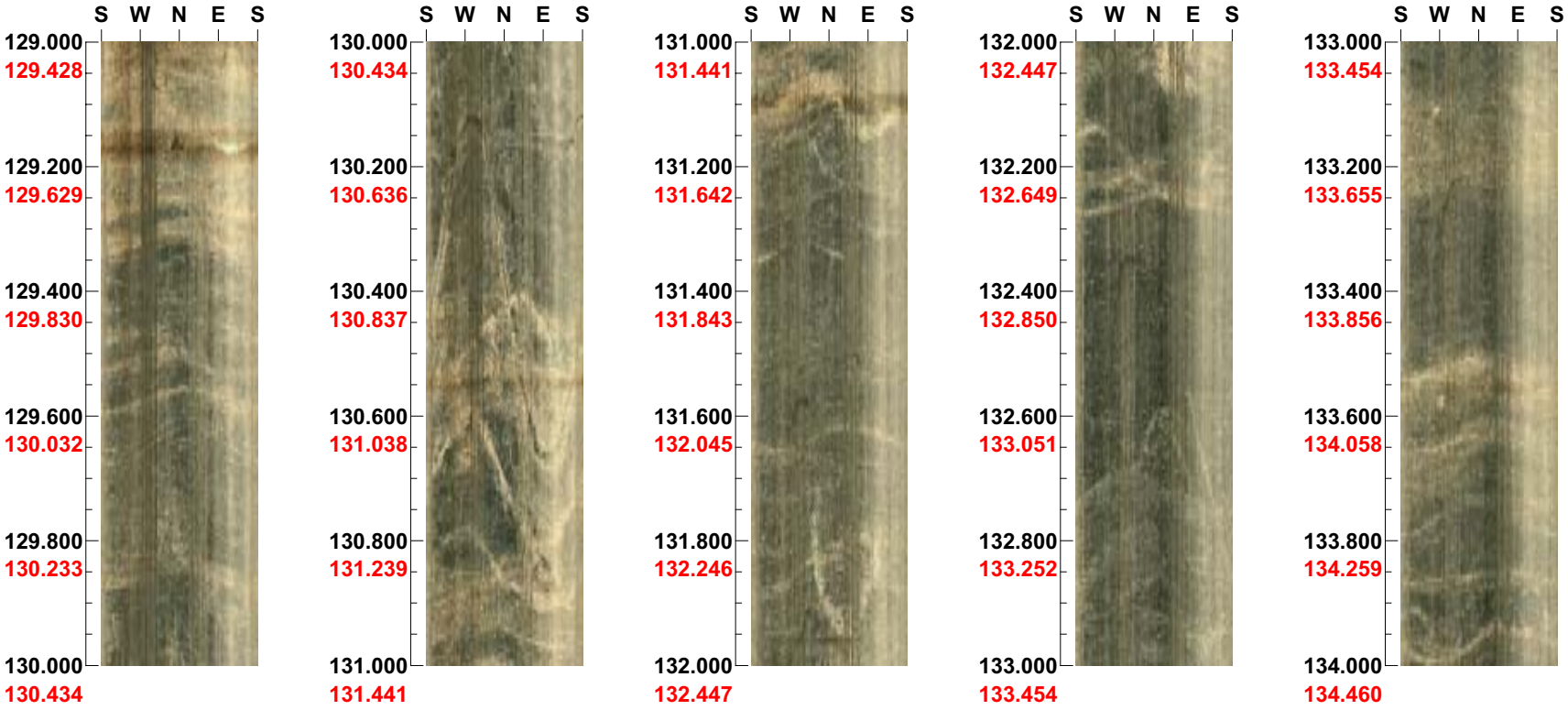
Depth range: 124.000 - 129.000 m



(10 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 129.000 - 134.000 m



(11 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

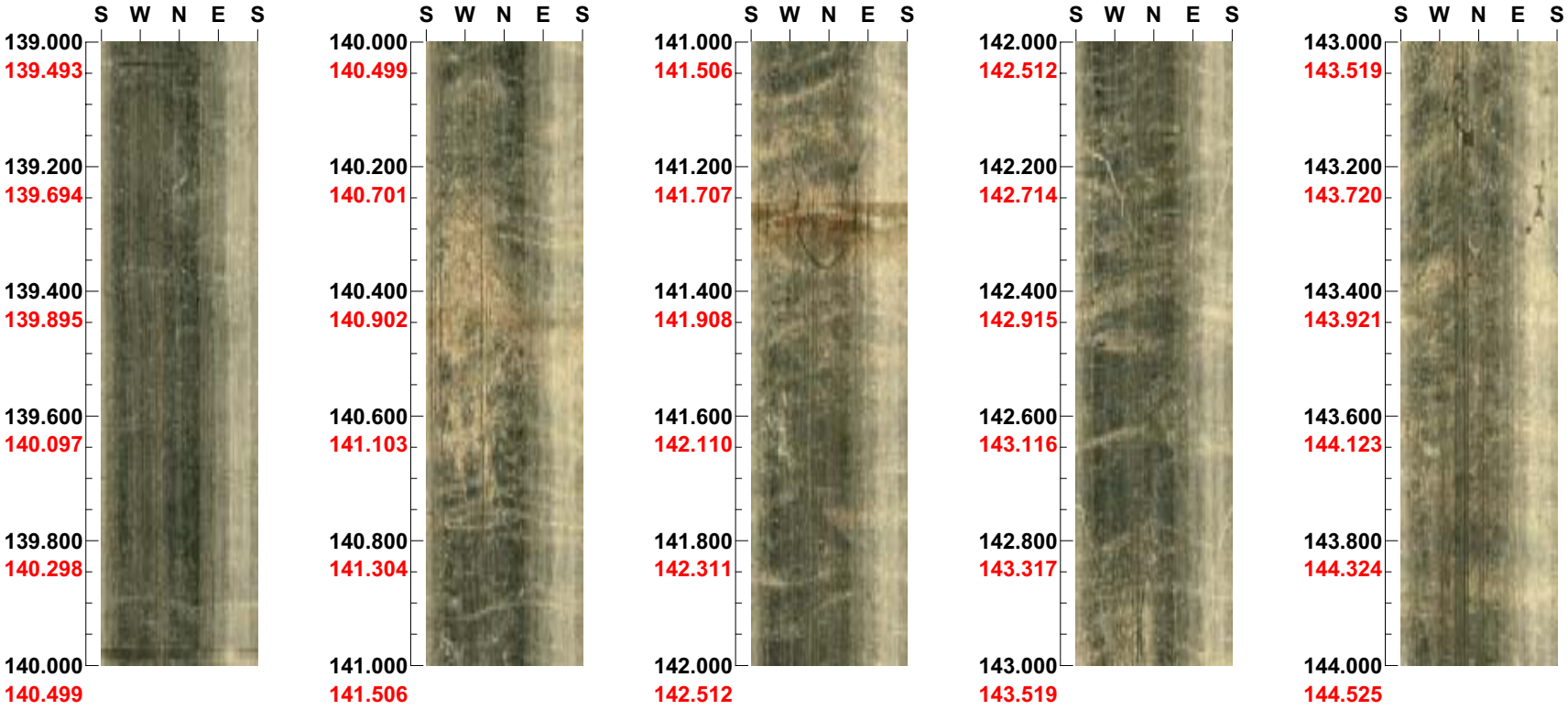
Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 134.000 - 139.000 m

(12 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

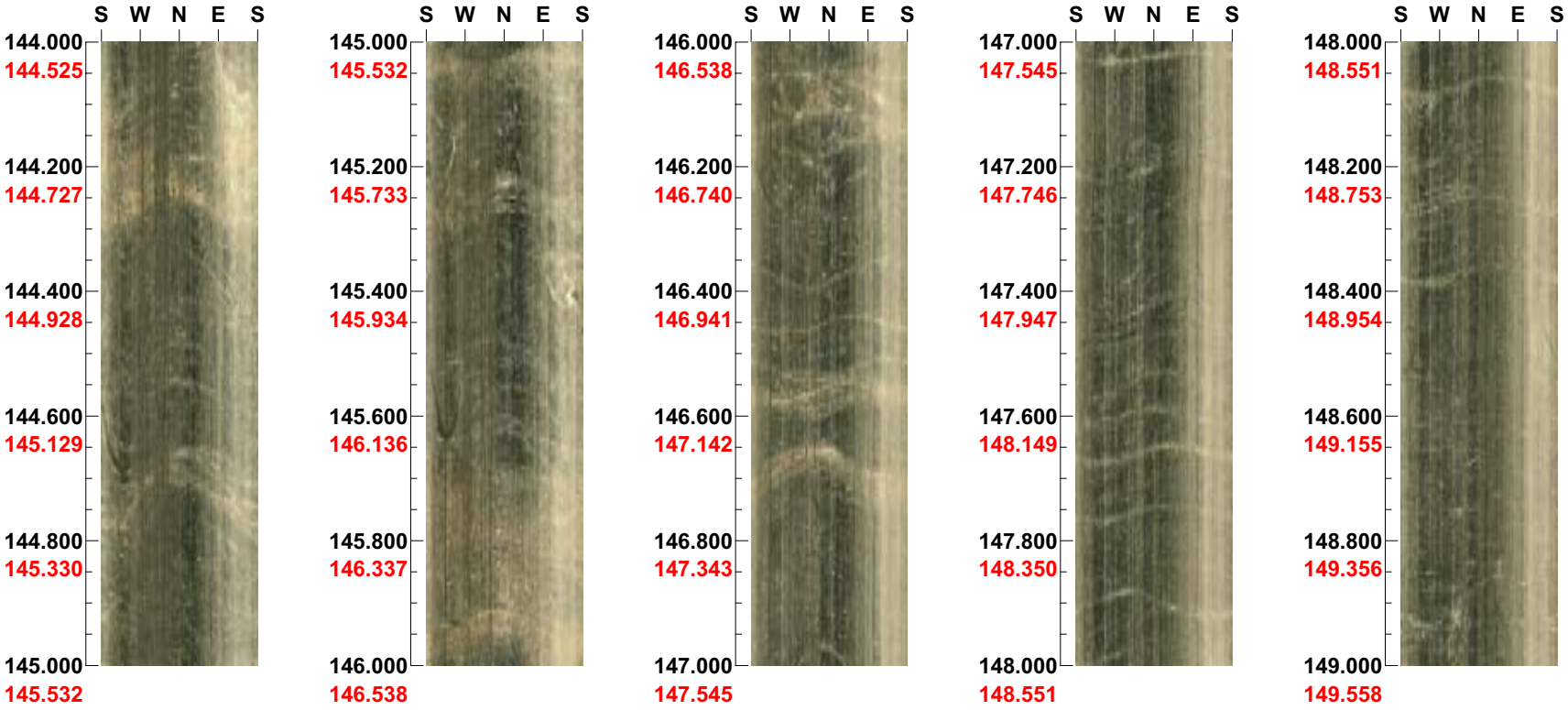
Depth range: 139.000 - 144.000 m



(13 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

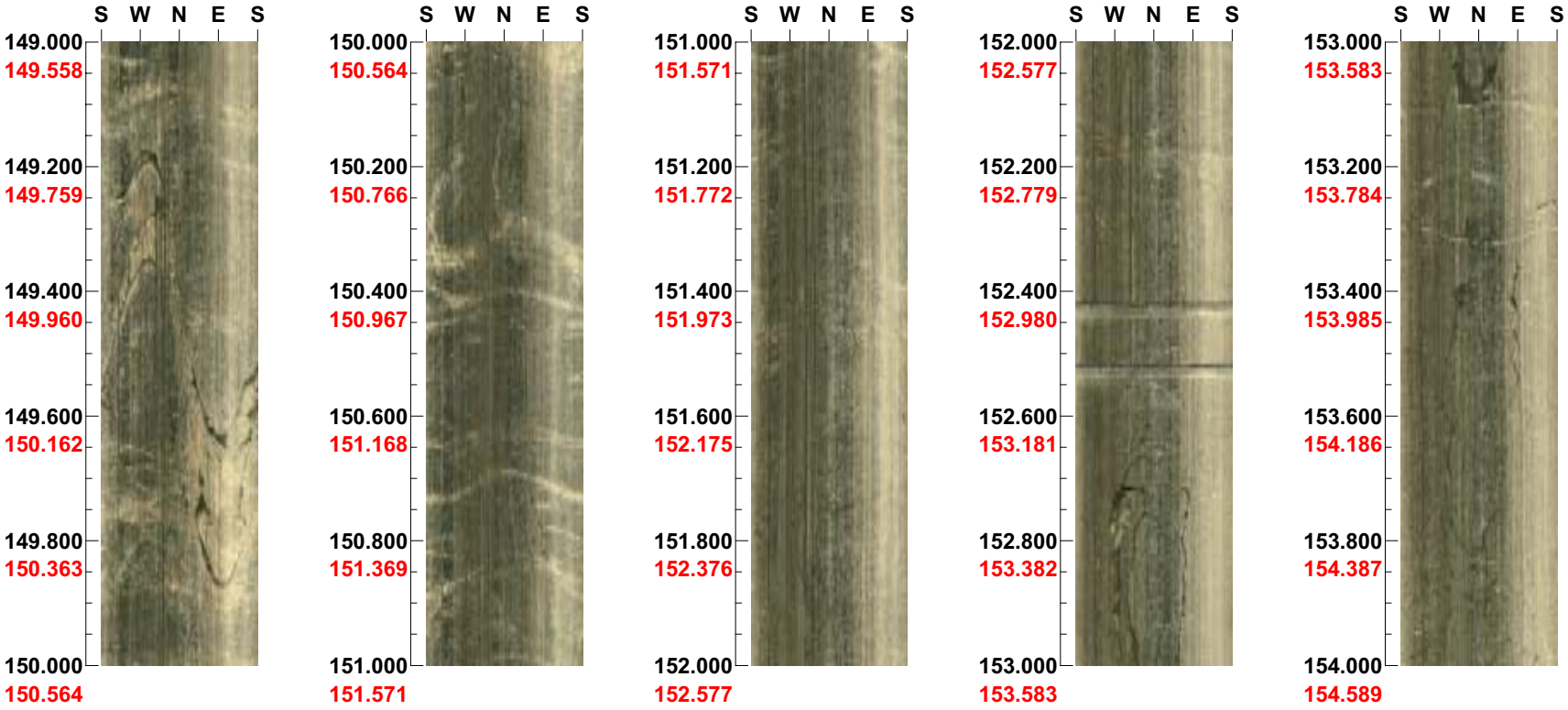
Depth range: 144.000 - 149.000 m



(14 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

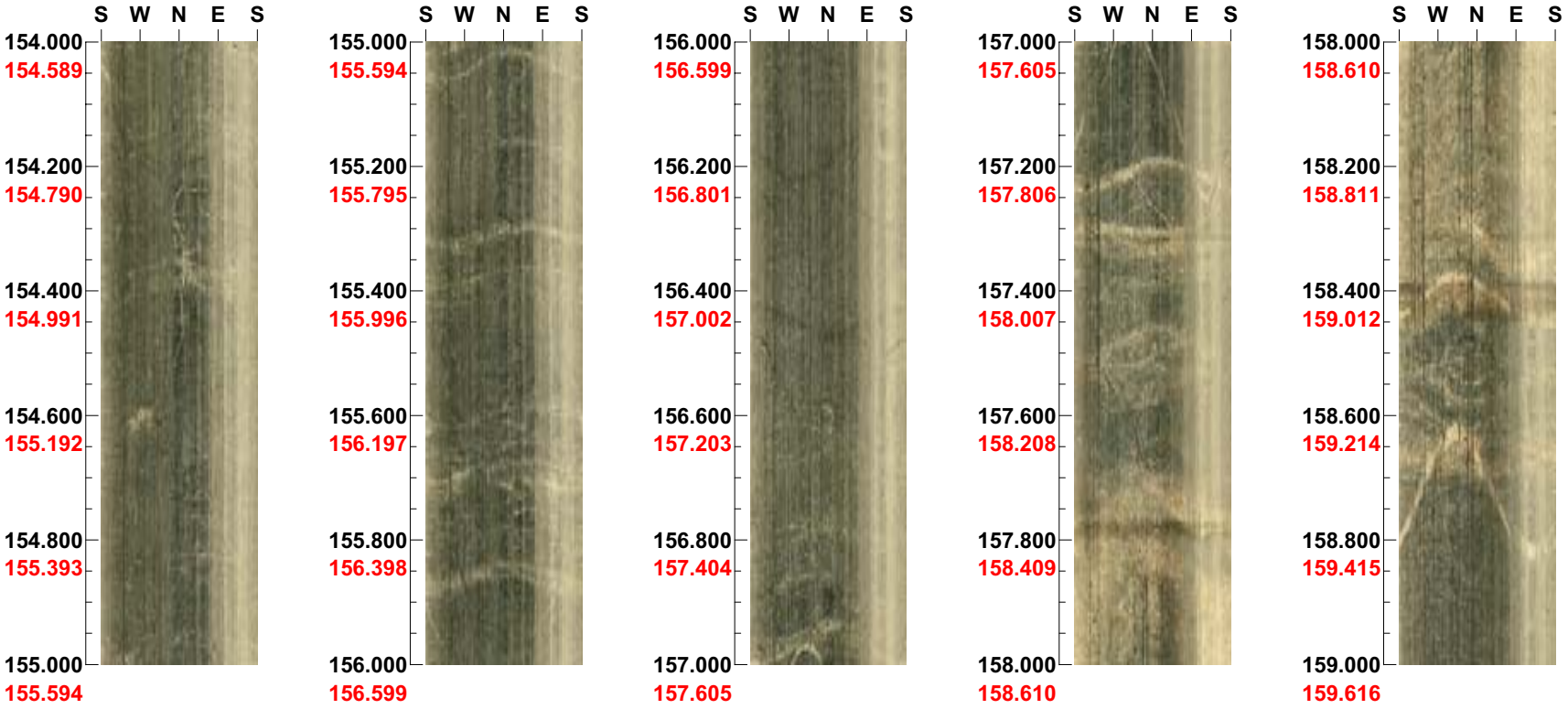
Depth range: 149.000 - 154.000 m



(15 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 154.000 - 159.000 m



(16 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

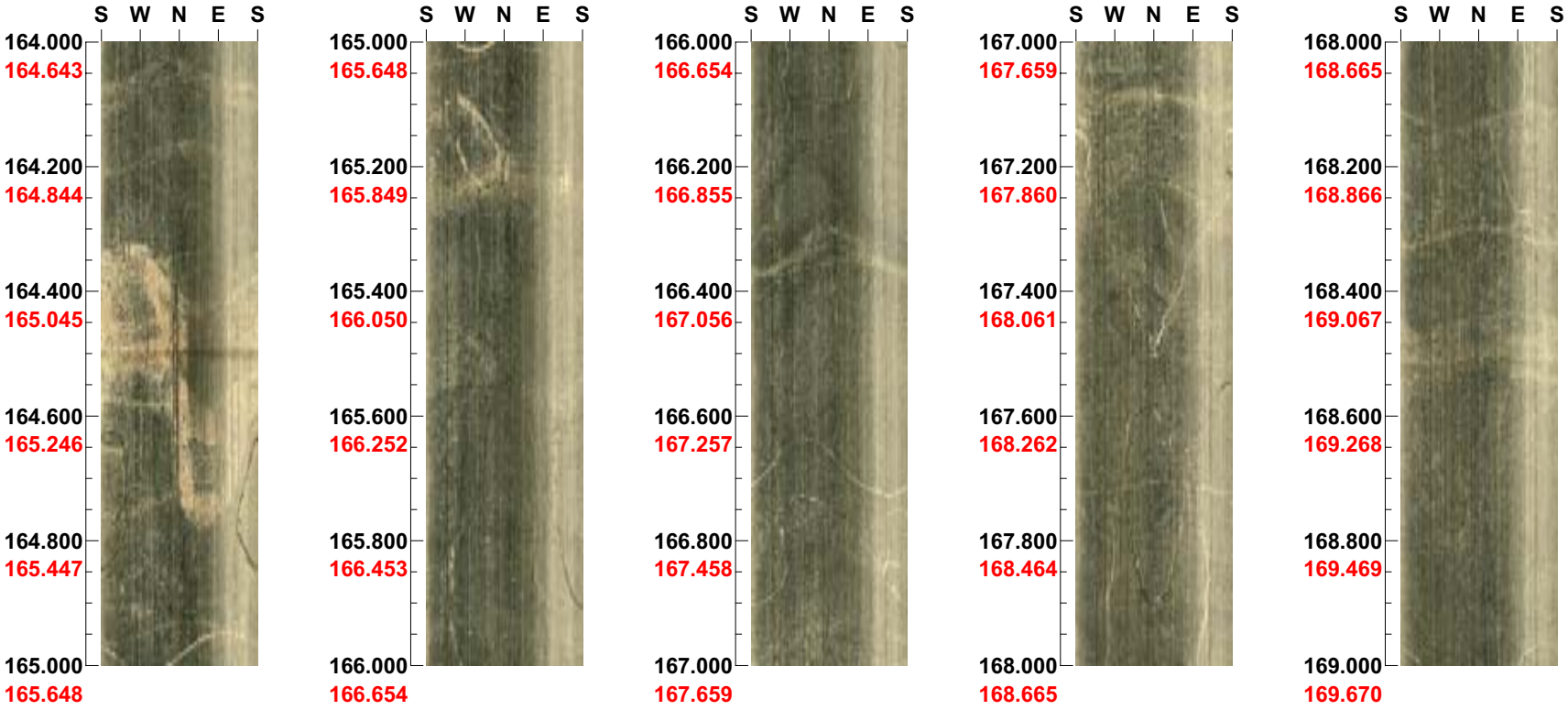
Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 159.000 - 164.000 m

Scale: 1/10 **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 164.000 - 169.000 m



(18 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

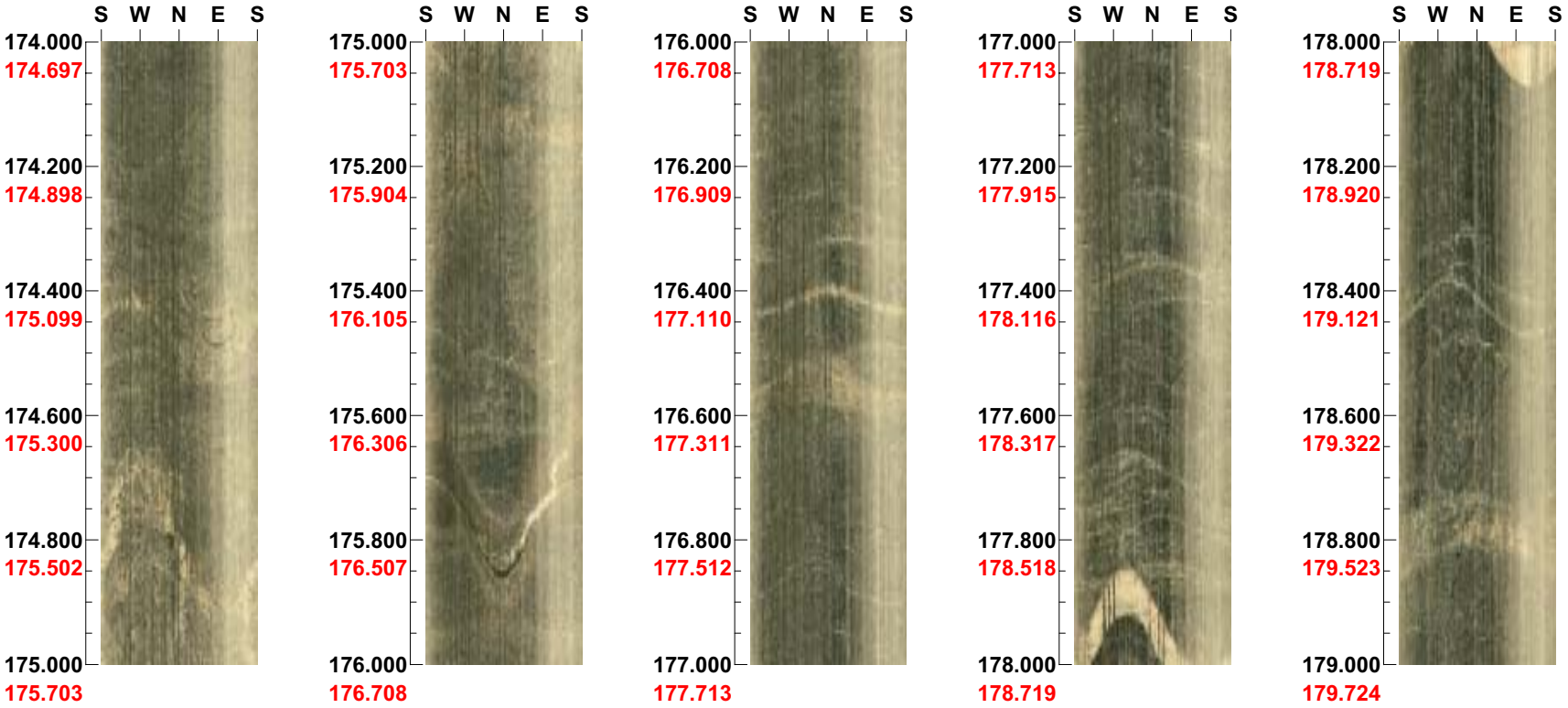
Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 169.000 - 174.000 m

(19 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

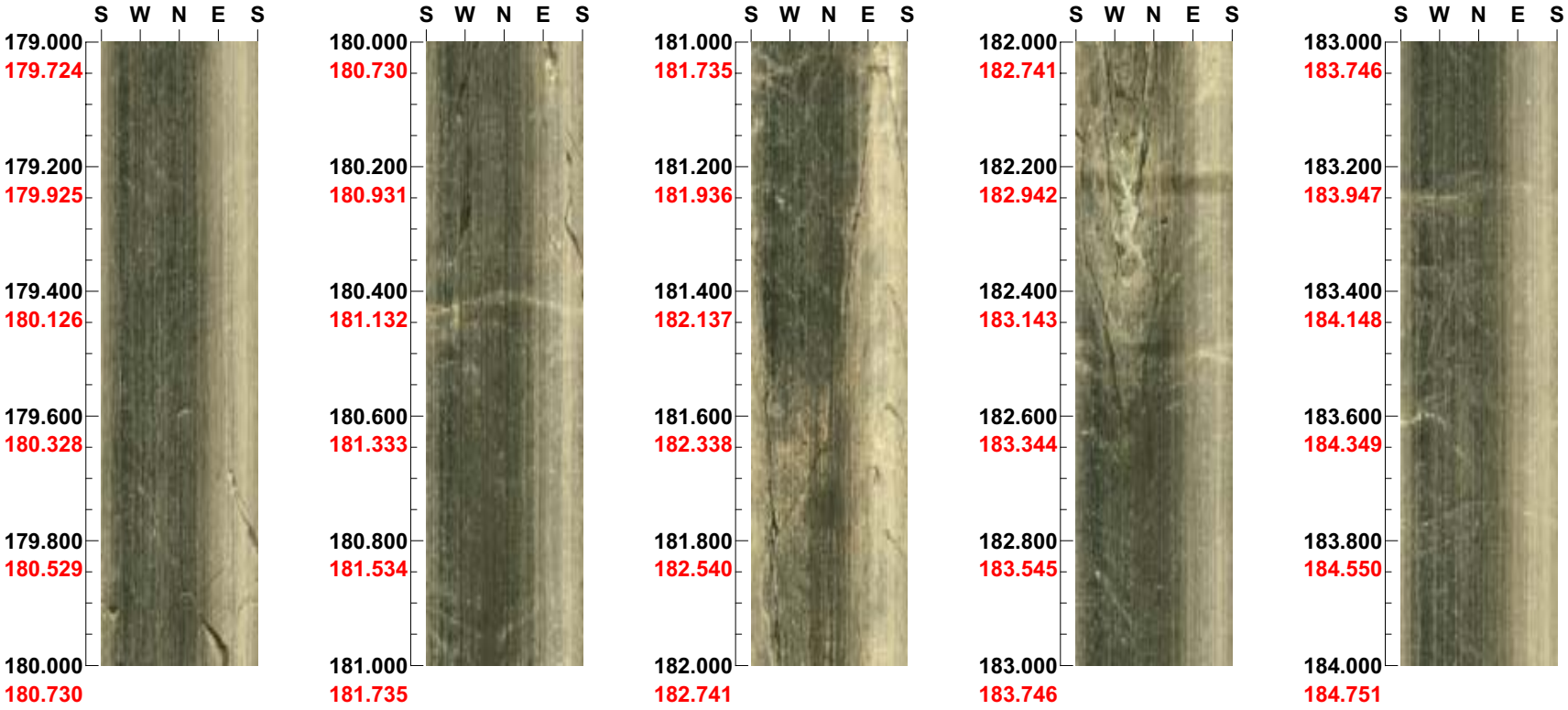
Depth range: 174.000 - 179.000 m



(20 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

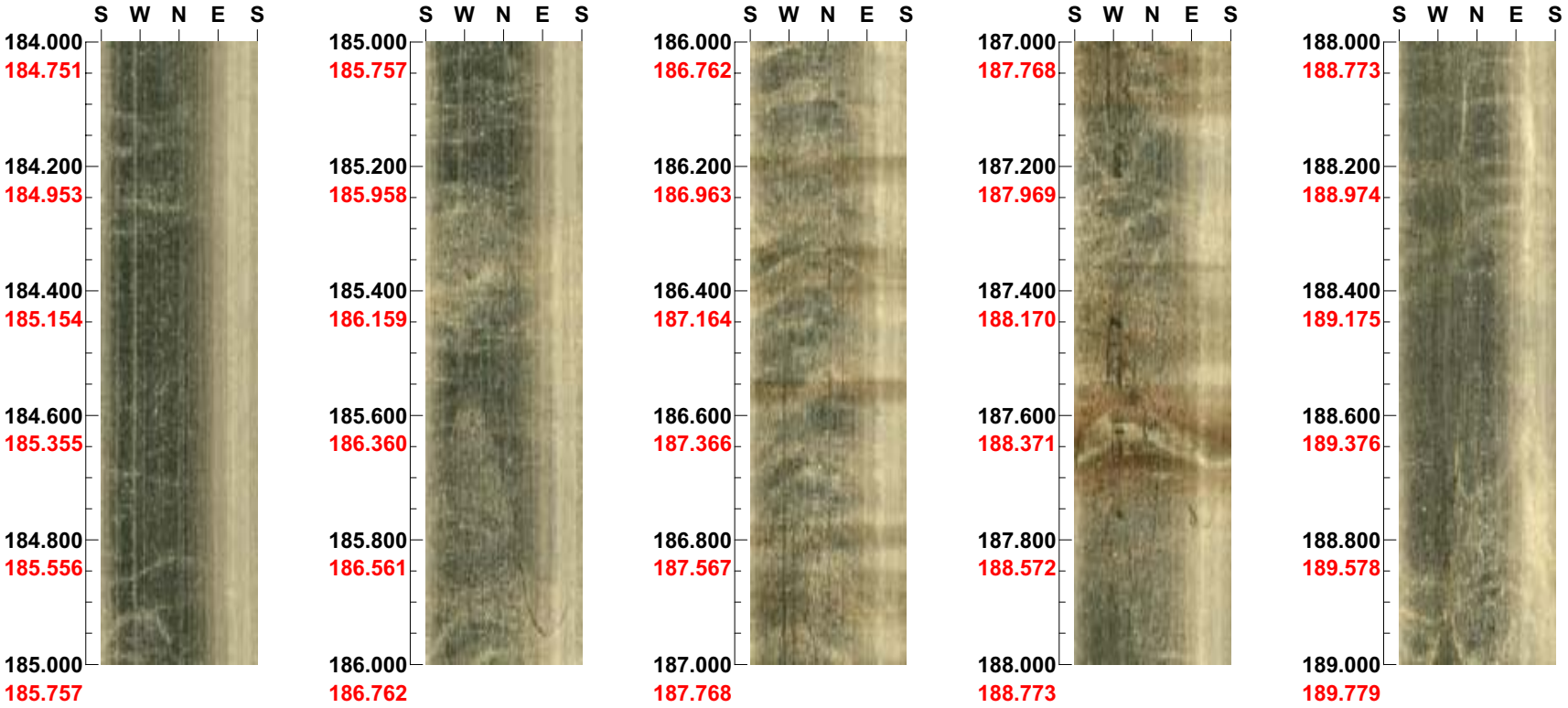
Depth range: 179.000 - 184.000 m



(21 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 184.000 - 189.000 m



(22 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 189.000 - 194.000 m

Scale: 1/10 **Aspect ratio: 105 %**

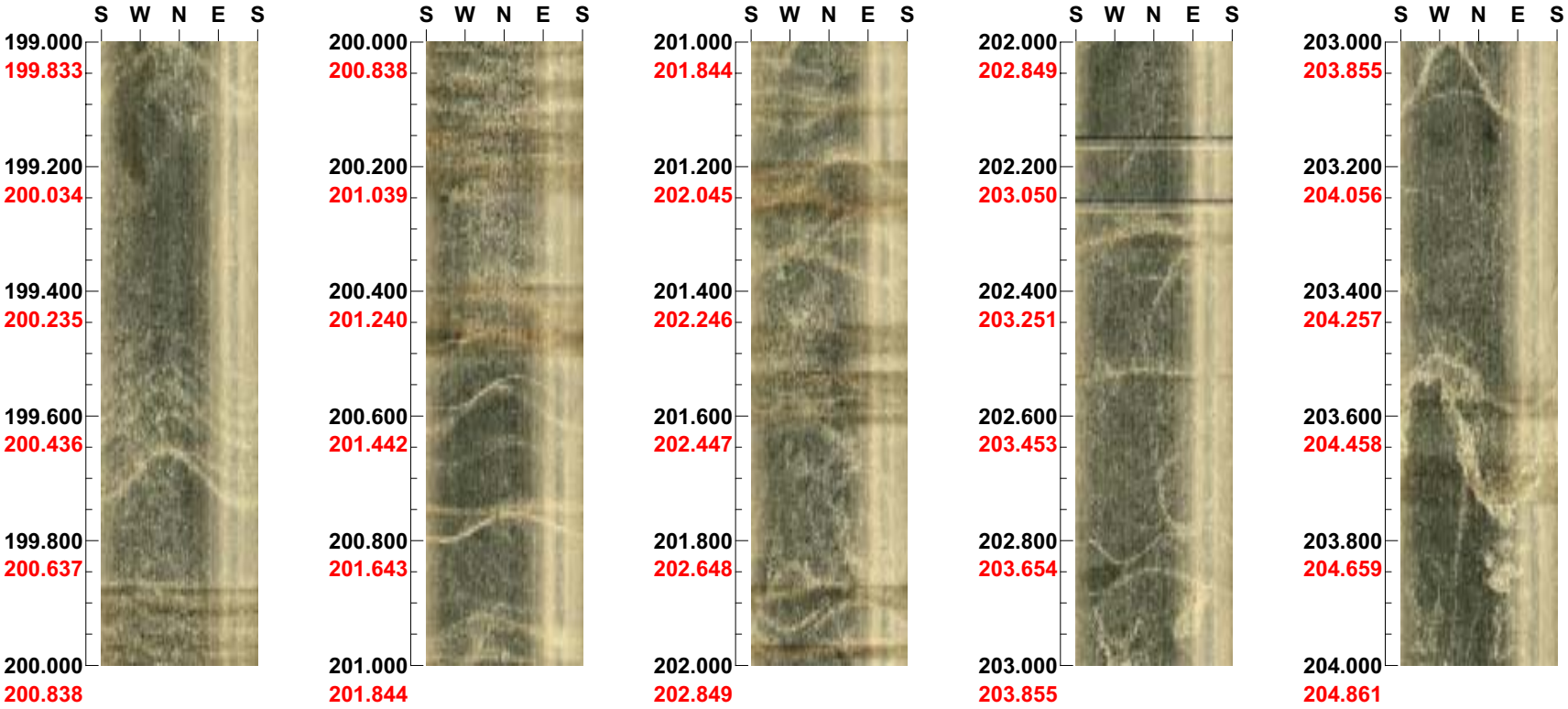
Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 194.000 - 199.000 m

(24 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 199.000 - 204.000 m



(25 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 204.000 - 209.000 m

(26 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

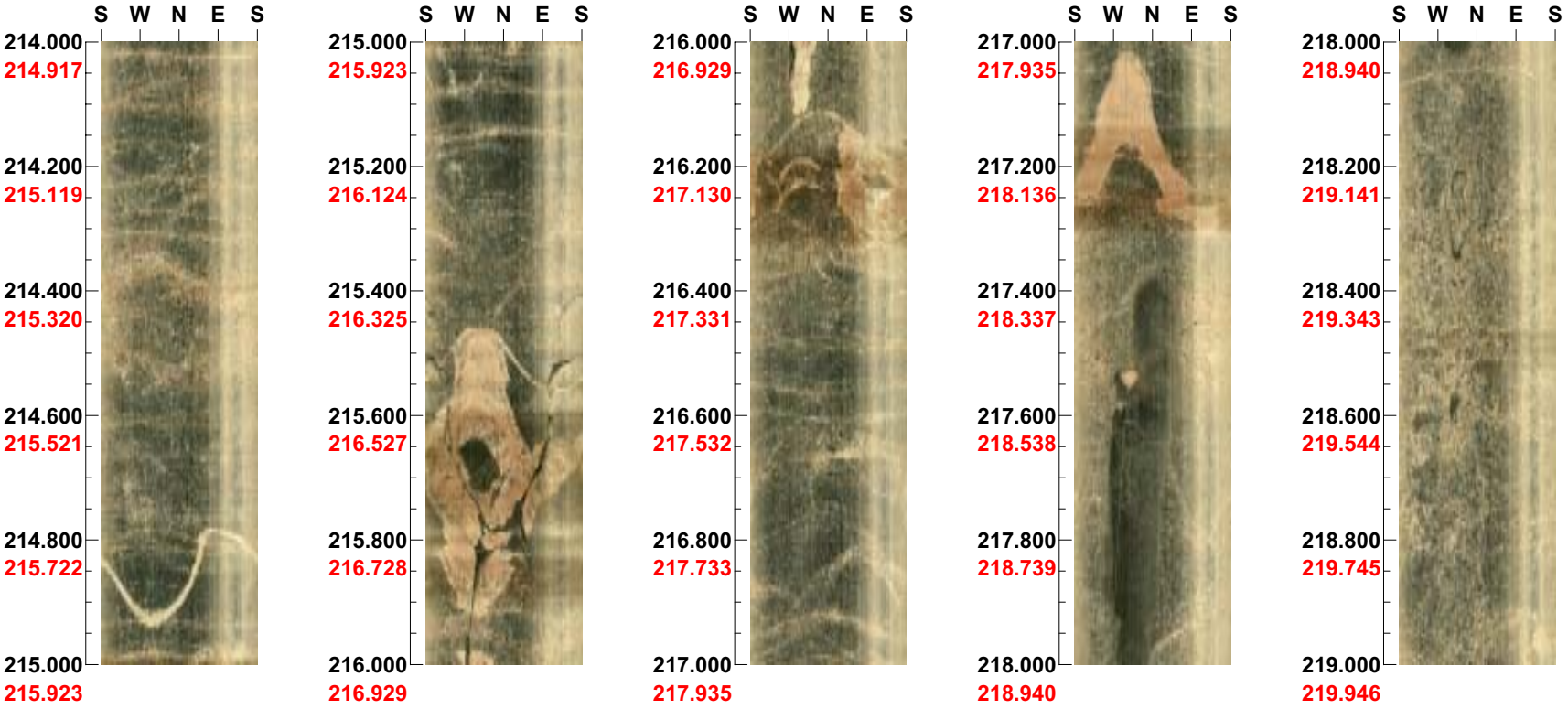
Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 209.000 - 214.000 m

(27 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 214.000 - 219.000 m



(28 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 219.000 - 224.000 m

(29 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 224.000 - 229.000 m

(30 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

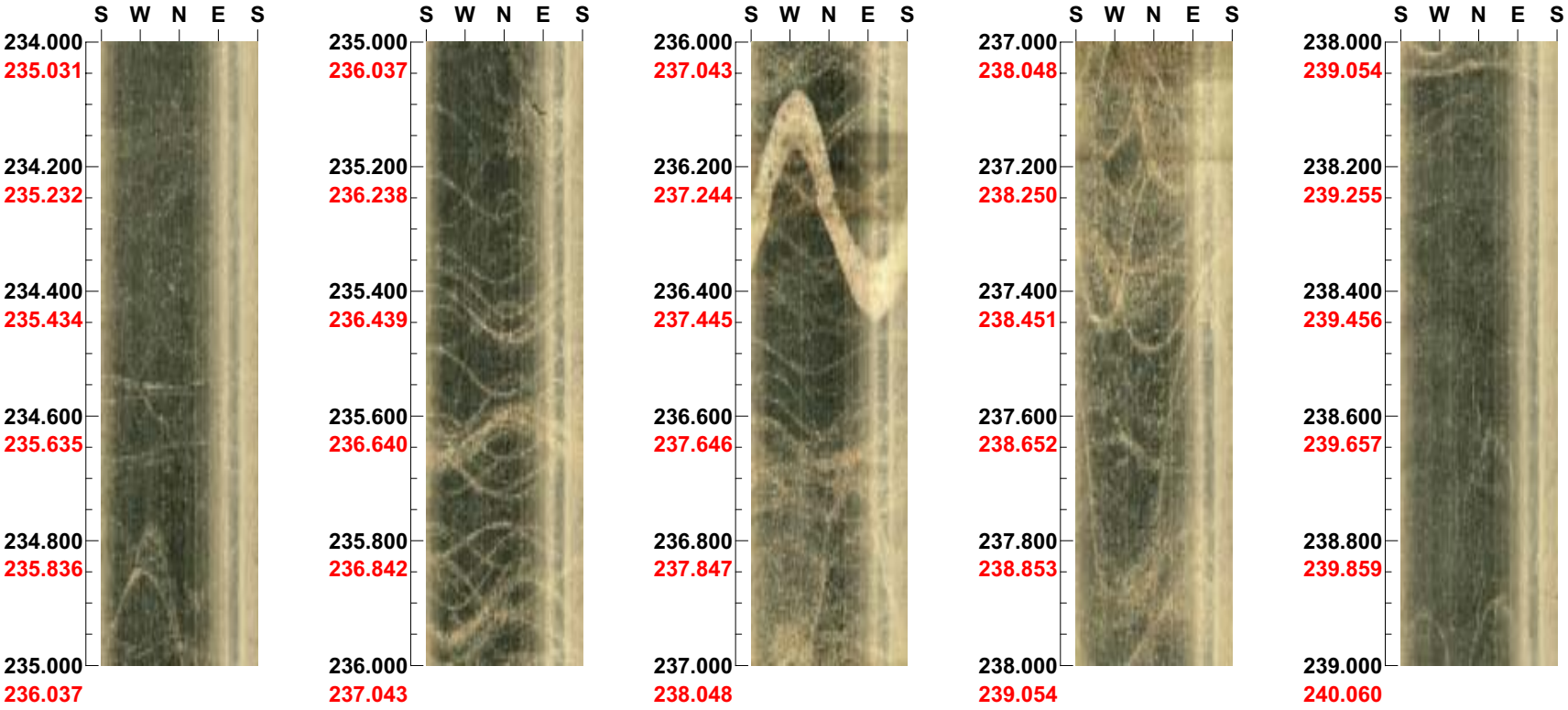
Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 229.000 - 234.000 m

(31 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

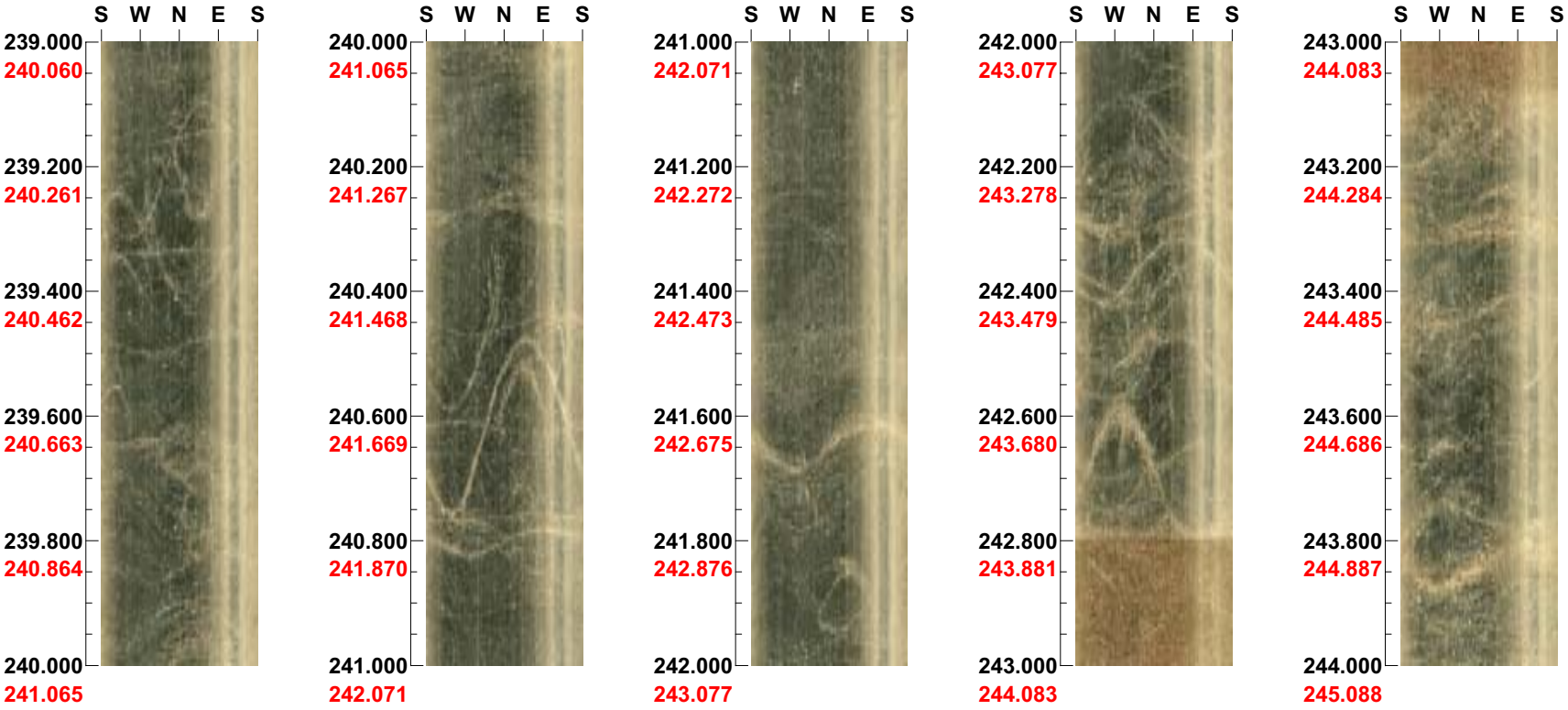
Depth range: 234.000 - 239.000 m



(32 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

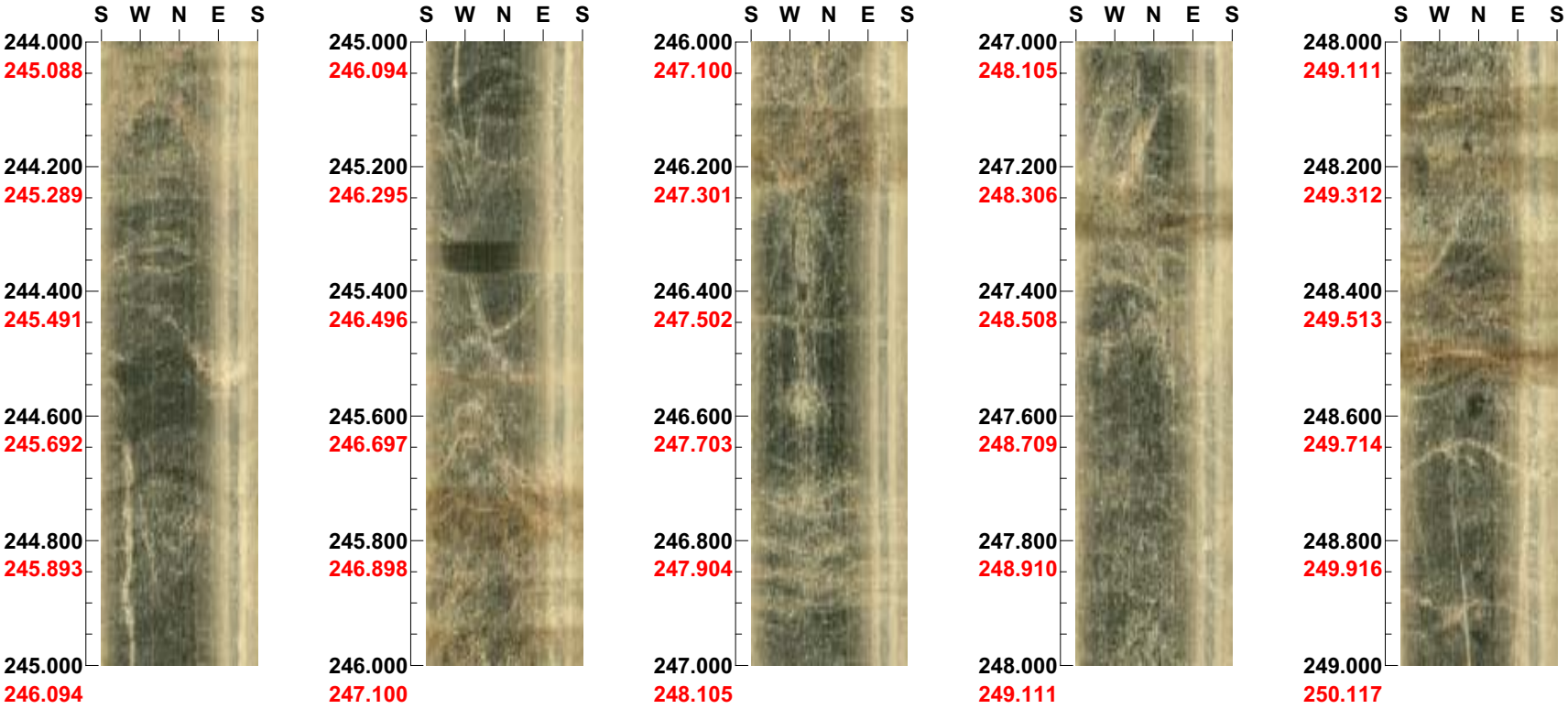
Depth range: 239.000 - 244.000 m



(33 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 244.000 - 249.000 m



Scale: 1/10 **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 249.000 - 254.000 m

(35 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 254.000 - 259.000 m

(36 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 259.000 - 264.000 m

Scale: 1/10 **Aspect ratio: 105 %**

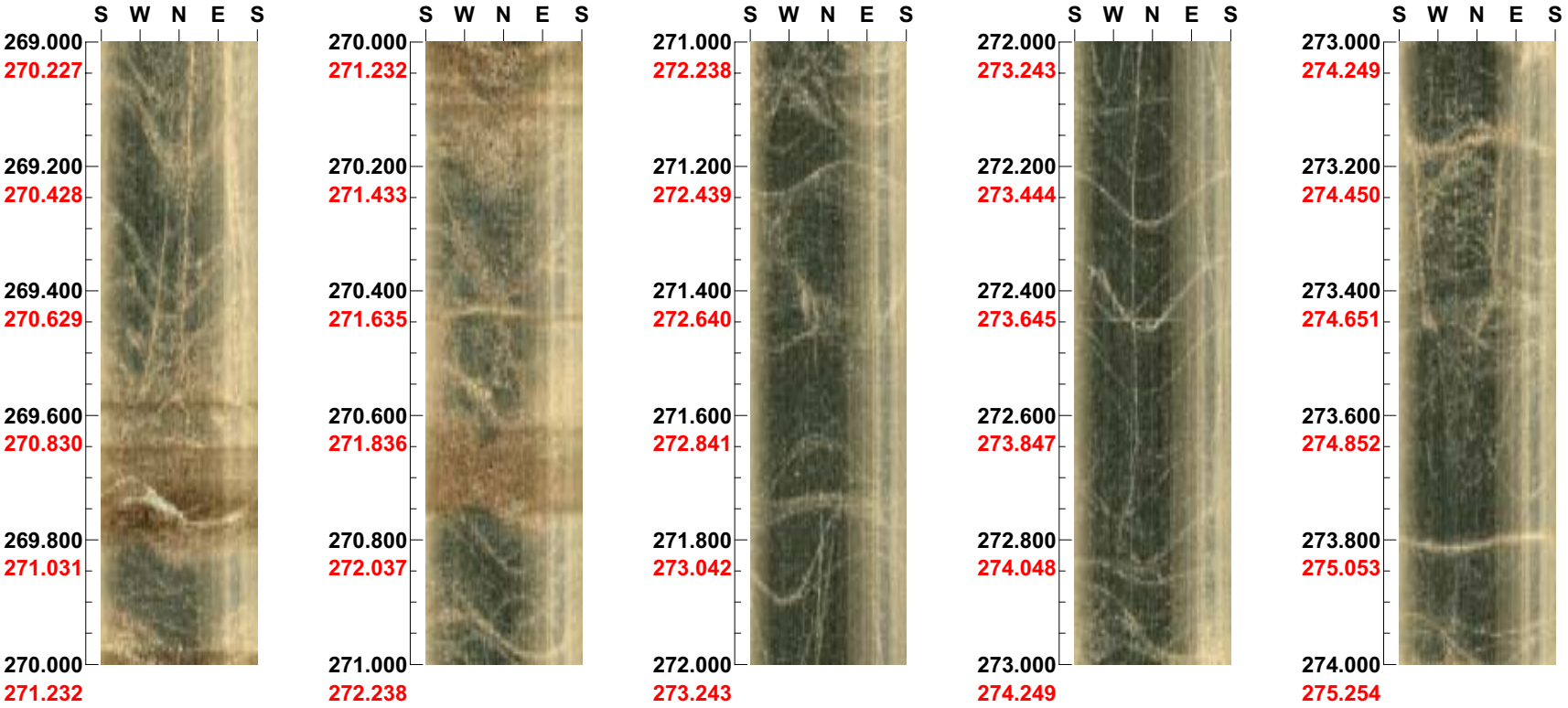
Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 264.000 - 269.000 m

(38 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

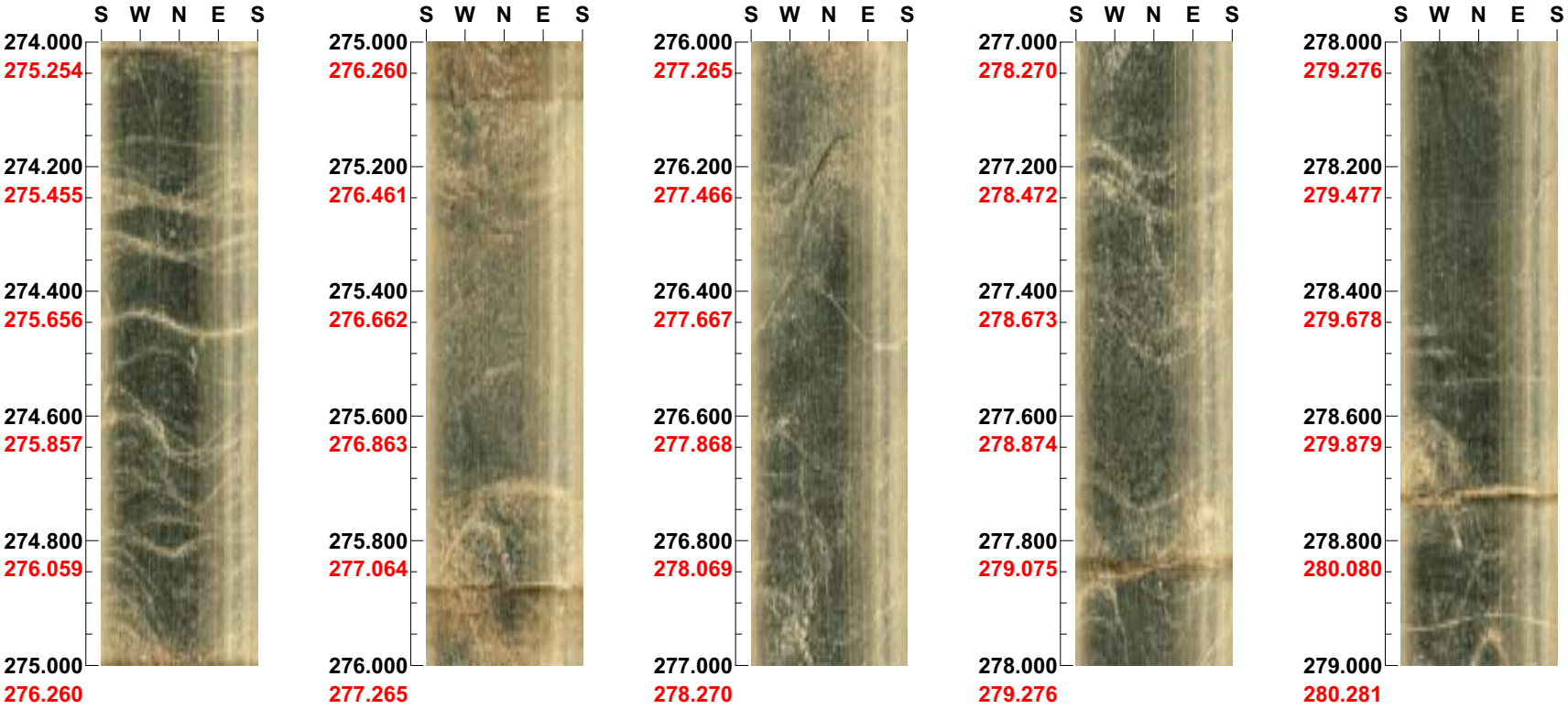
Depth range: 269.000 - 274.000 m



(39 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 274.000 - 279.000 m



(40 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 279.000 - 284.000 m

(41 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 284.000 - 289.000 m

(42 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 289.000 - 294.000 m

(43 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 294.000 - 299.000 m

(44 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 299.000 - 304.000 m

(45 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

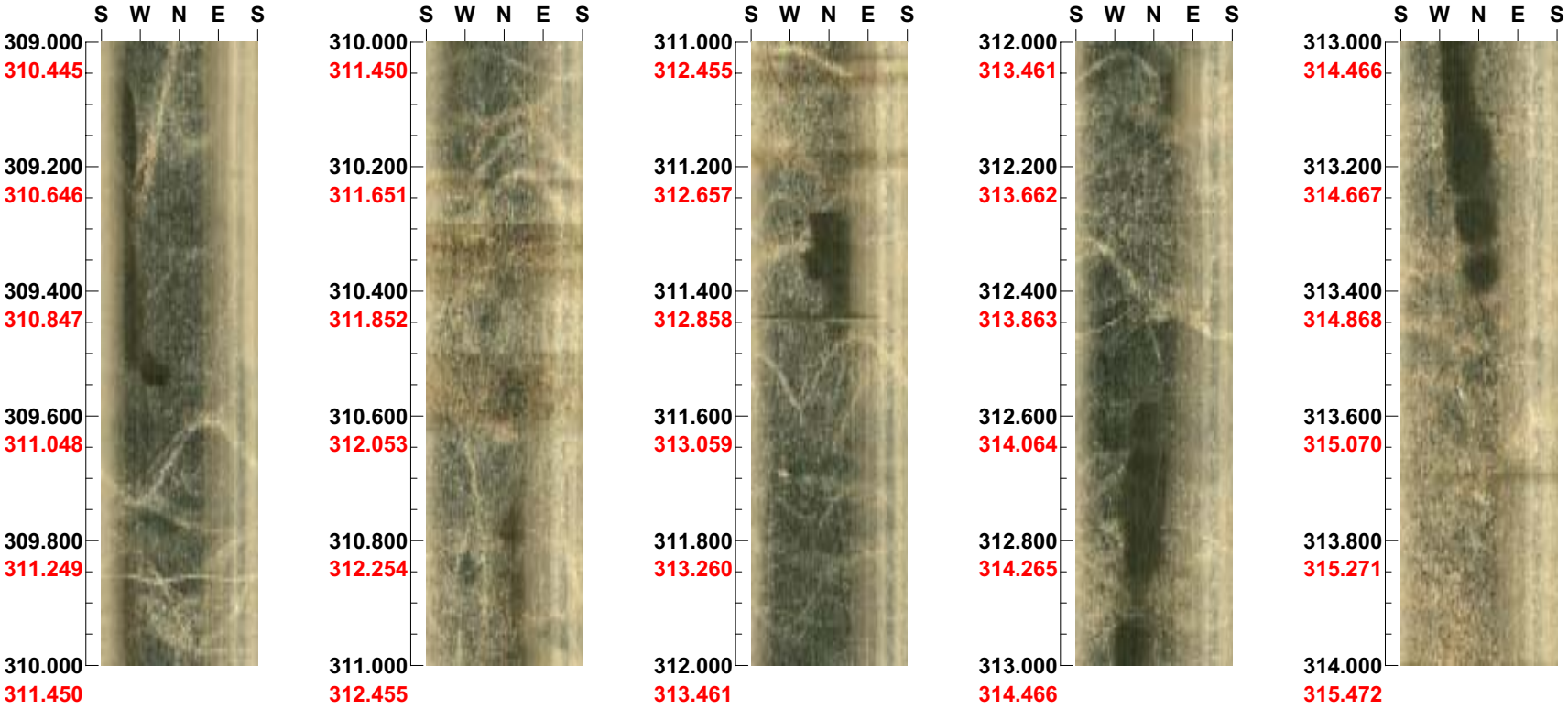
Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 304.000 - 309.000 m

(46 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 309.000 - 314.000 m



06

(47 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

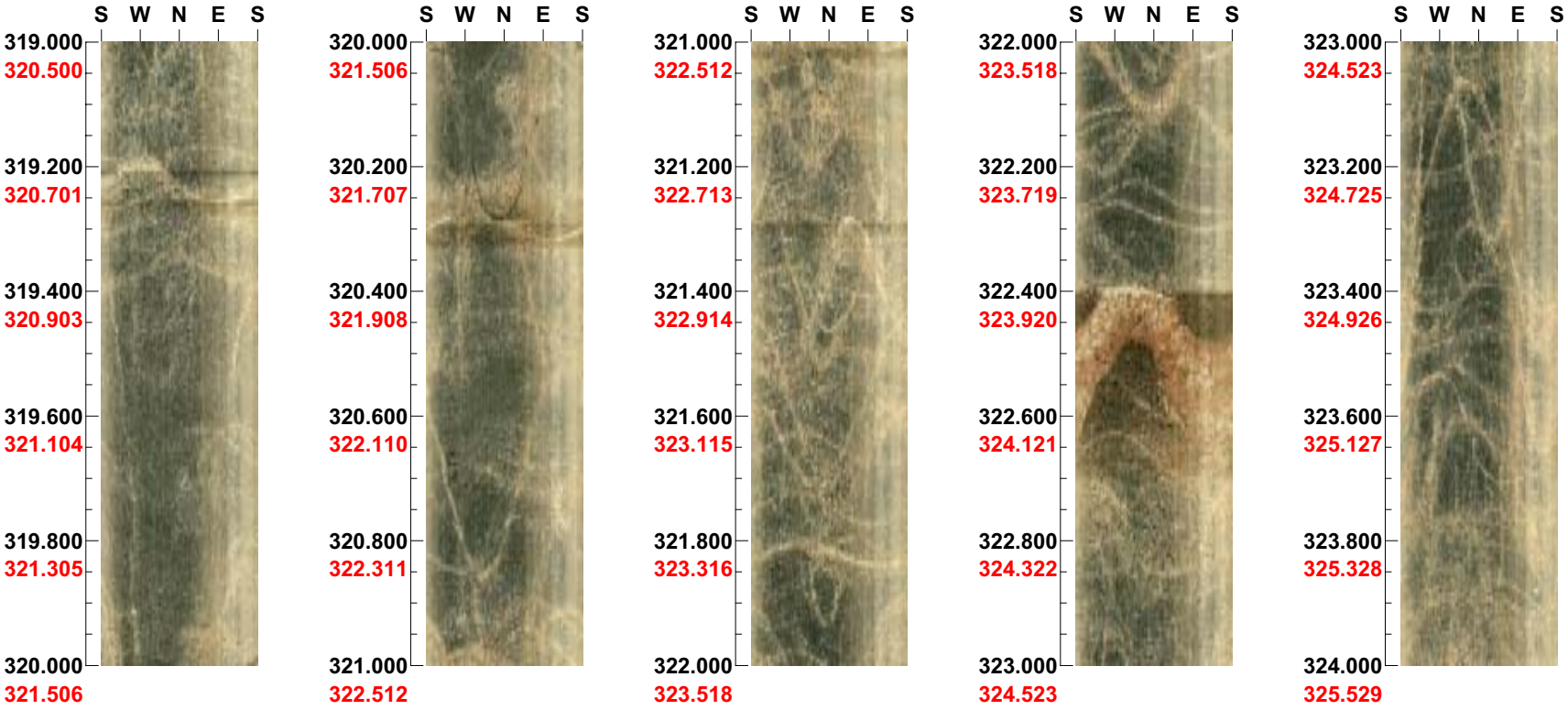
Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 314.000 - 319.000 m

(48 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 319.000 - 324.000 m



(49 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 324.000 - 329.000 m

(50 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

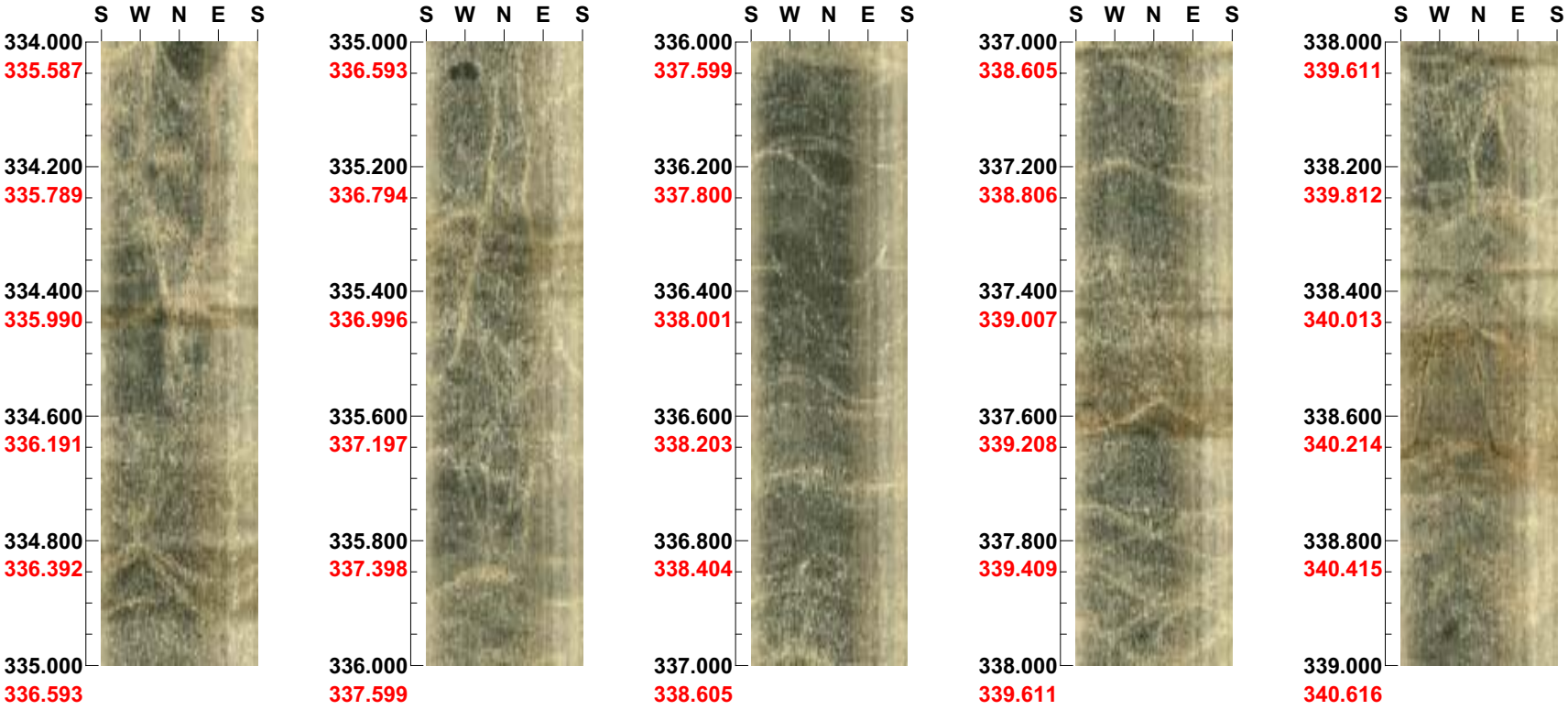
Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 329.000 - 334.000 m

(51 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

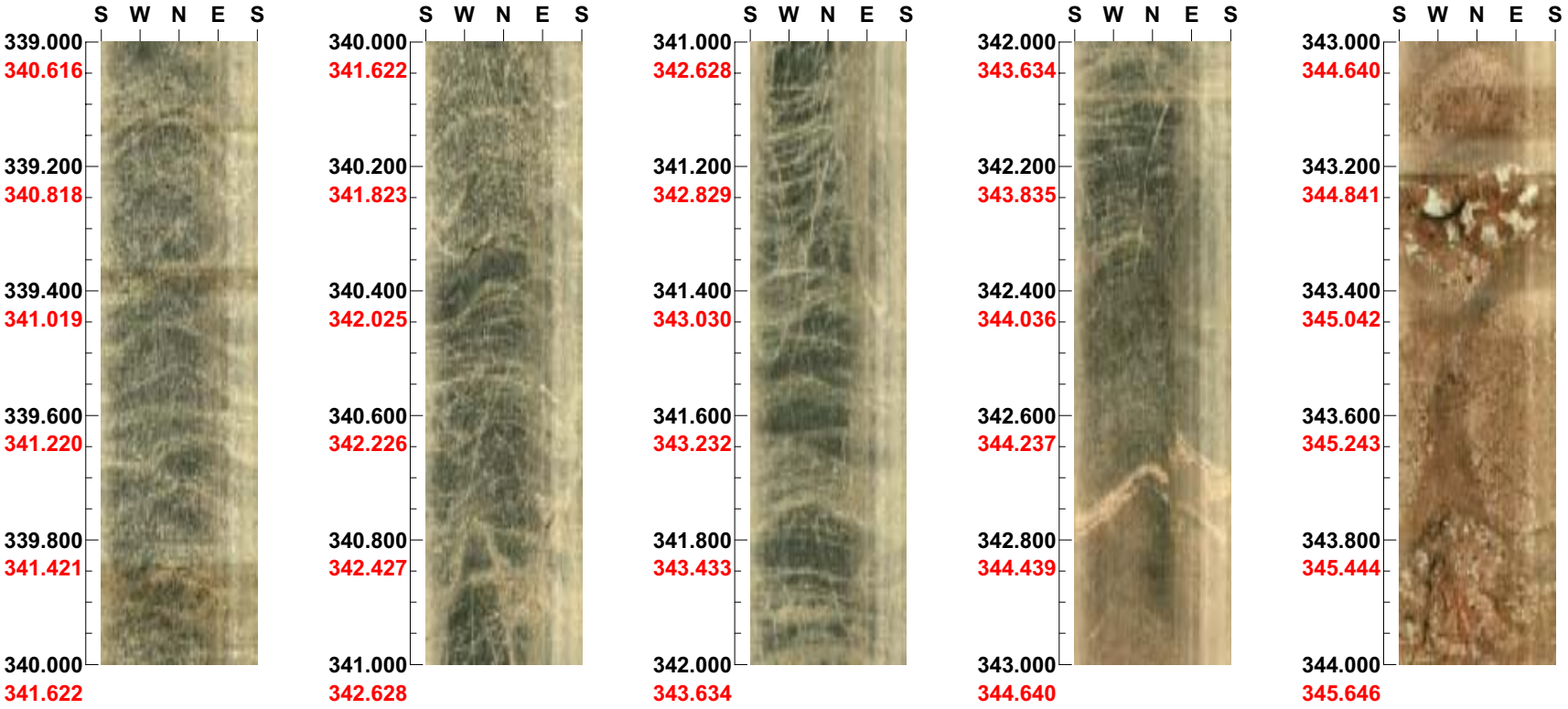
Depth range: 334.000 - 339.000 m



(52 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 339.000 - 344.000 m



(53 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

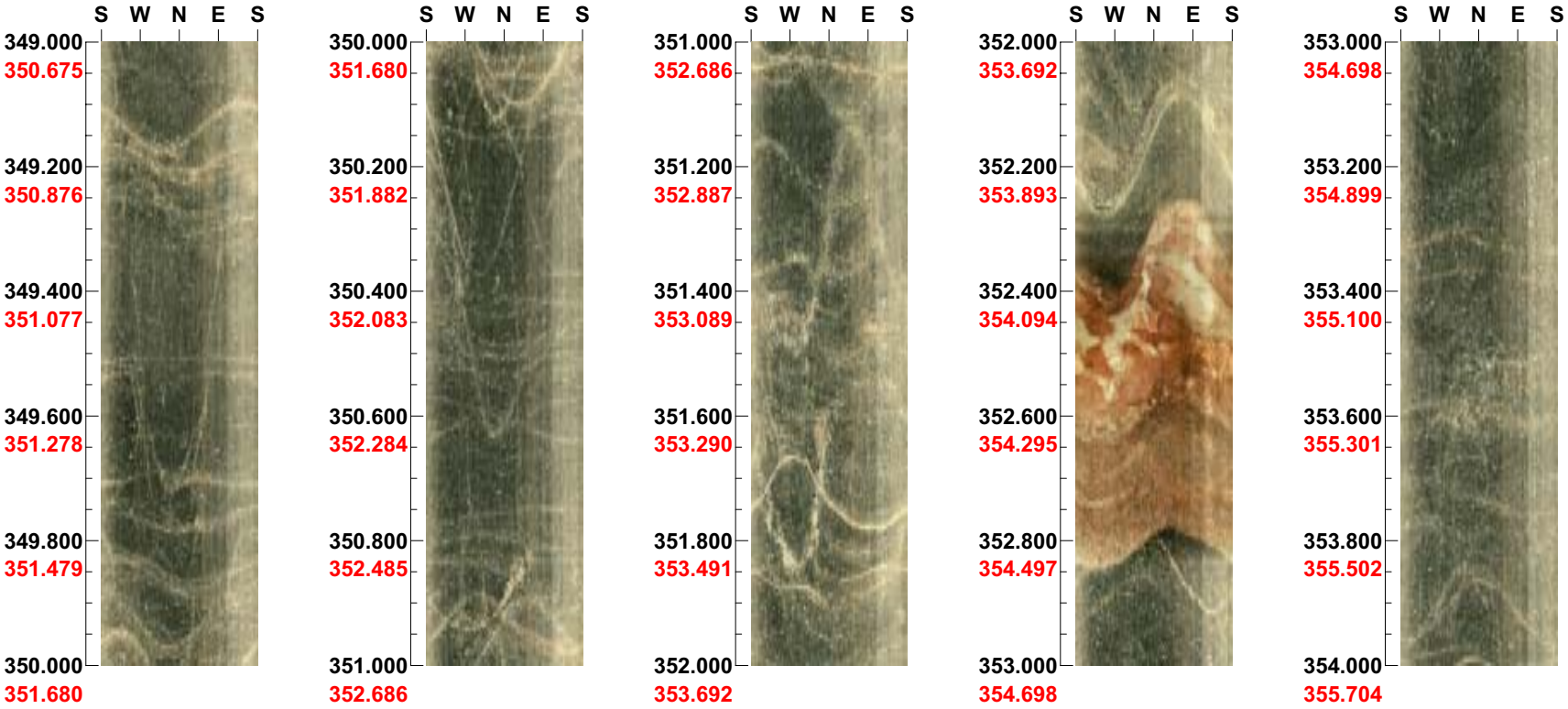
Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 344.000 - 349.000 m

(54 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

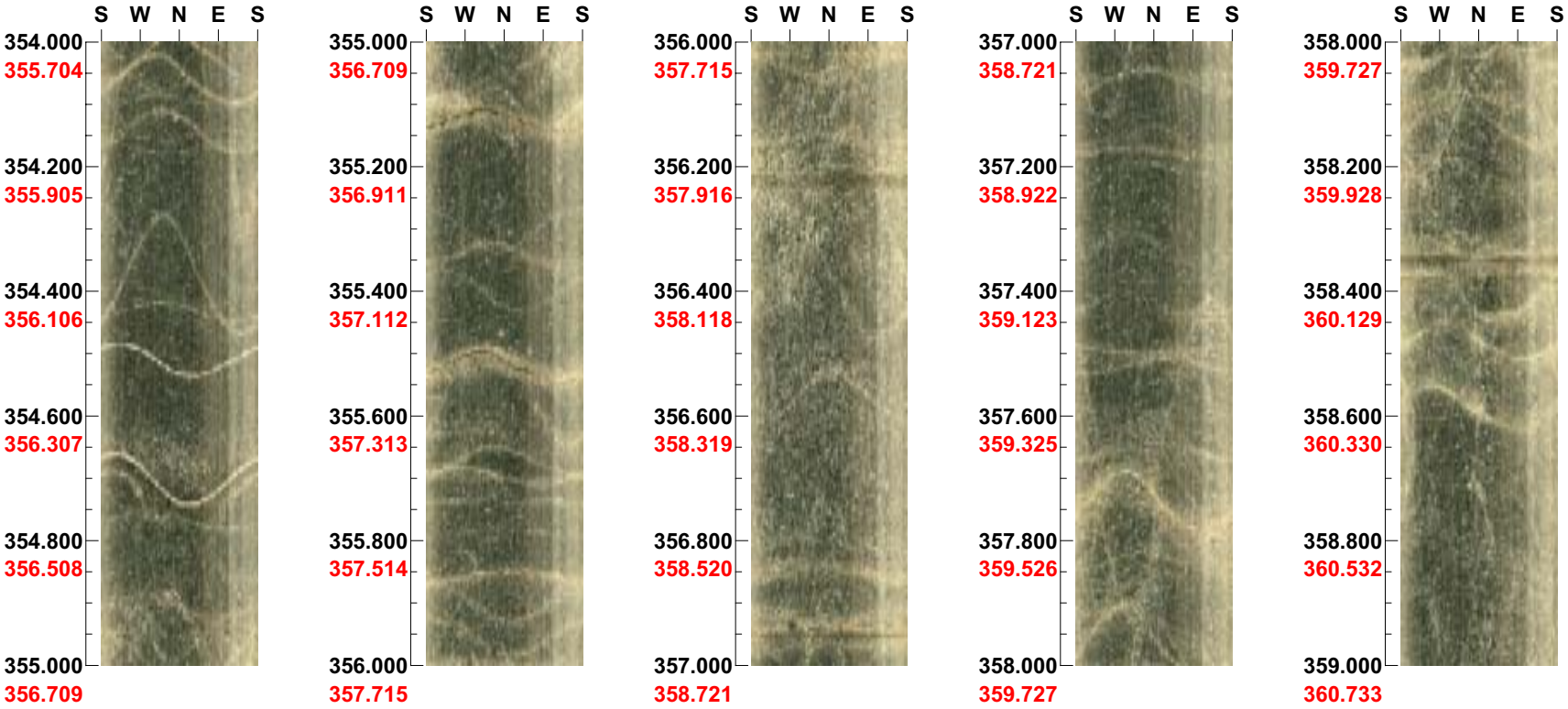
Depth range: 349.000 - 354.000 m



(55 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

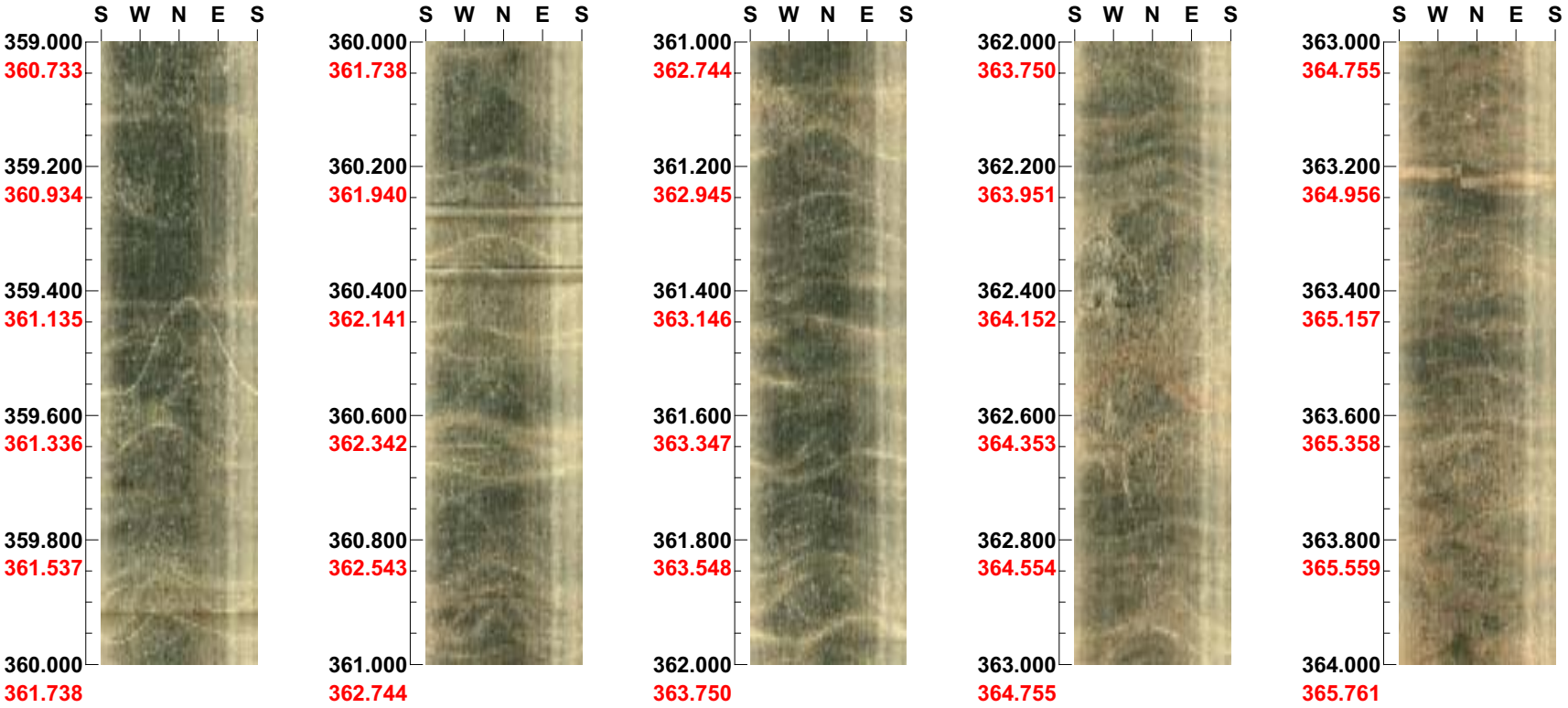
Depth range: 354.000 - 359.000 m



(56 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

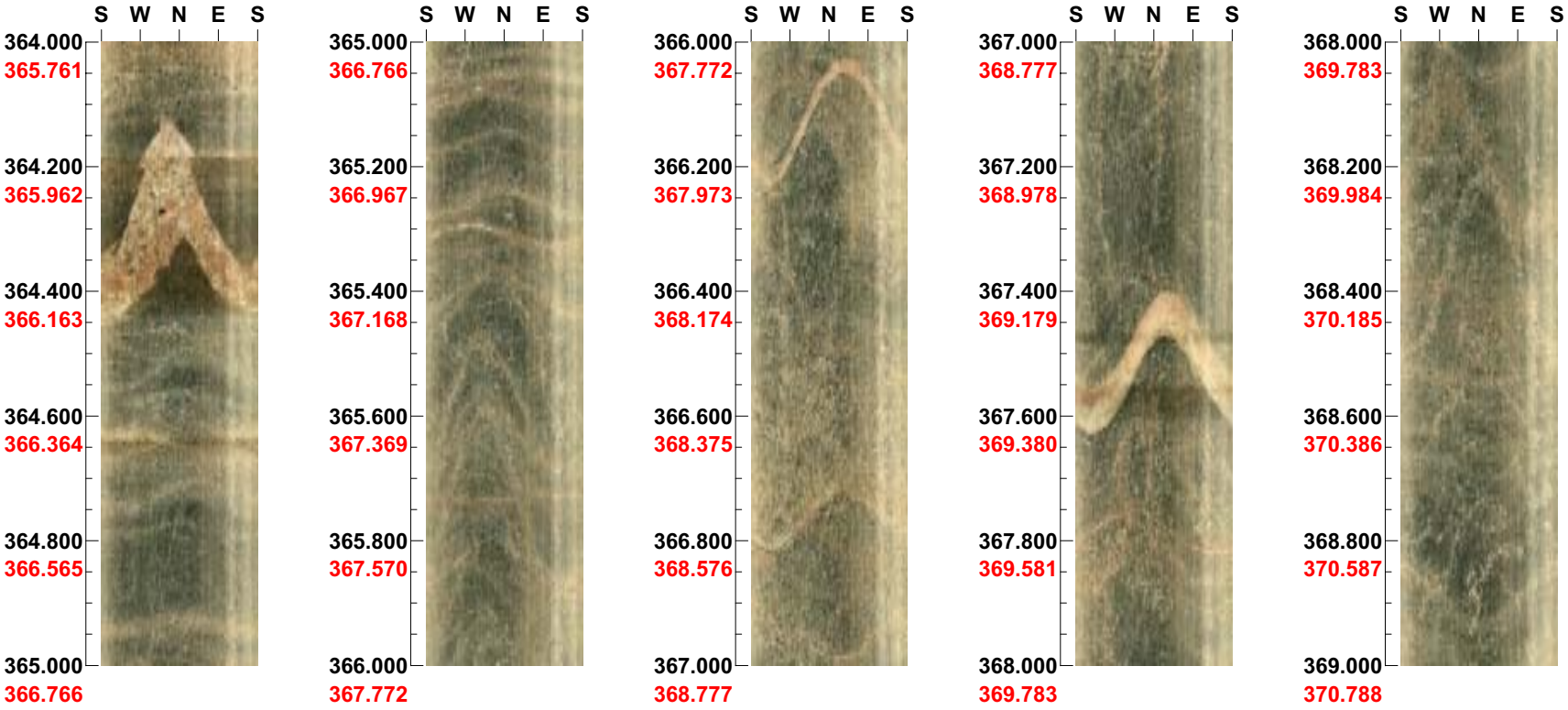
Depth range: 359.000 - 364.000 m



Scale: 1/10 **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

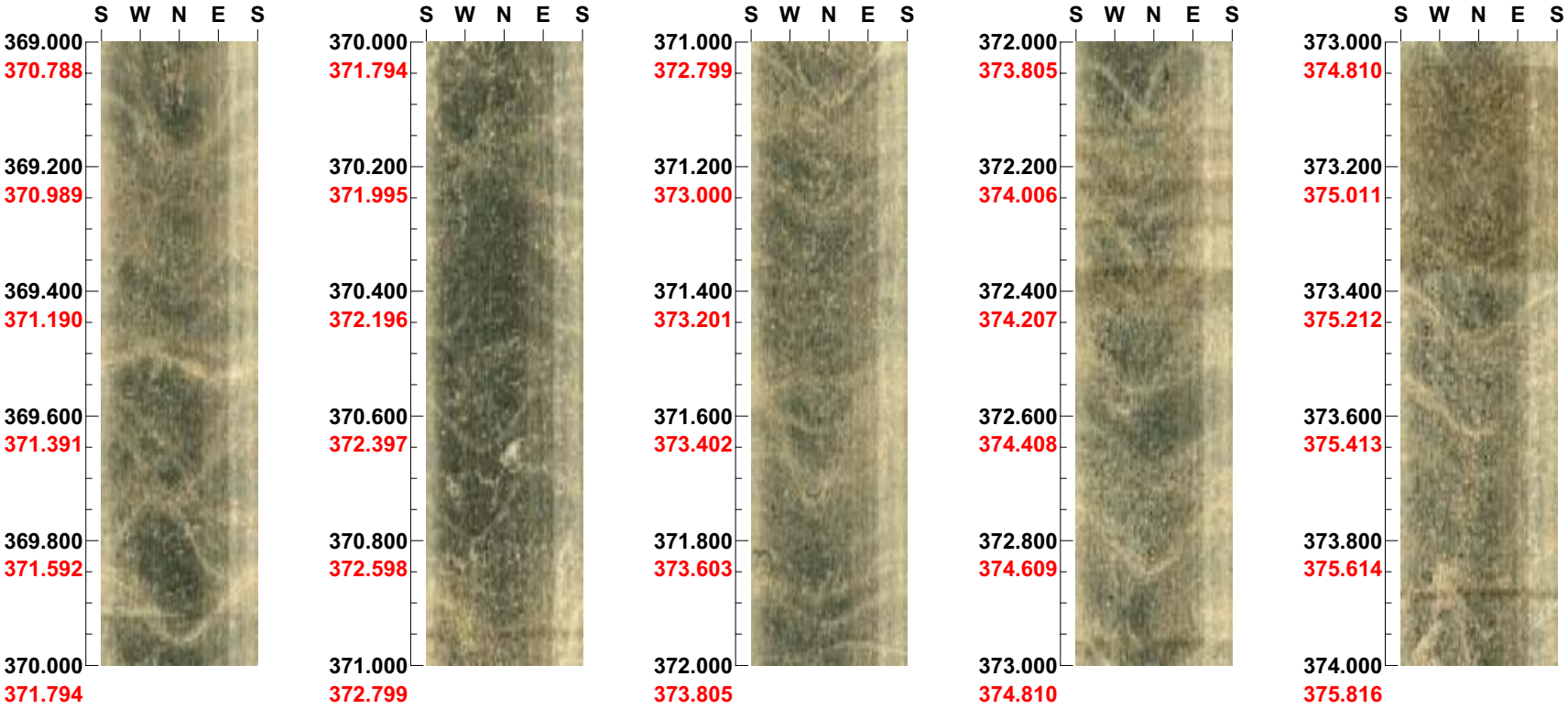
Depth range: 364.000 - 369.000 m



(58 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 369.000 - 374.000 m



(59 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 374.000 - 379.000 m

(60 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

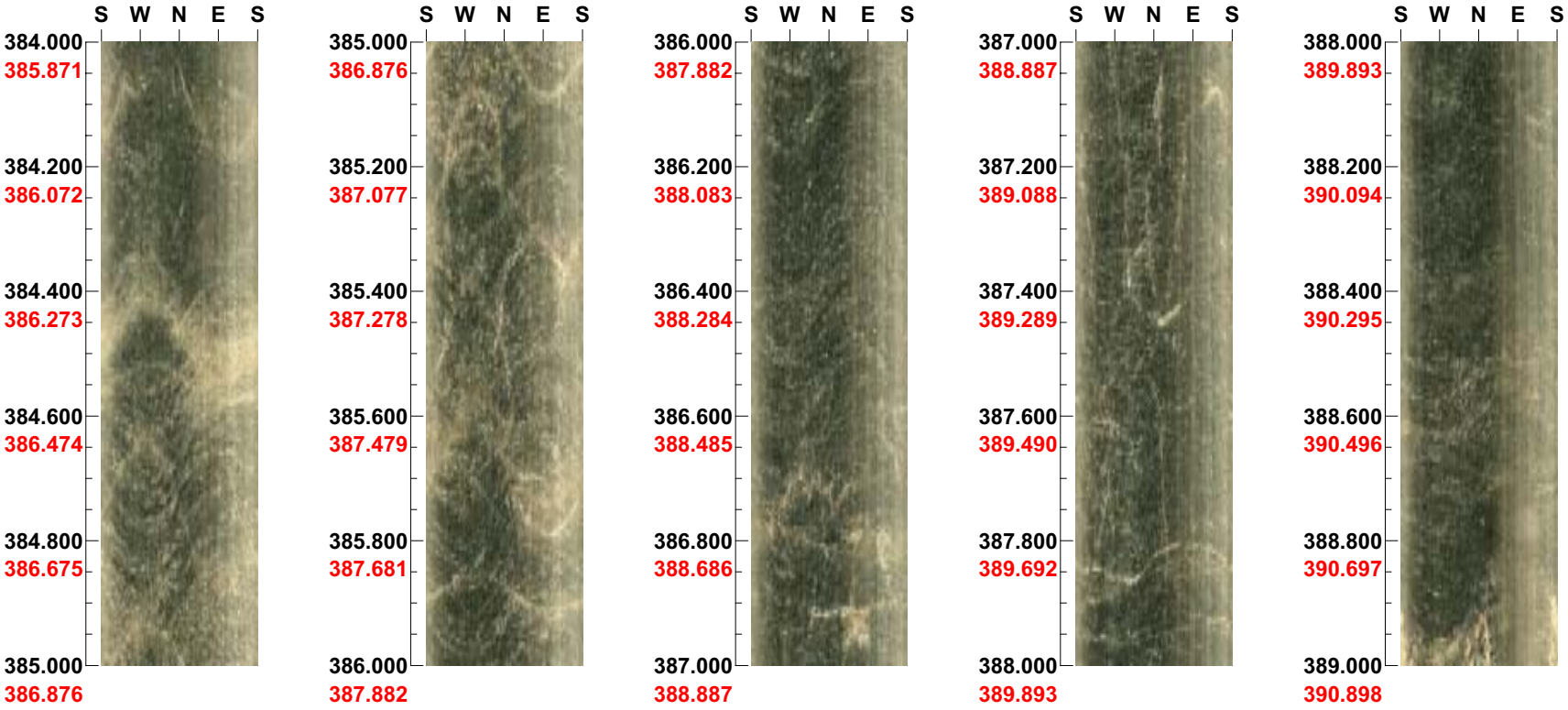
Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 379.000 - 384.000 m

(61 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

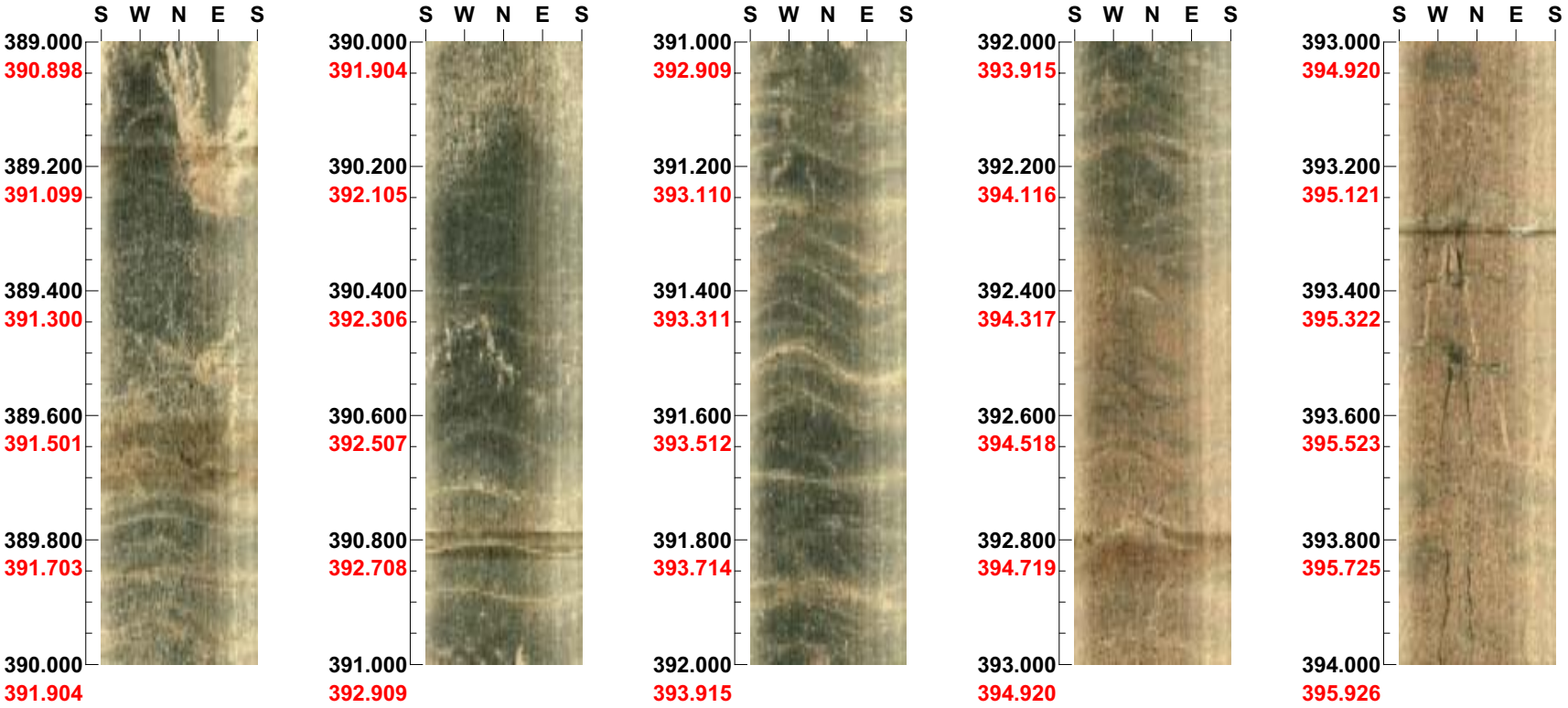
Depth range: 384.000 - 389.000 m



(62 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

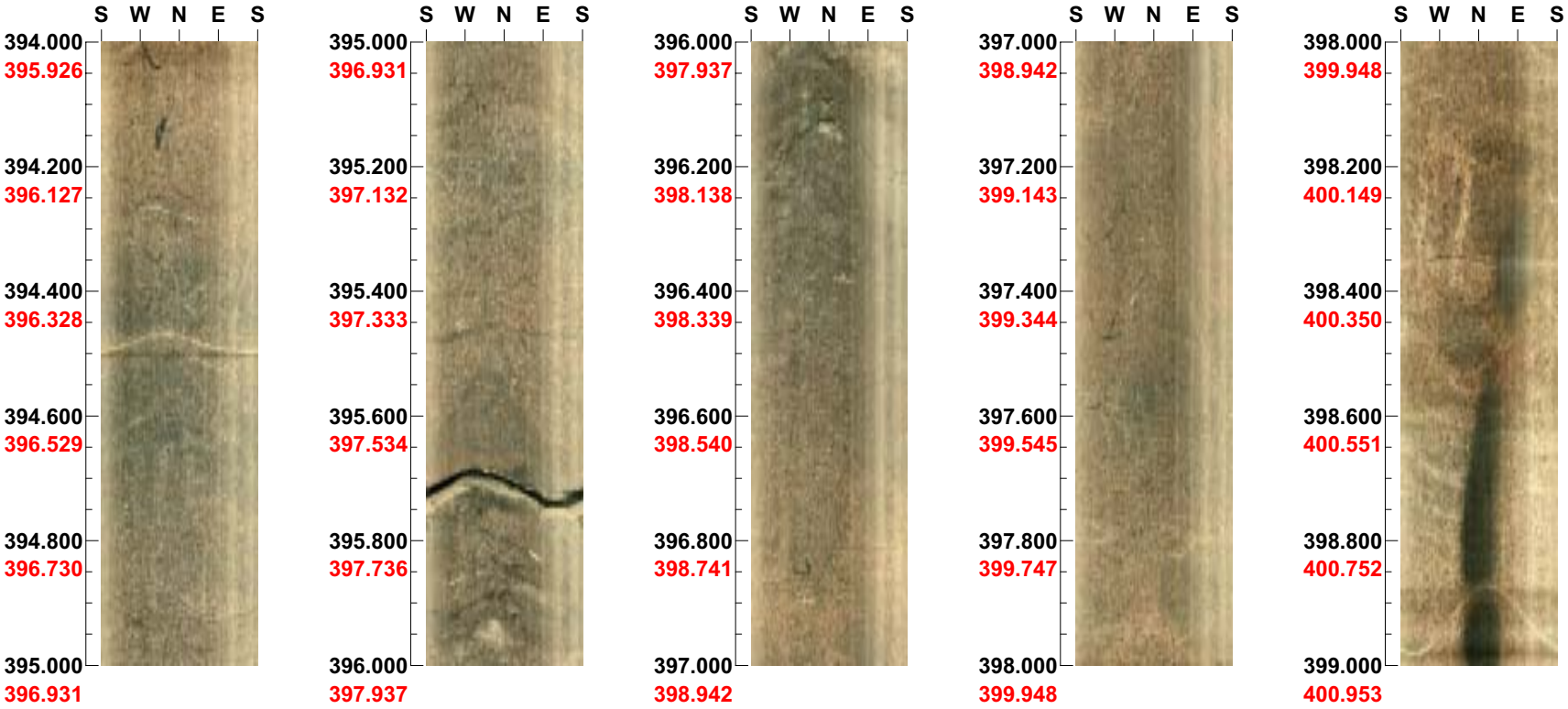
Depth range: 389.000 - 394.000 m



(63 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 394.000 - 399.000 m



(64 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 399.000 - 404.000 m

(65 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

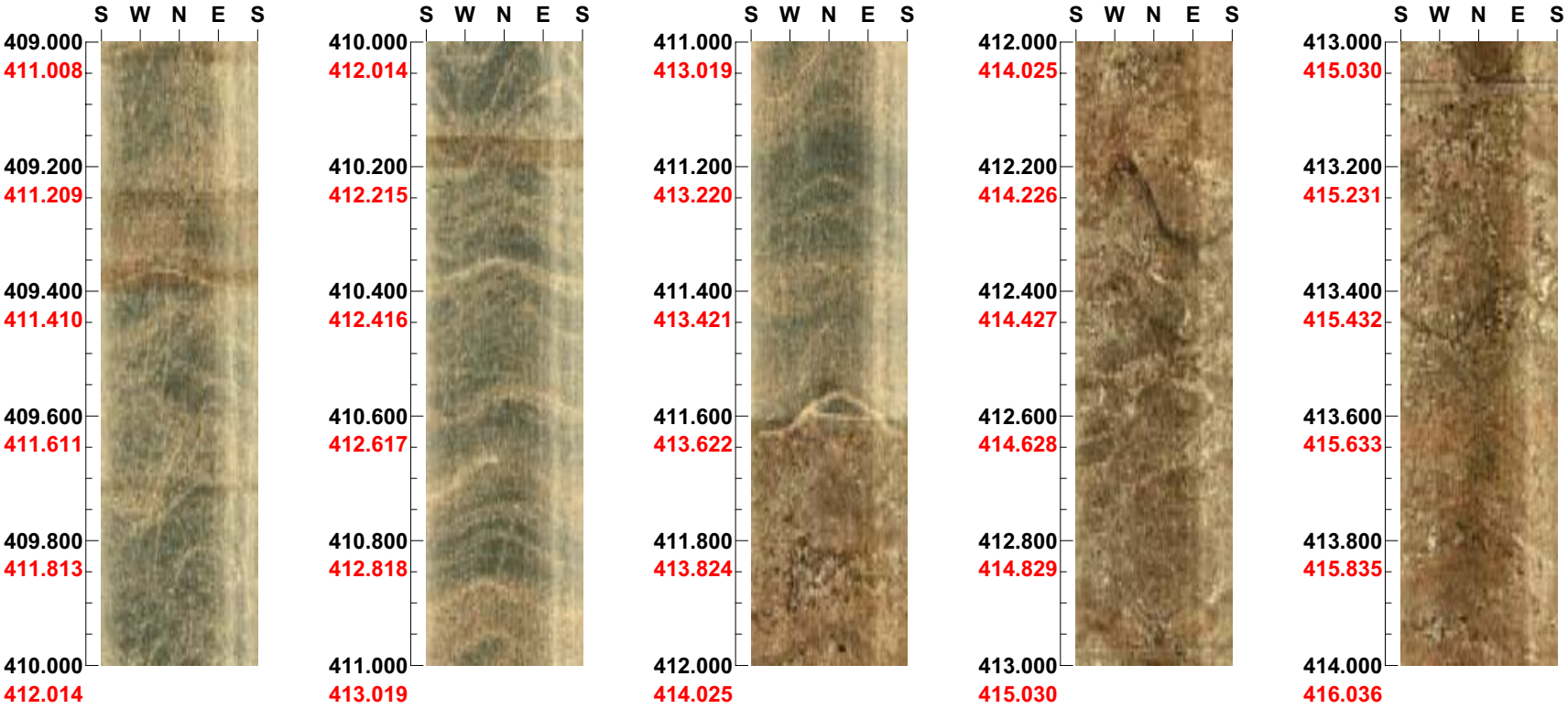
Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 404.000 - 409.000 m

(66 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 409.000 - 414.000 m



(67 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

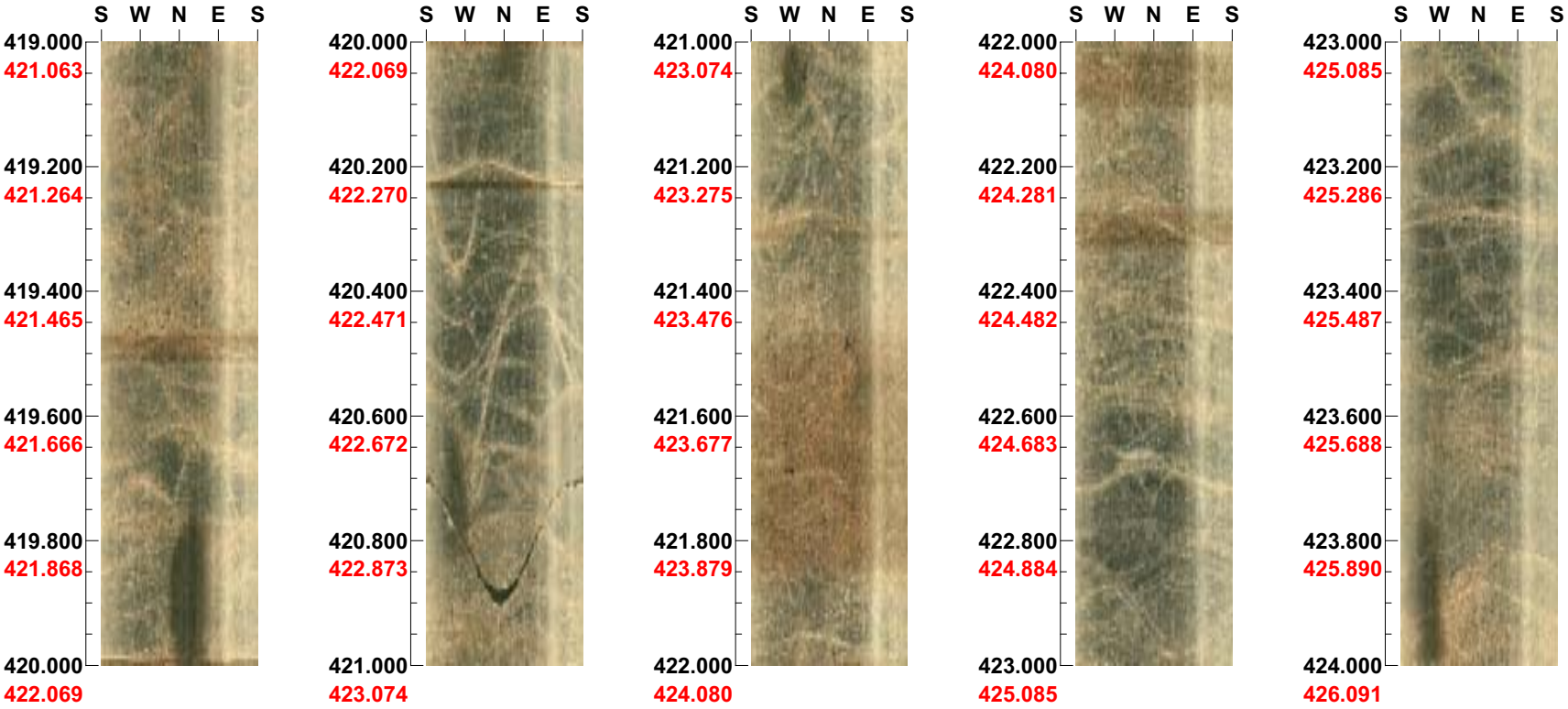
Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 414.000 - 419.000 m

(68 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

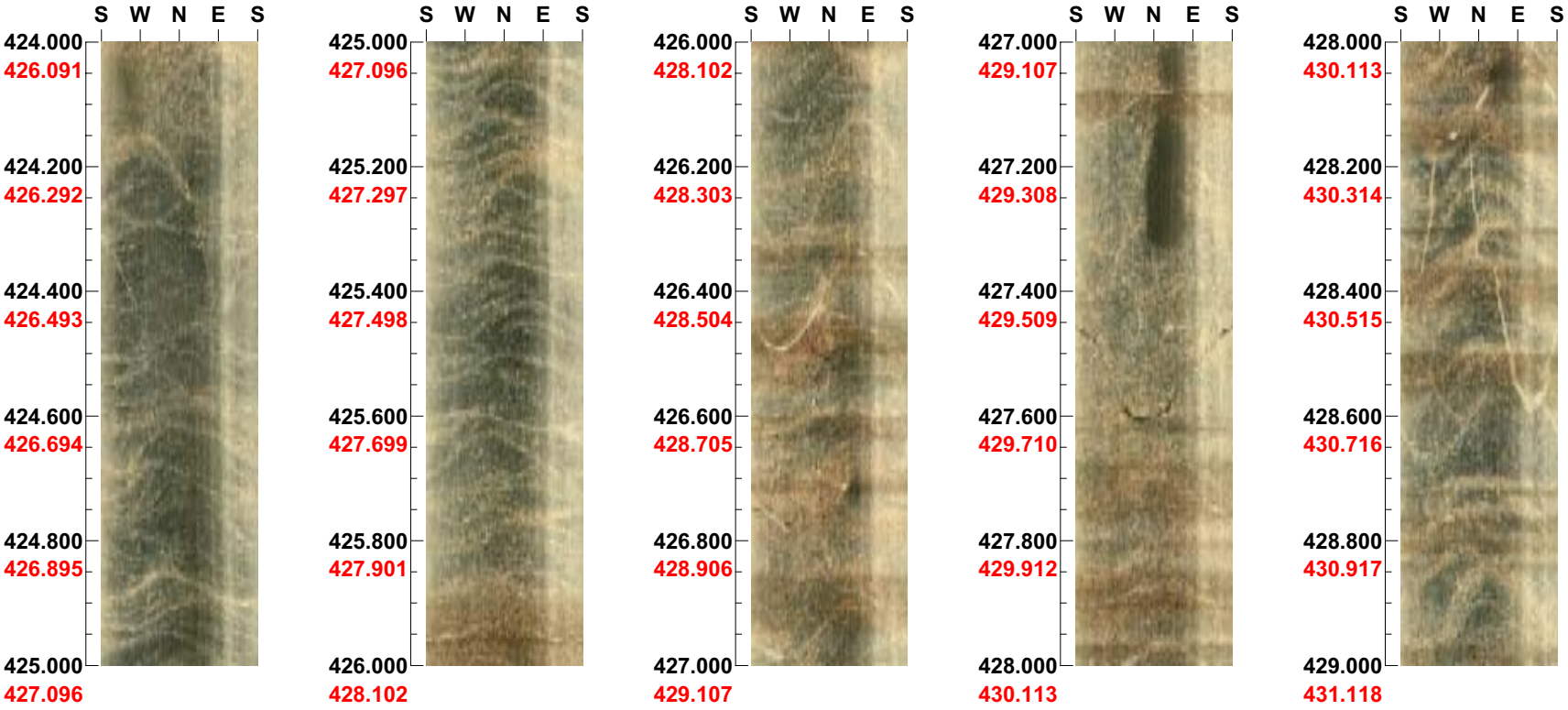
Depth range: 419.000 - 424.000 m



(69 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

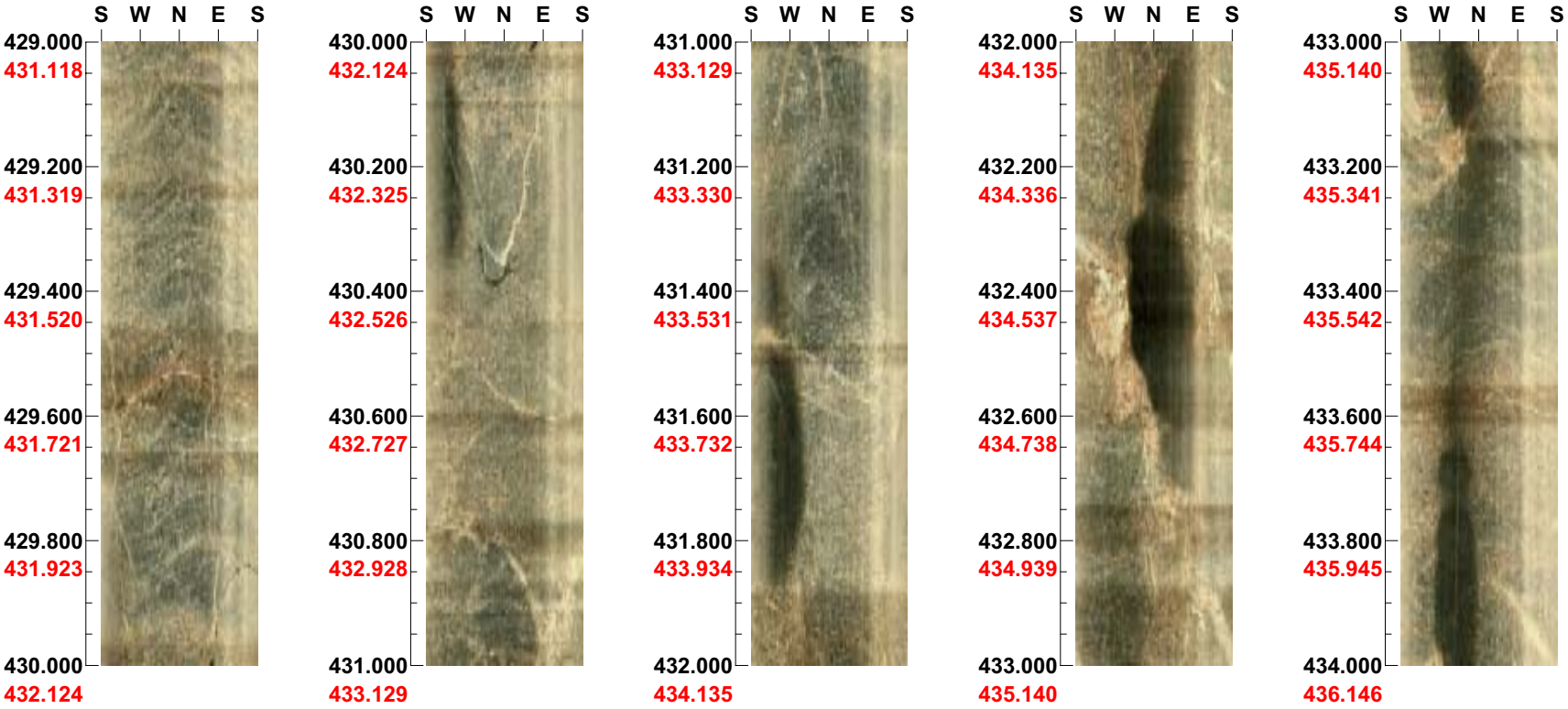
Depth range: 424.000 - 429.000 m



(70 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

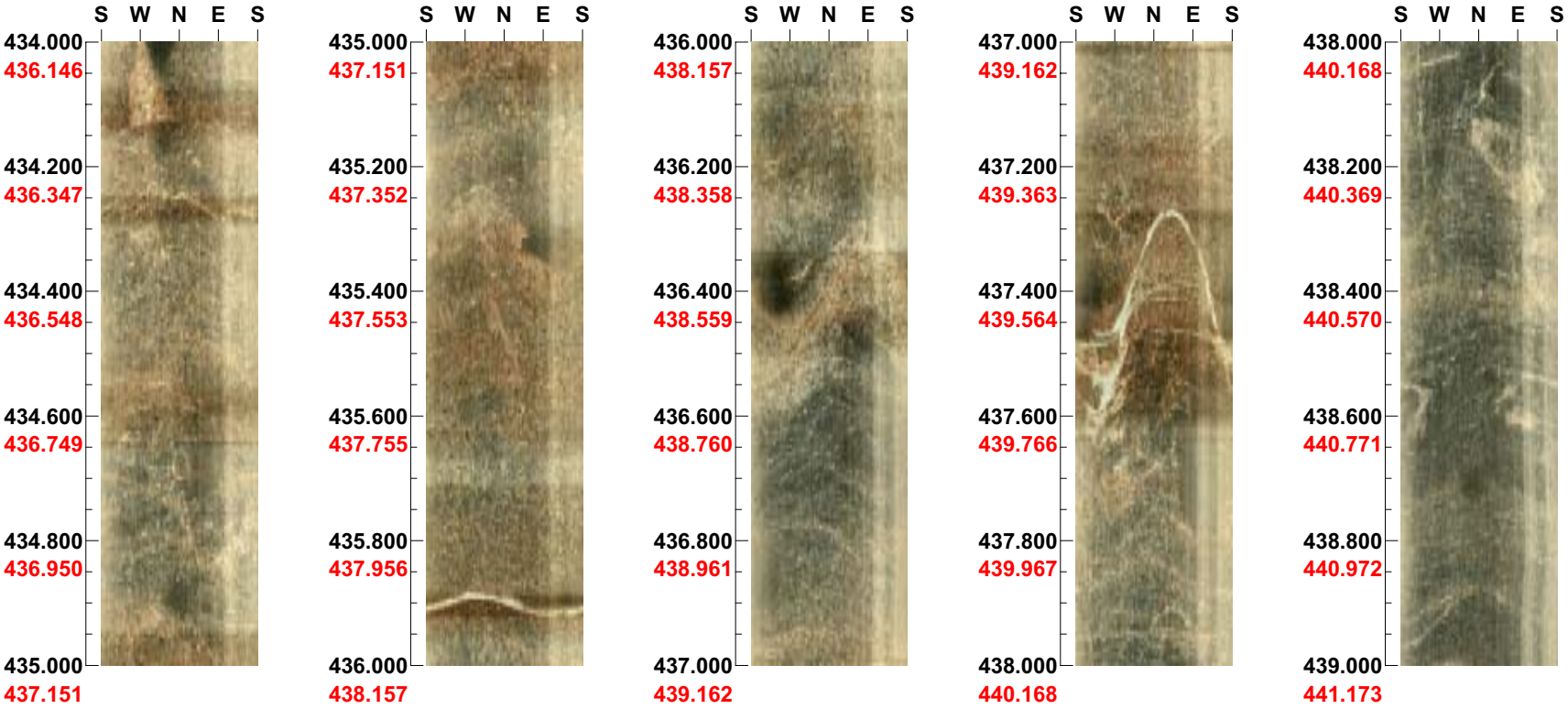
Depth range: 429.000 - 434.000 m



(71 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

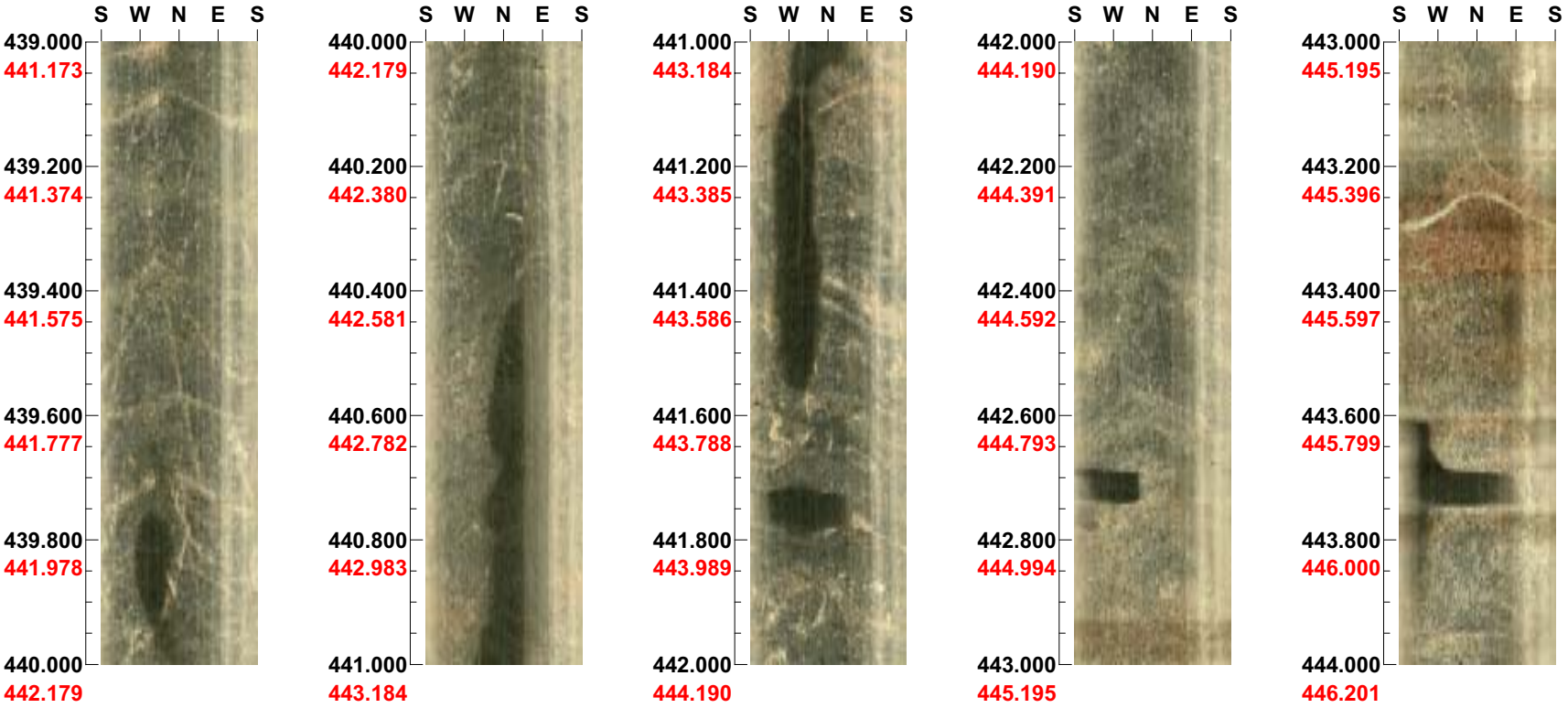
Depth range: 434.000 - 439.000 m



(72 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

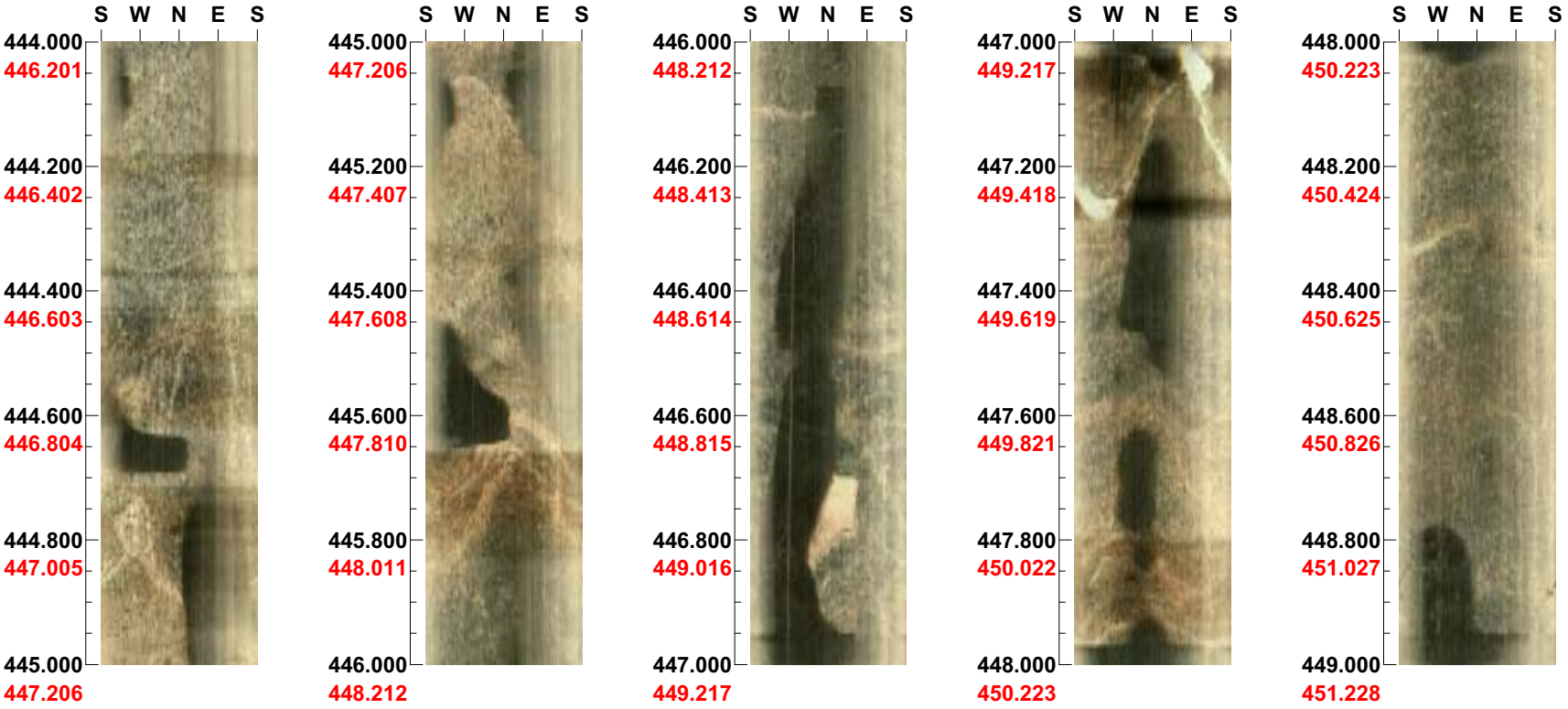
Depth range: 439.000 - 444.000 m



(73 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

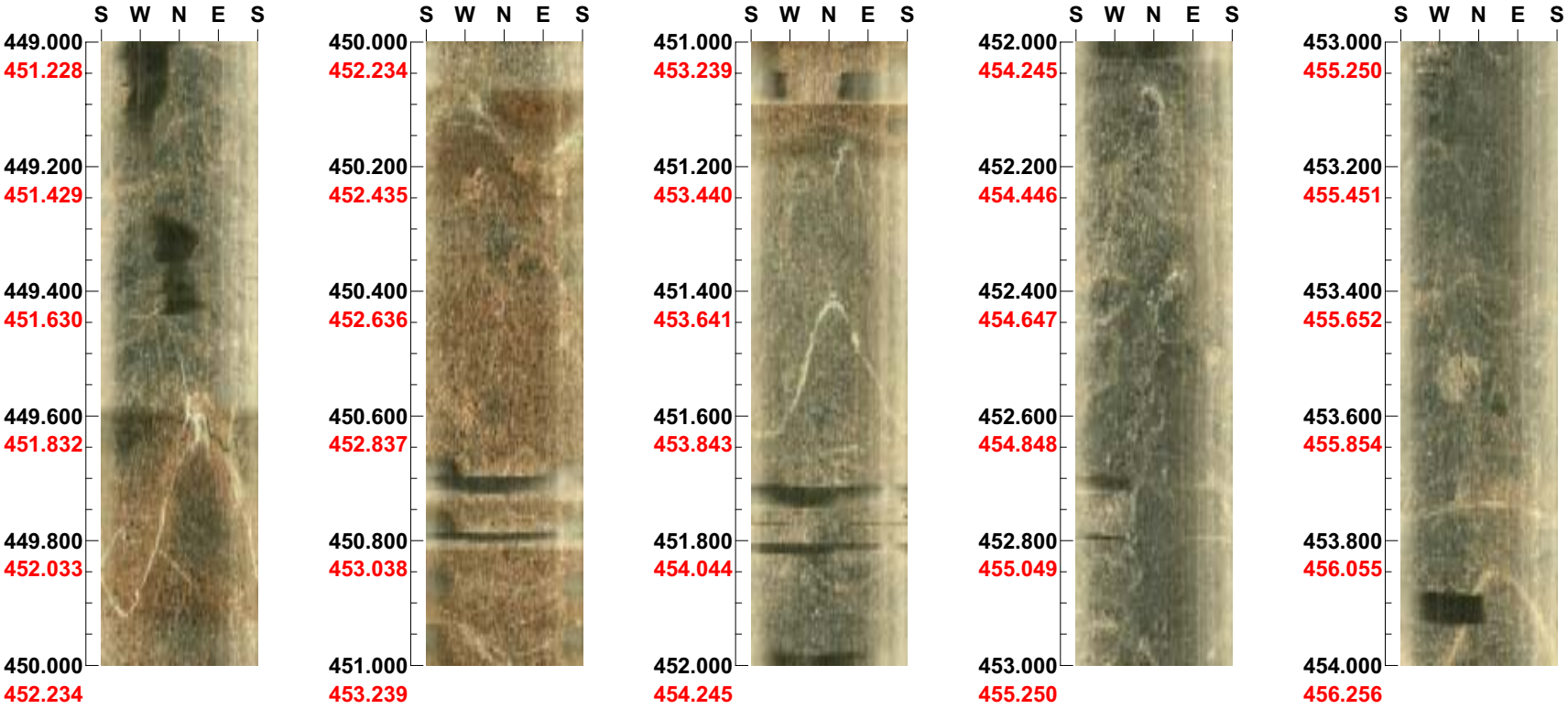
Depth range: 444.000 - 449.000 m



(74 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

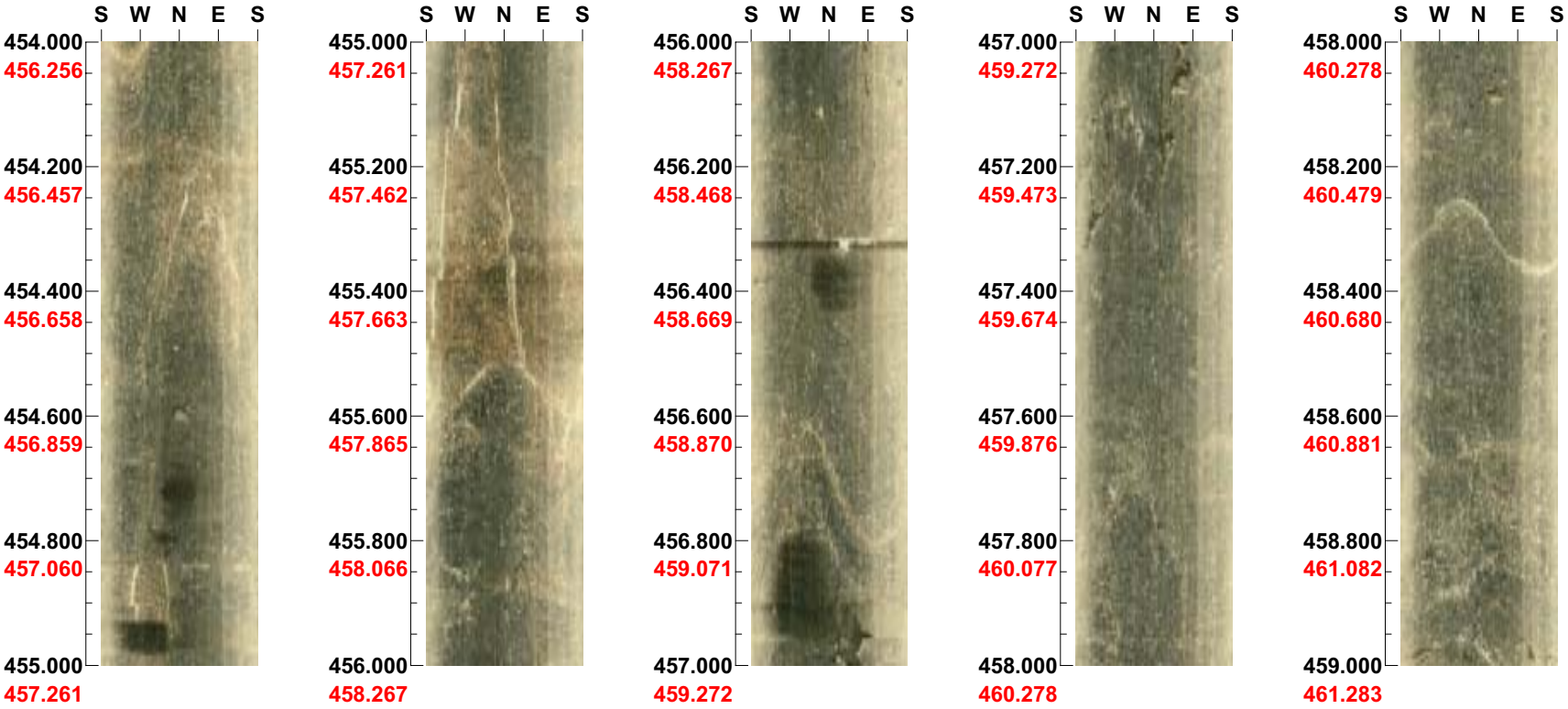
Depth range: 449.000 - 454.000 m



(75 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 454.000 - 459.000 m



(76 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

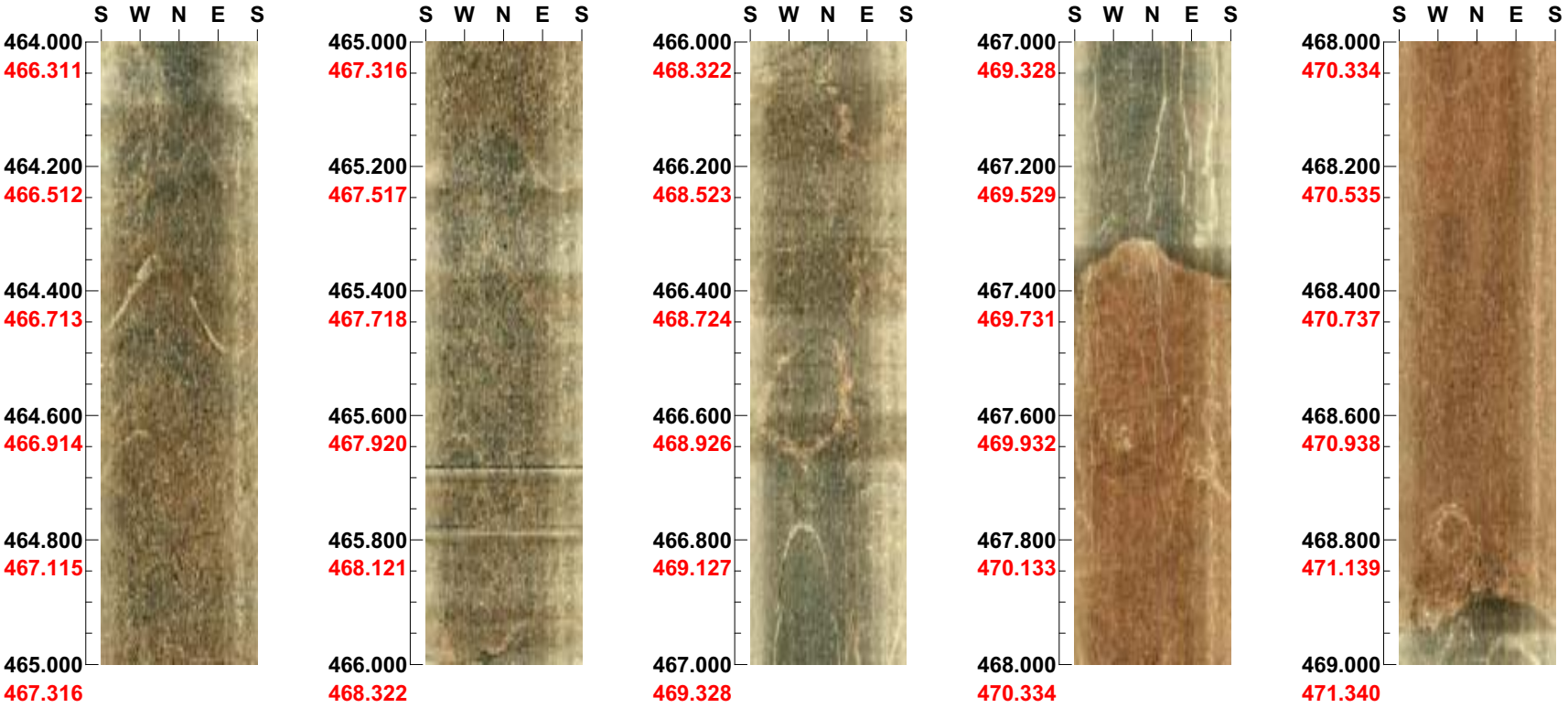
Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 459.000 - 464.000 m

(77 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

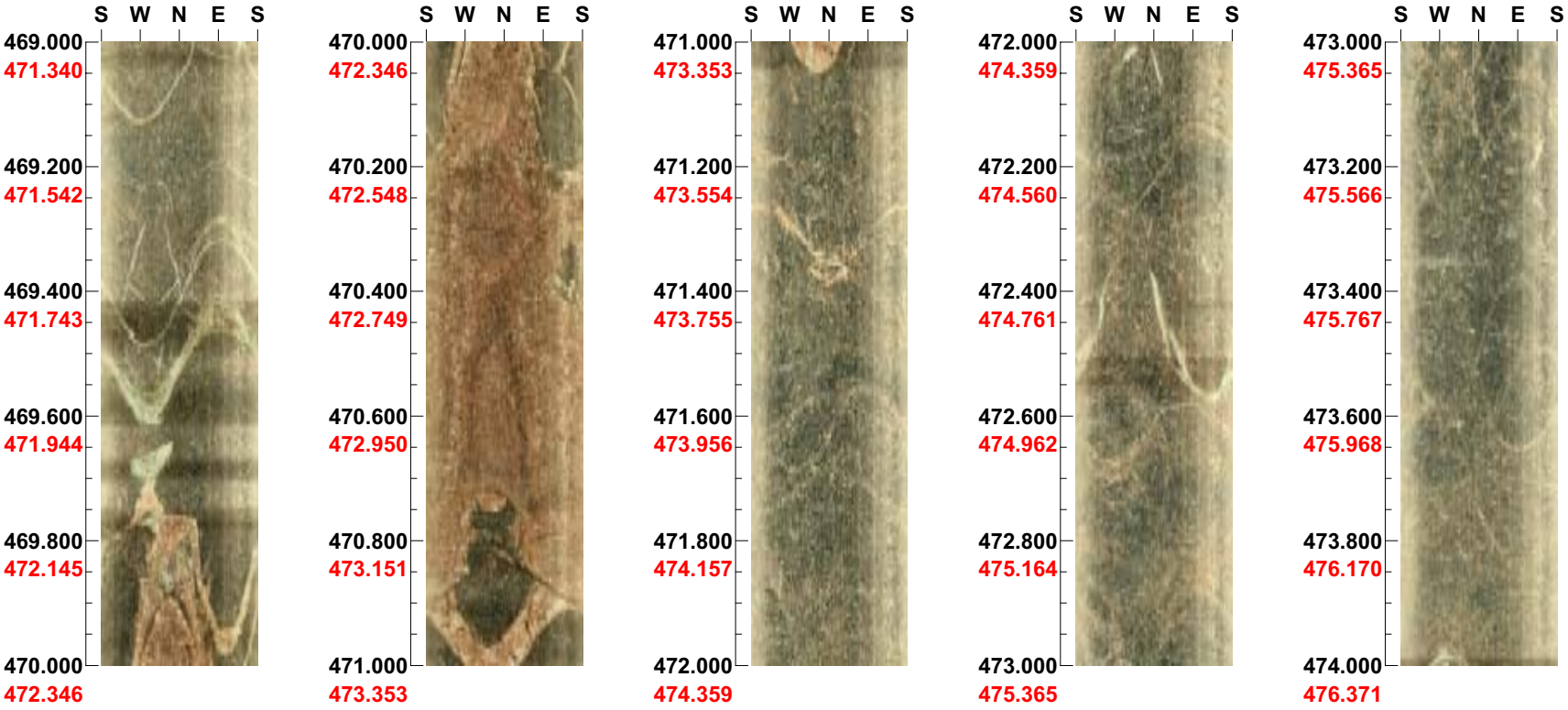
Depth range: 464.000 - 469.000 m



(78 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 469.000 - 474.000 m



(79 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

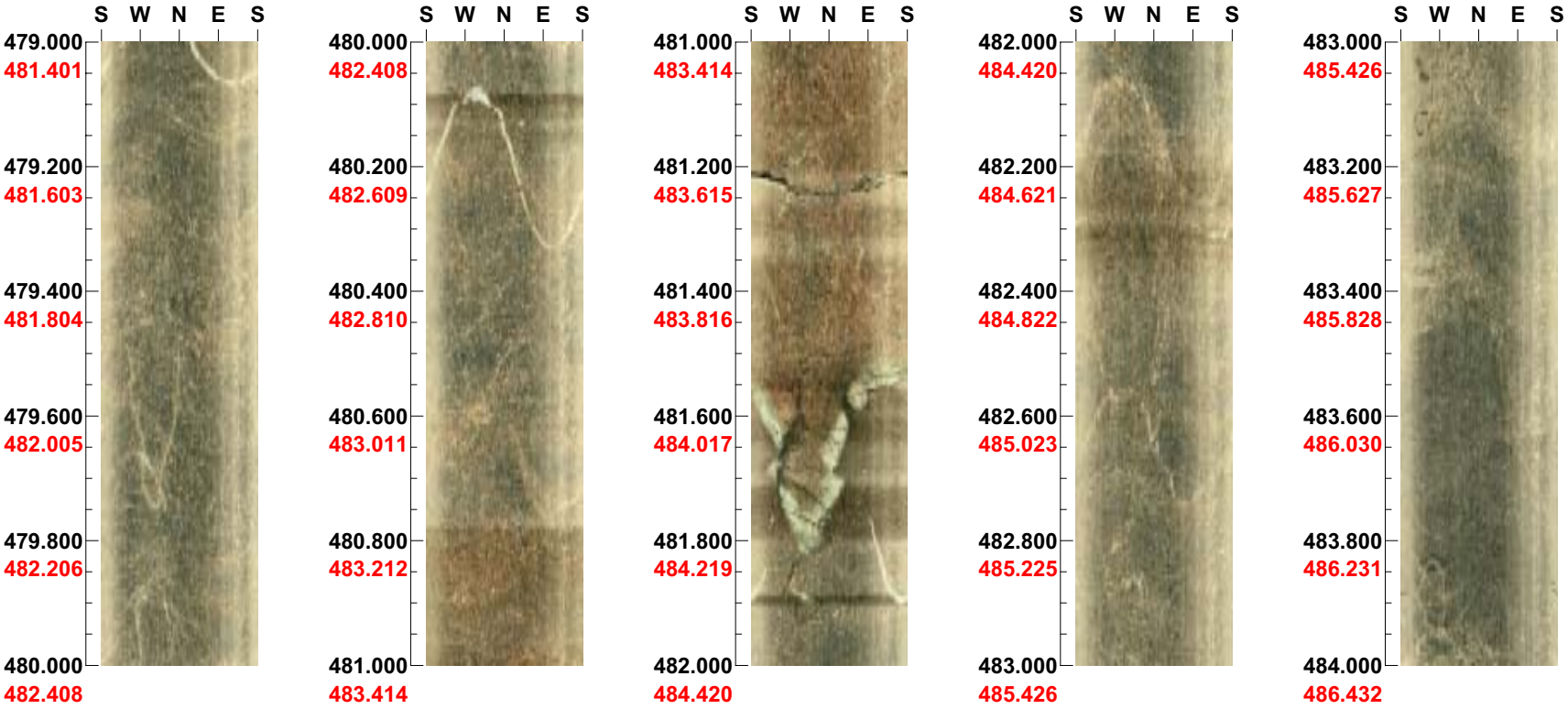
Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 474.000 - 479.000 m

(80 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 479.000 - 484.000 m



(81 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 484.000 - 489.000 m

(82 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

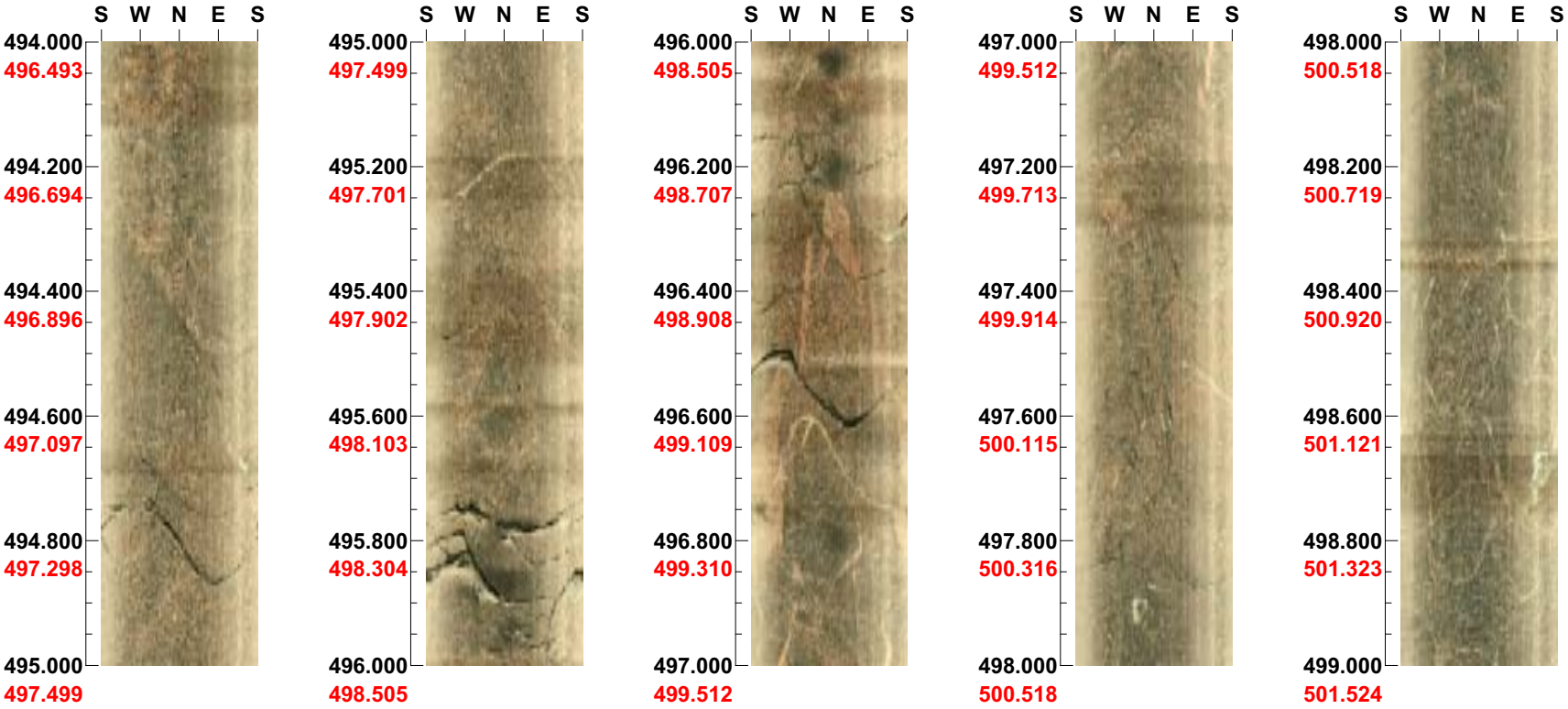
Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 489.000 - 494.000 m

(83 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 494.000 - 499.000 m



(84 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 499.000 - 504.000 m

(85 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 504.000 - 509.000 m

(86 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 509.000 - 514.000 m

(87 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 514.000 - 519.000 m

(88 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

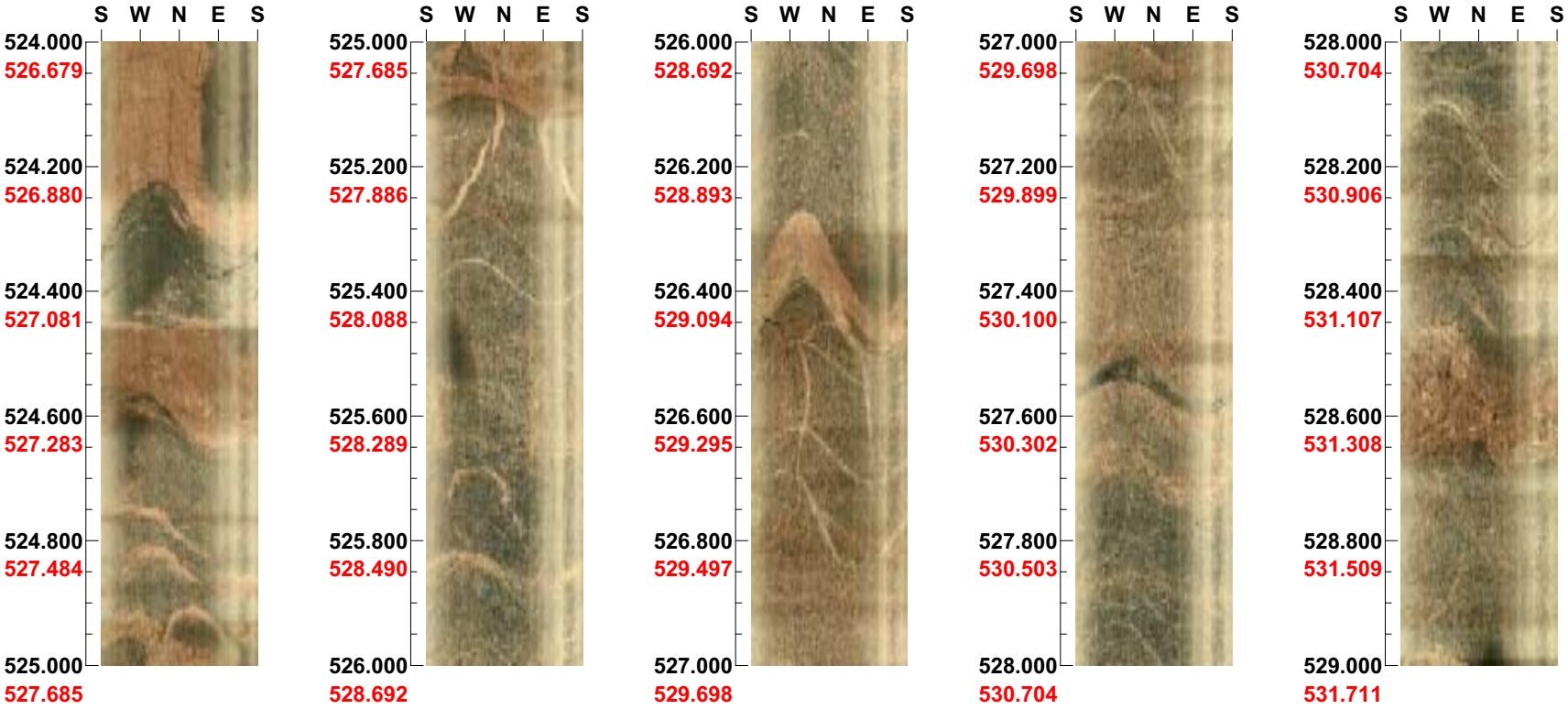
Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 519.000 - 524.000 m

(89 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 524.000 - 529.000 m



(90 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 529.000 - 534.000 m

(91 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

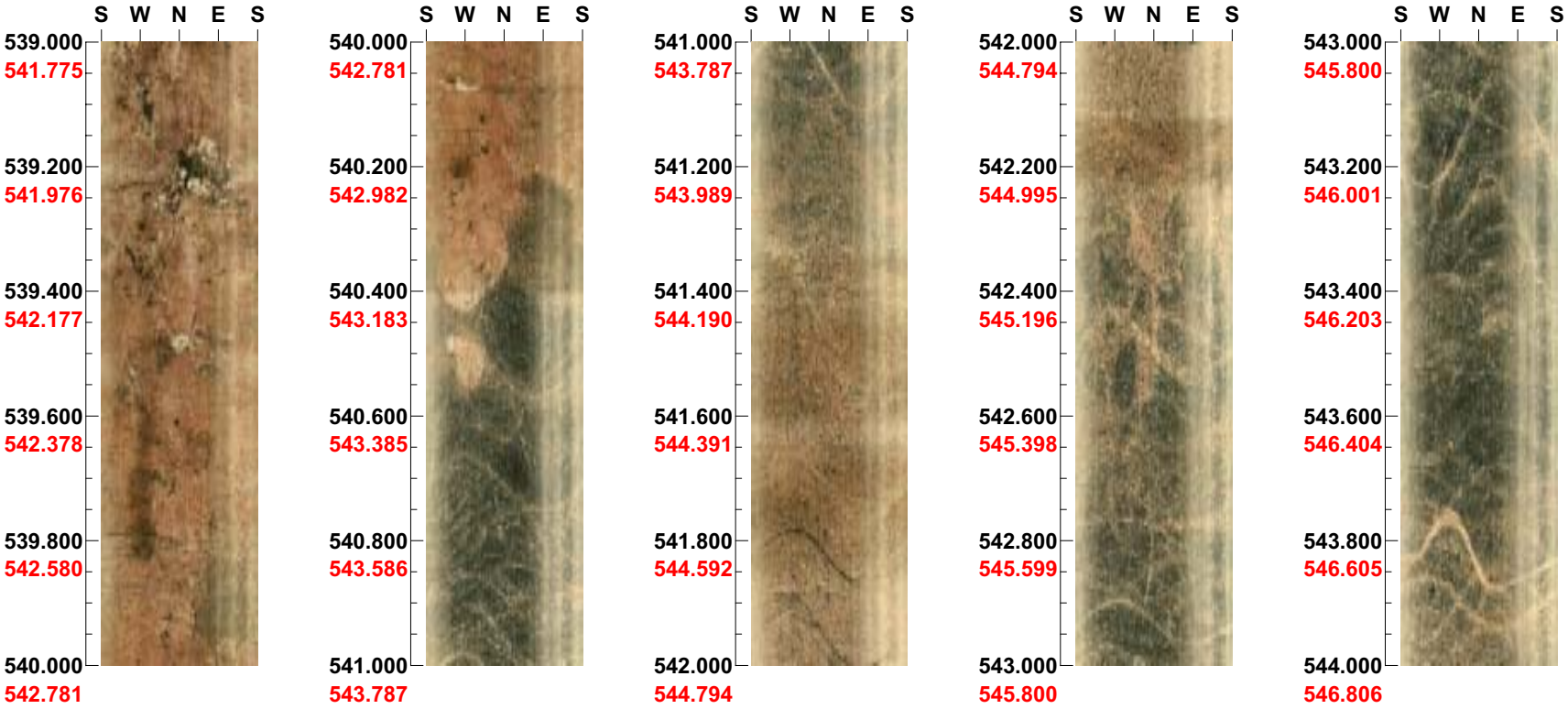
Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 534.000 - 539.000 m

(92 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 539.000 - 544.000 m



(93 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 544.000 - 549.000 m

(94 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 549.000 - 554.000 m

(95 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 554.000 - 559.000 m

(96 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 559.000 - 564.000 m

(97 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 564.000 - 569.000 m

(98 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpevarp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 569.000 - 573.444 m

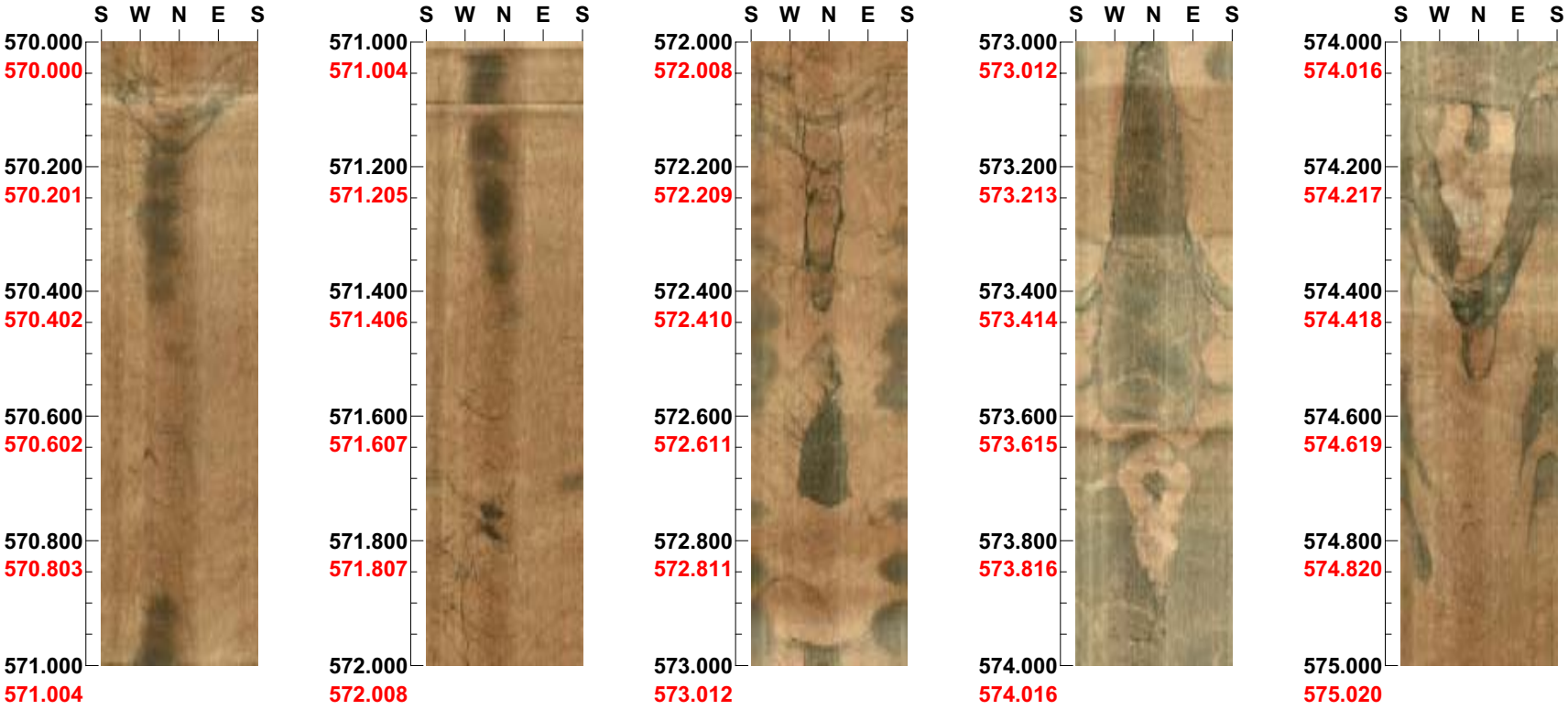
(99 / 99) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp

Image file	**: c:\work\r5156s~1\data\ksh02\bips\ksh025~1.bip**
BDT file	**: c:\work\r5156s~1\data\ksh02\bips\ksh025~1.bdt**
Locality	**: SIMPAN**
Bore hole number	**: KSH02**
Date	**: 03/06/30**
Time	**: 05:09:00**
Depth range	**: 570.000 - 998.031 m**
Azimuth	**: 0**
Inclination	**: -85**
Diameter	**: 76.0 mm**
Magnetic declination	**: 0.0**
Span	**: 4**
Scan interval	**: 0.25**
Scan direction	**: To bottom**
Scale	**: 1/10**
Aspect ratio	**: 105 %**
Pages	**: 86**
Color	**: +0 +0 +0**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 570.000 - 575.000 m



(1 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 575.000 - 580.000 m

(2 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

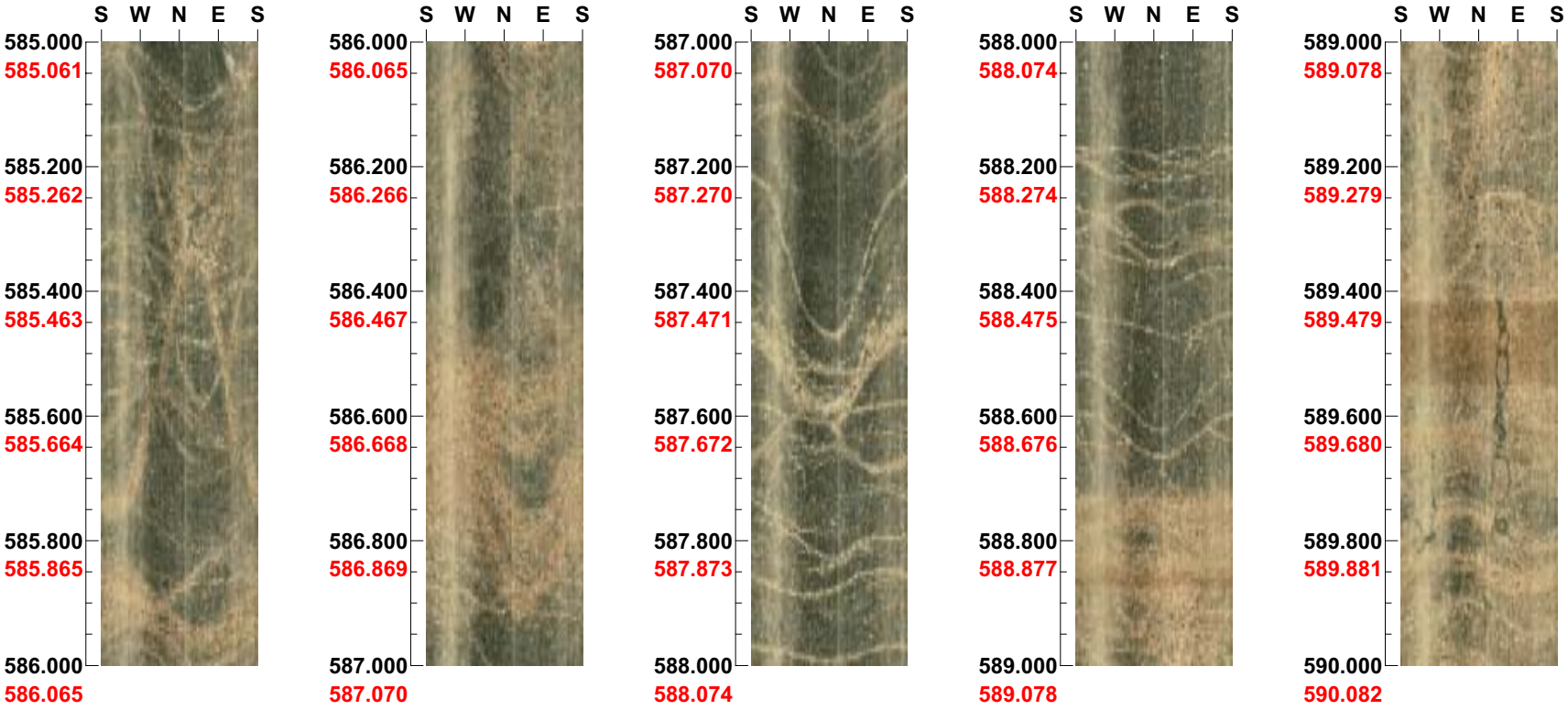
Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 580.000 - 585.000 m

(3 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 585.000 - 590.000 m



(4 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 590.000 - 595.000 m

(5 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 595.000 - 600.000 m

(6 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 600.000 - 605.000 m

(7 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 605.000 - 610.000 m

(8 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 610.000 - 615.000 m

(9 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 615.000 - 620.000 m

(10 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 620.000 - 625.000 m

Scale: 1/10 **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 625.000 - 630.000 m

(12 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 630.000 - 635.000 m

(13 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

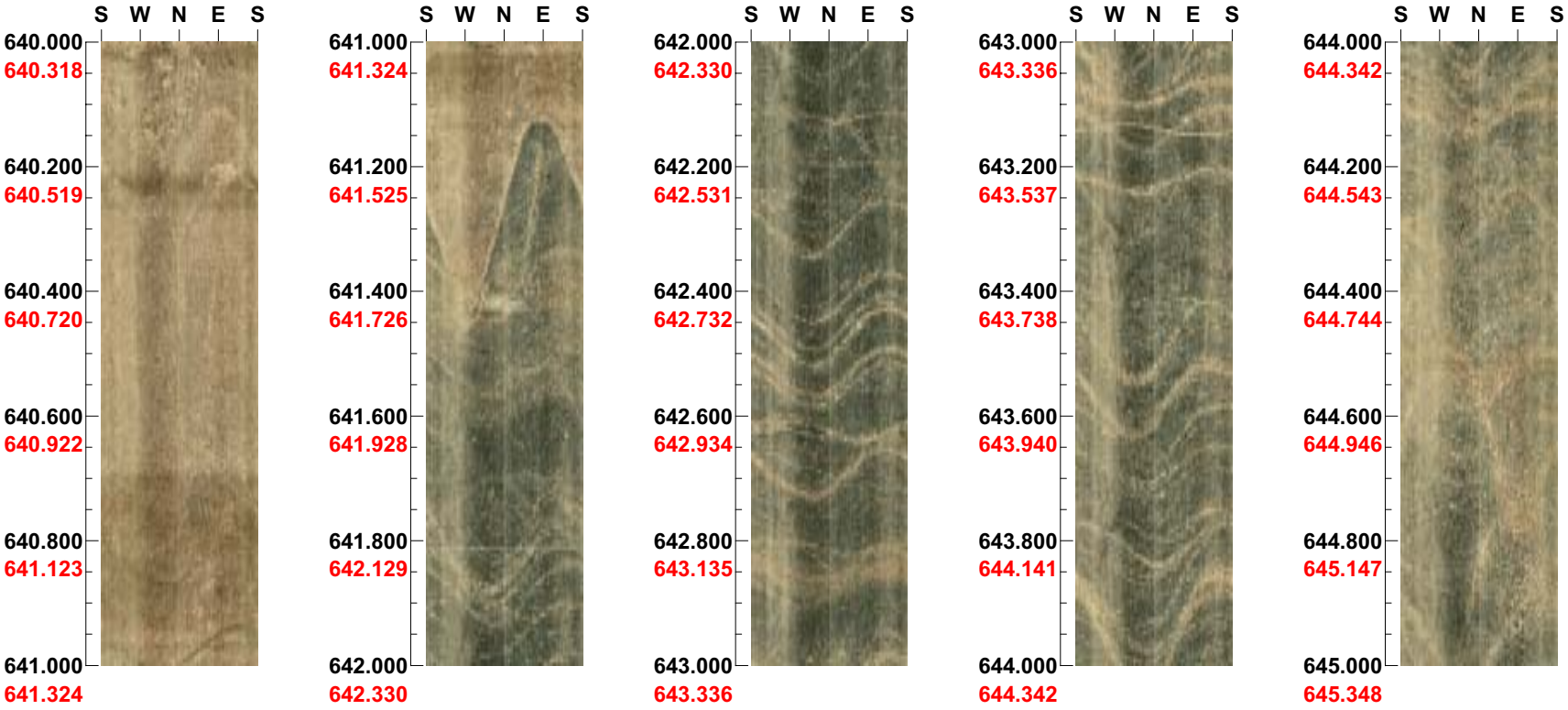
Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 635.000 - 640.000 m

Scale: 1/10 **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

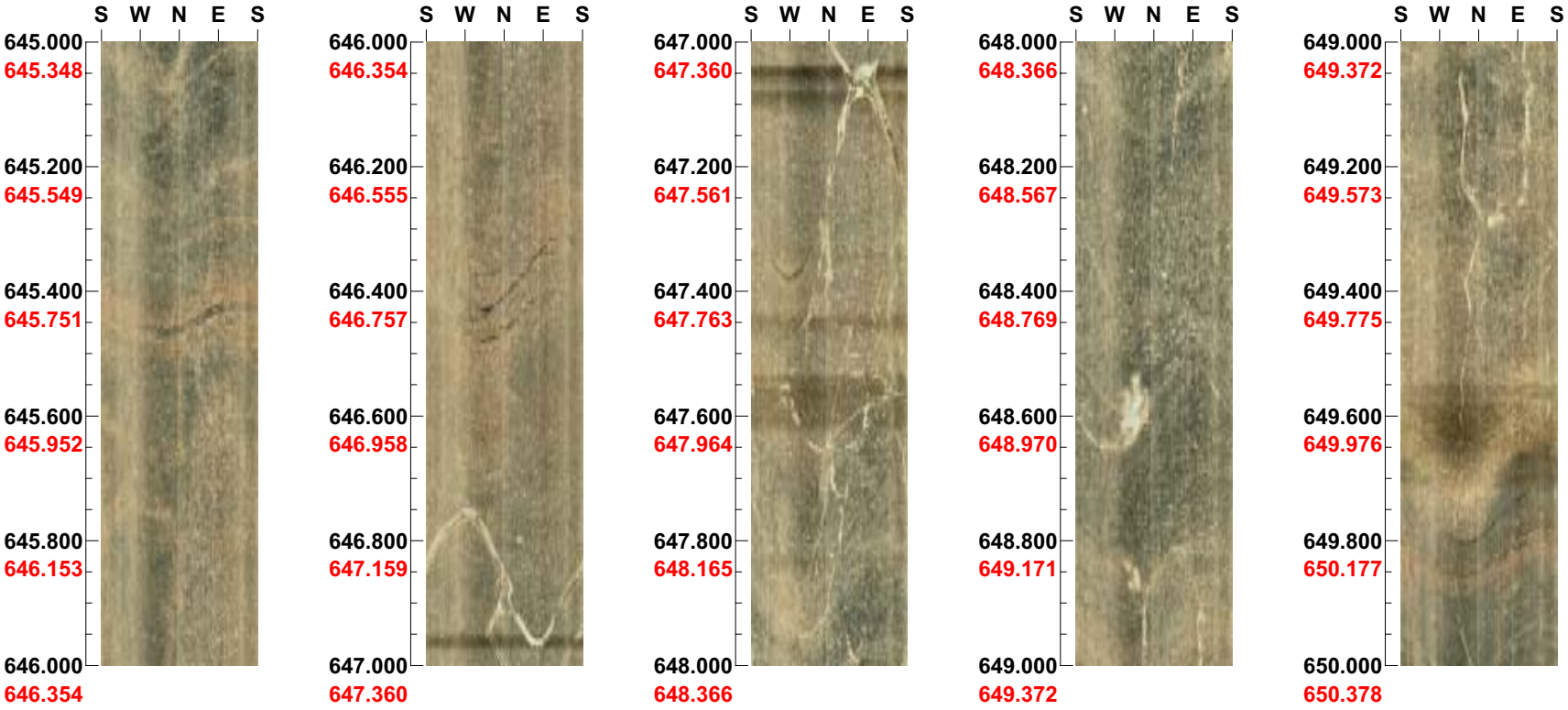
Depth range: 640.000 - 645.000 m



(15 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

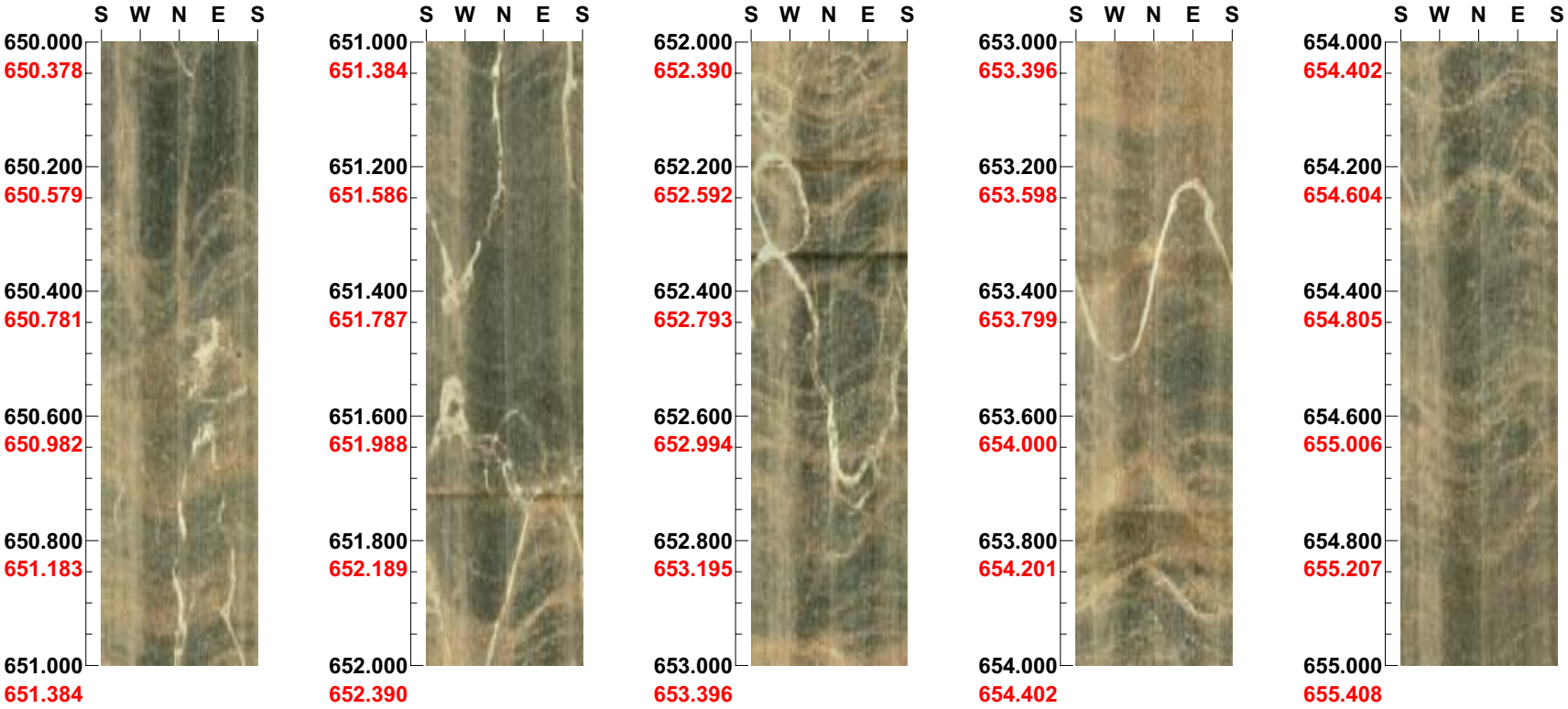
Depth range: 645.000 - 650.000 m



(16 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

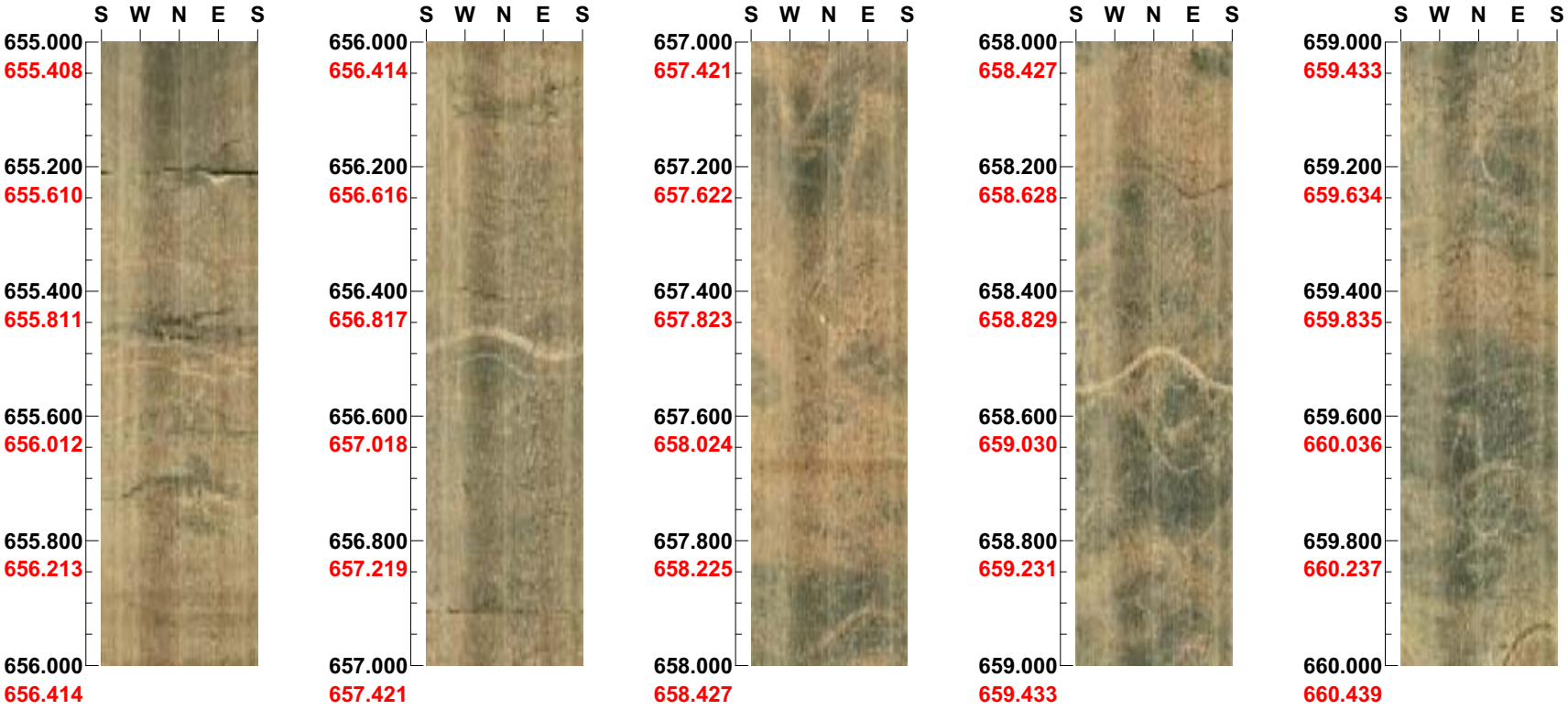
Depth range: 650.000 - 655.000 m



(17 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 655.000 - 660.000 m



(18 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

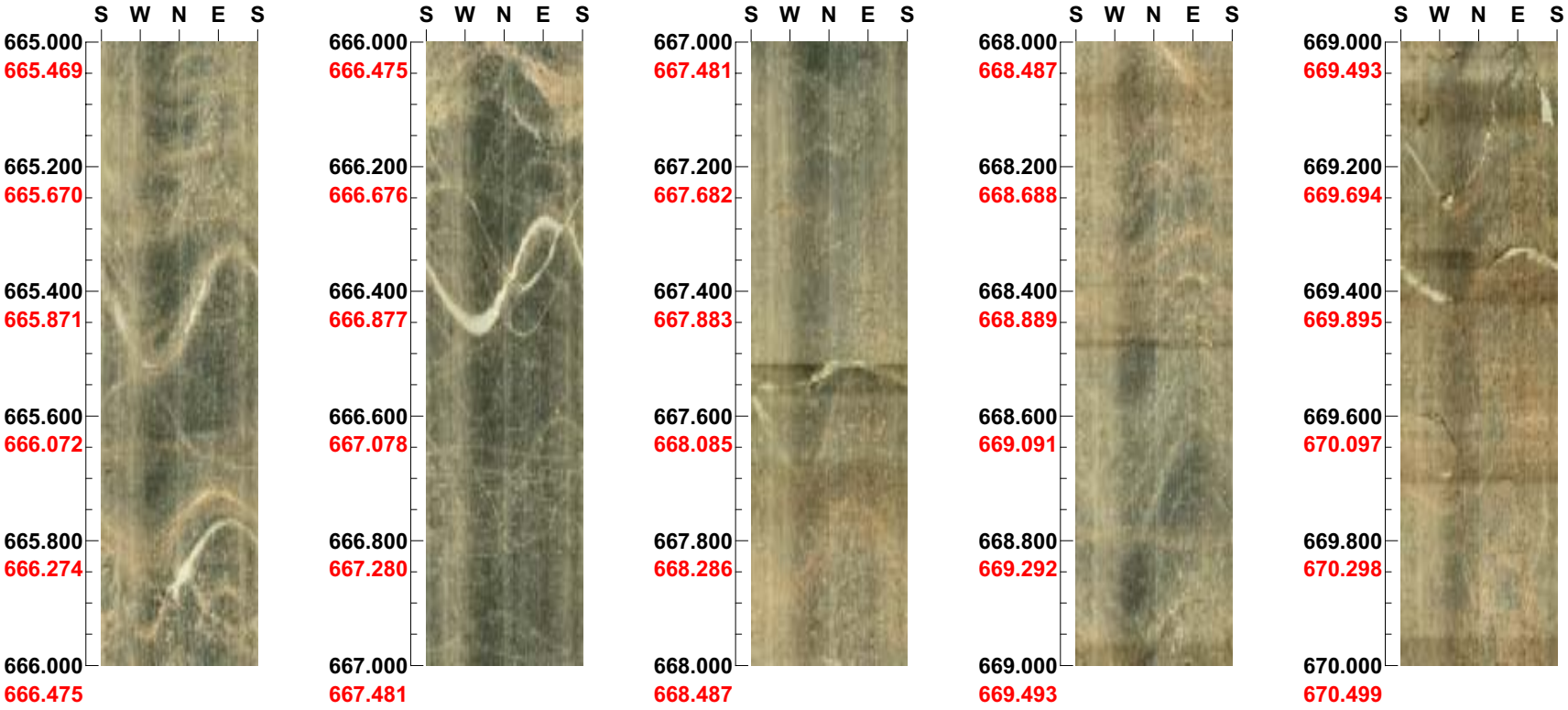
Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 660.000 - 665.000 m

(19 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 665.000 - 670.000 m



(20 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

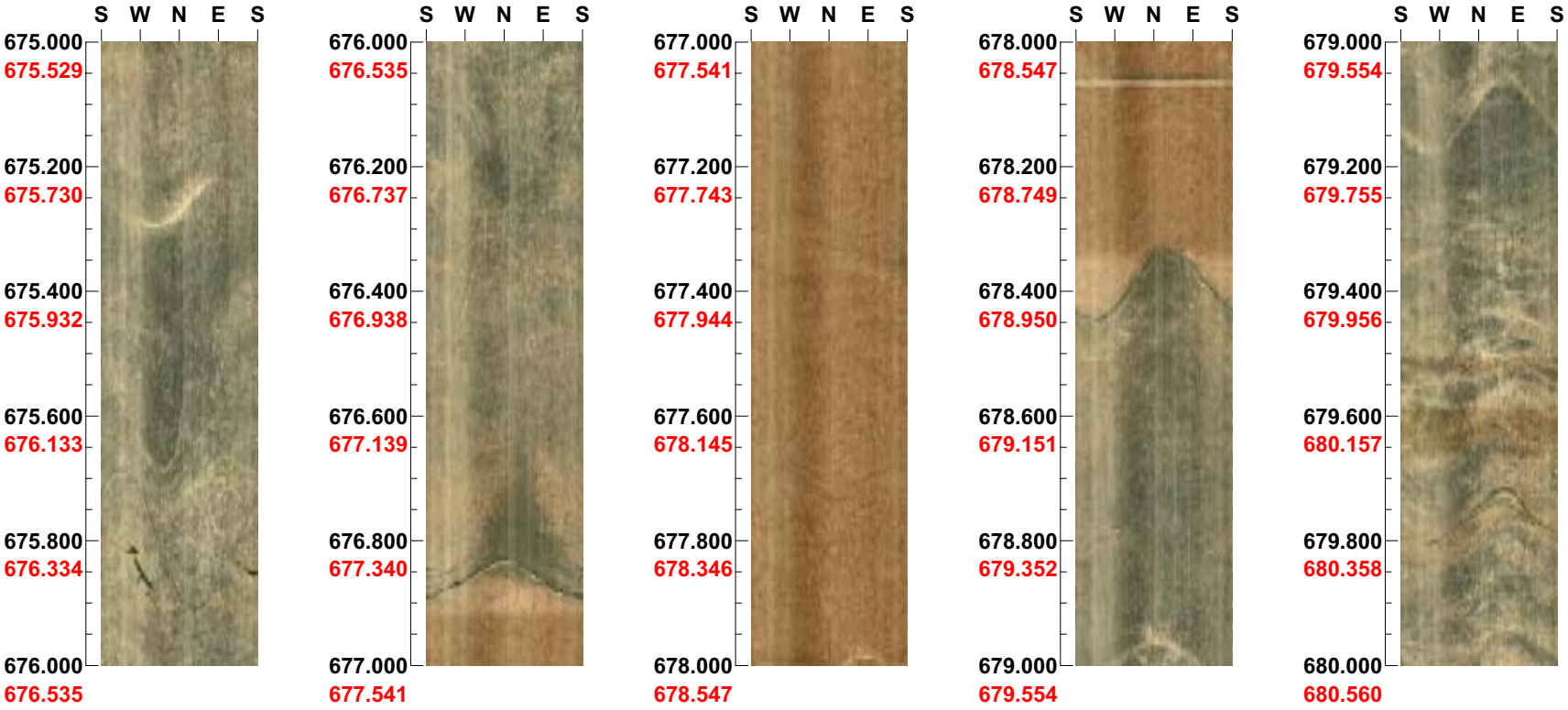
Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 670.000 - 675.000 m

(21 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

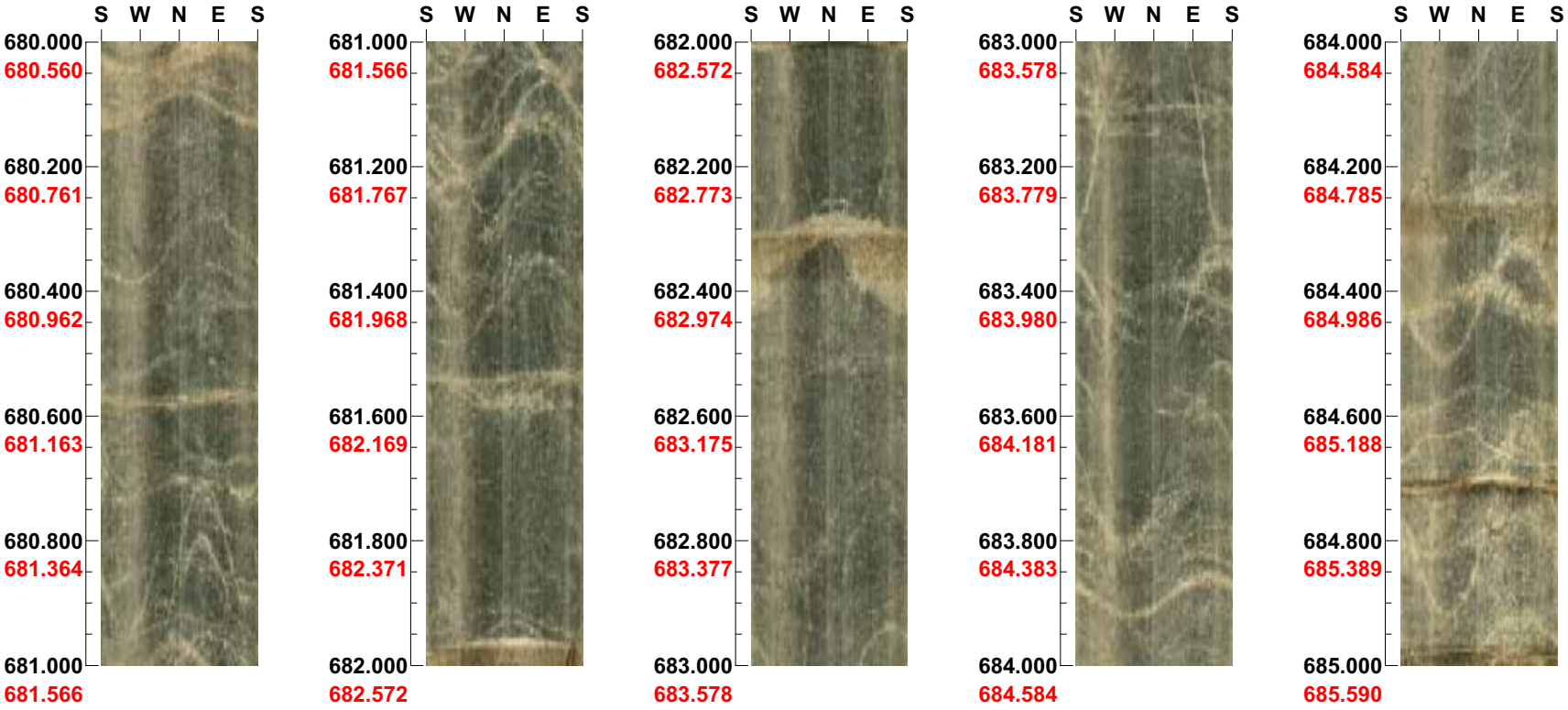
Depth range: 675.000 - 680.000 m



(22 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

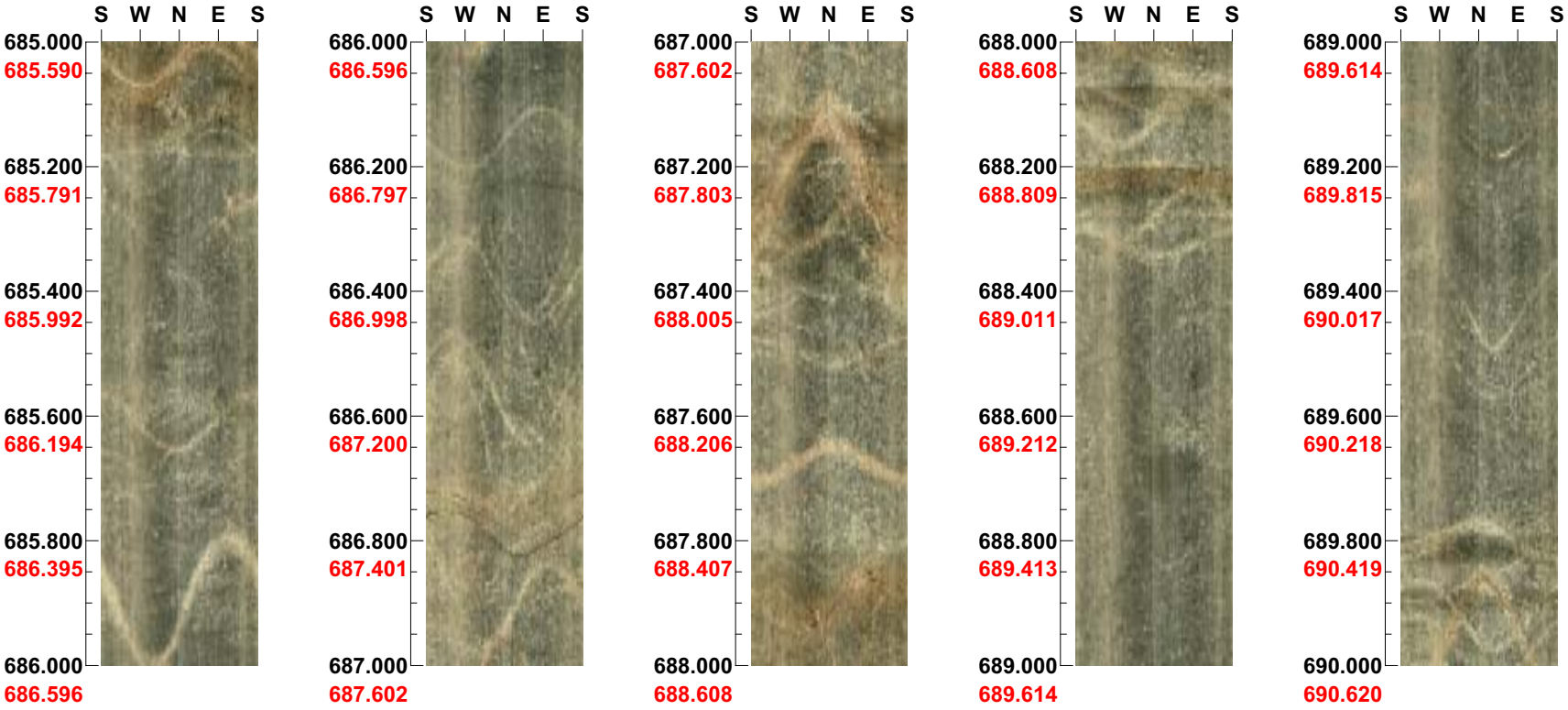
Depth range: 680.000 - 685.000 m



(23 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

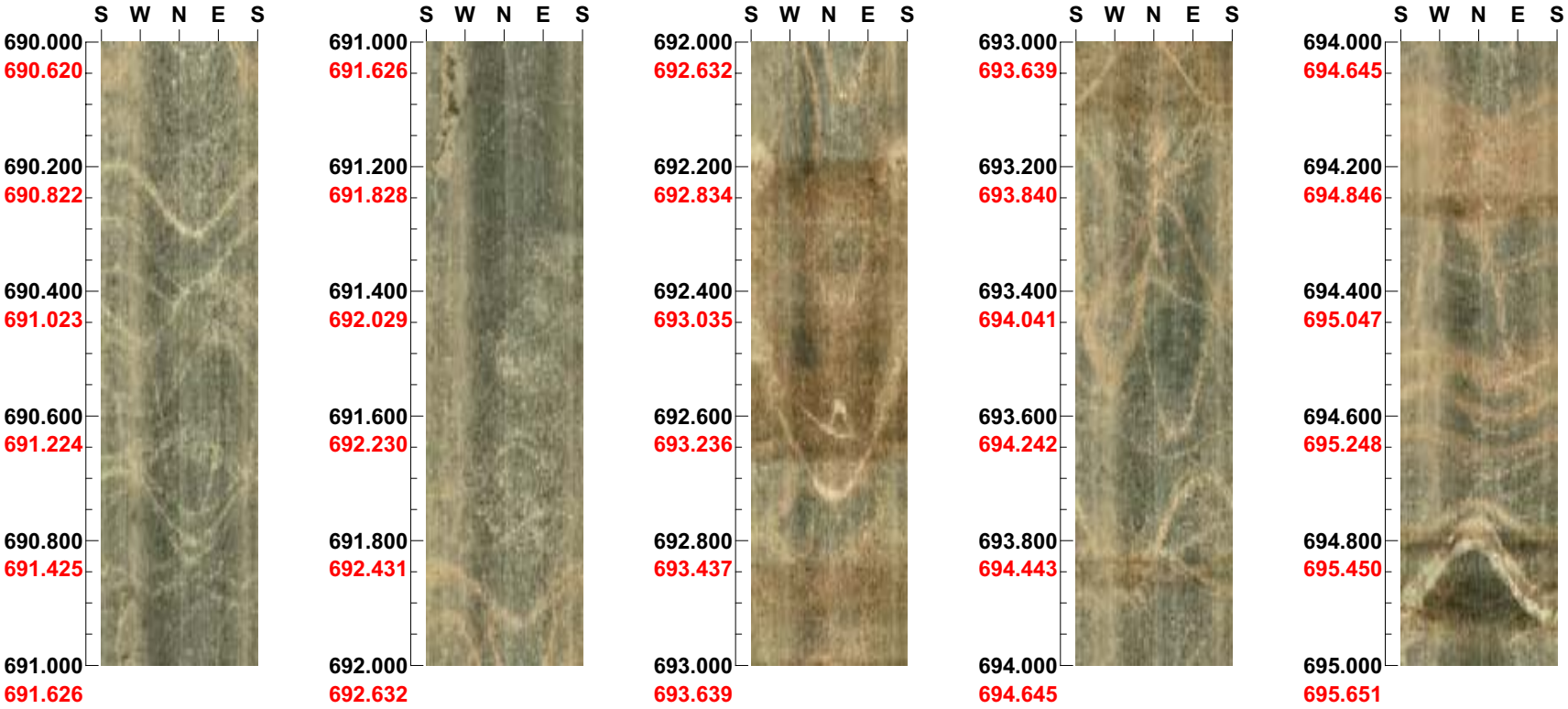
Depth range: 685.000 - 690.000 m



(24 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 690.000 - 695.000 m



(25 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 695.000 - 700.000 m

(26 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 700.000 - 705.000 m

Scale: 1/10 **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 705.000 - 710.000 m

(28 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

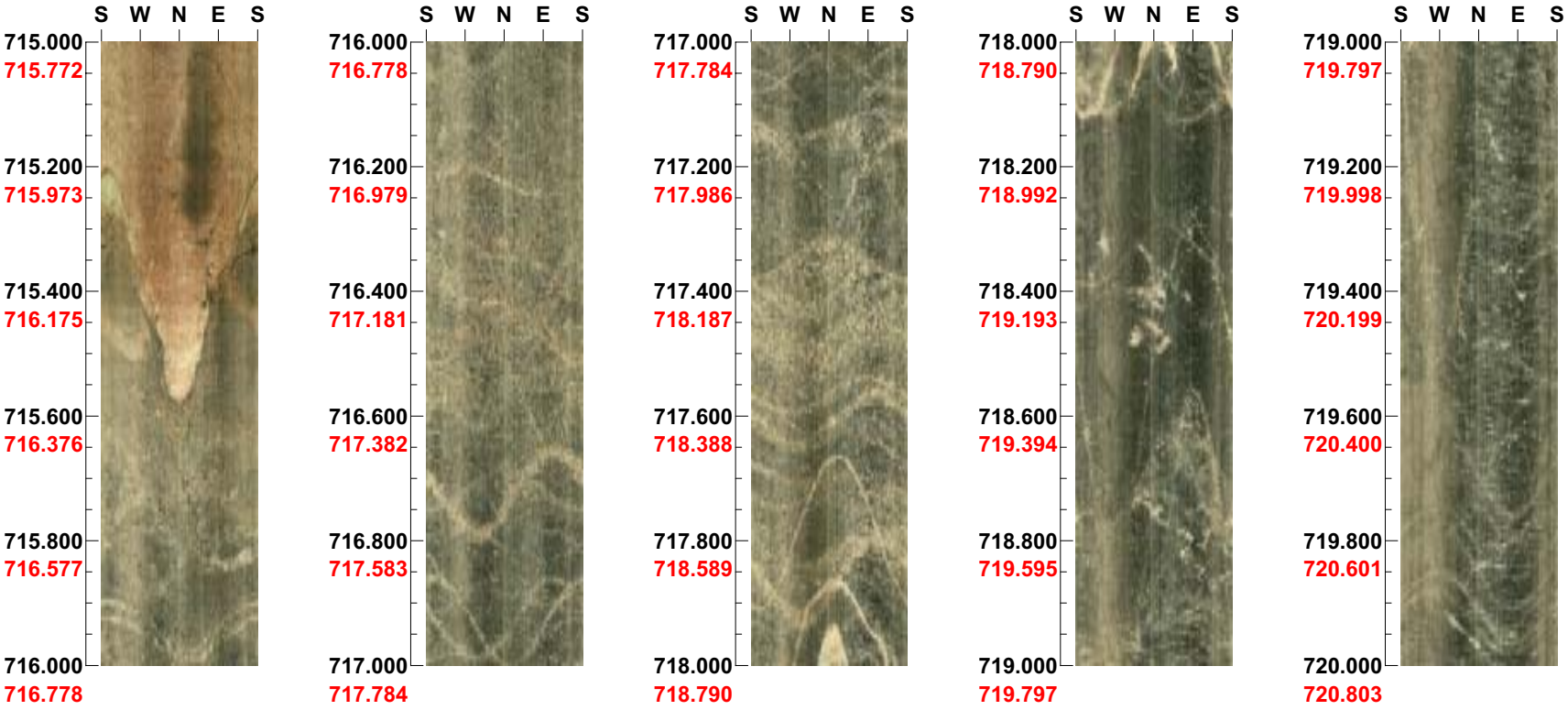
Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 710.000 - 715.000 m

Scale: 1/10 **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

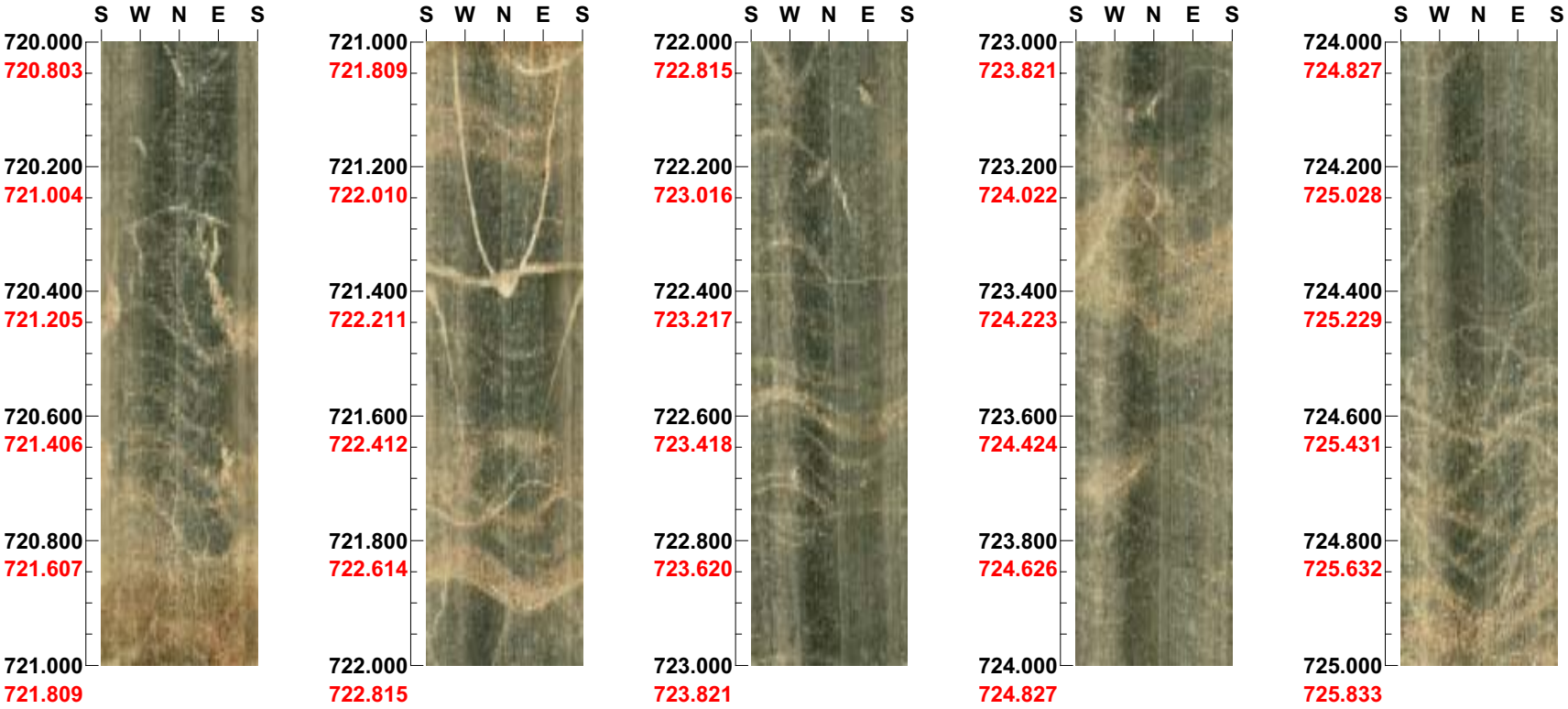
Depth range: 715.000 - 720.000 m



(30 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 720.000 - 725.000 m



(31 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

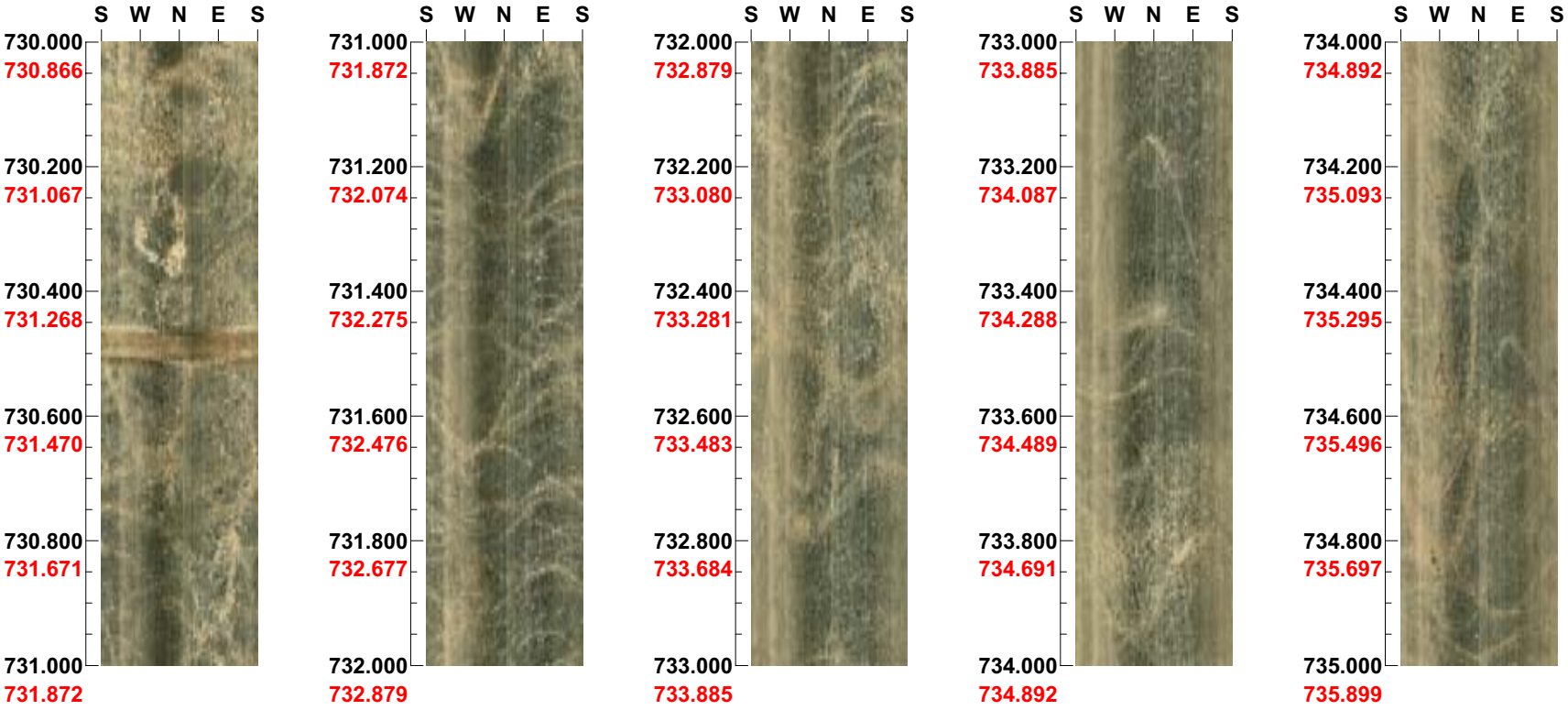
Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 725.000 - 730.000 m

(32 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

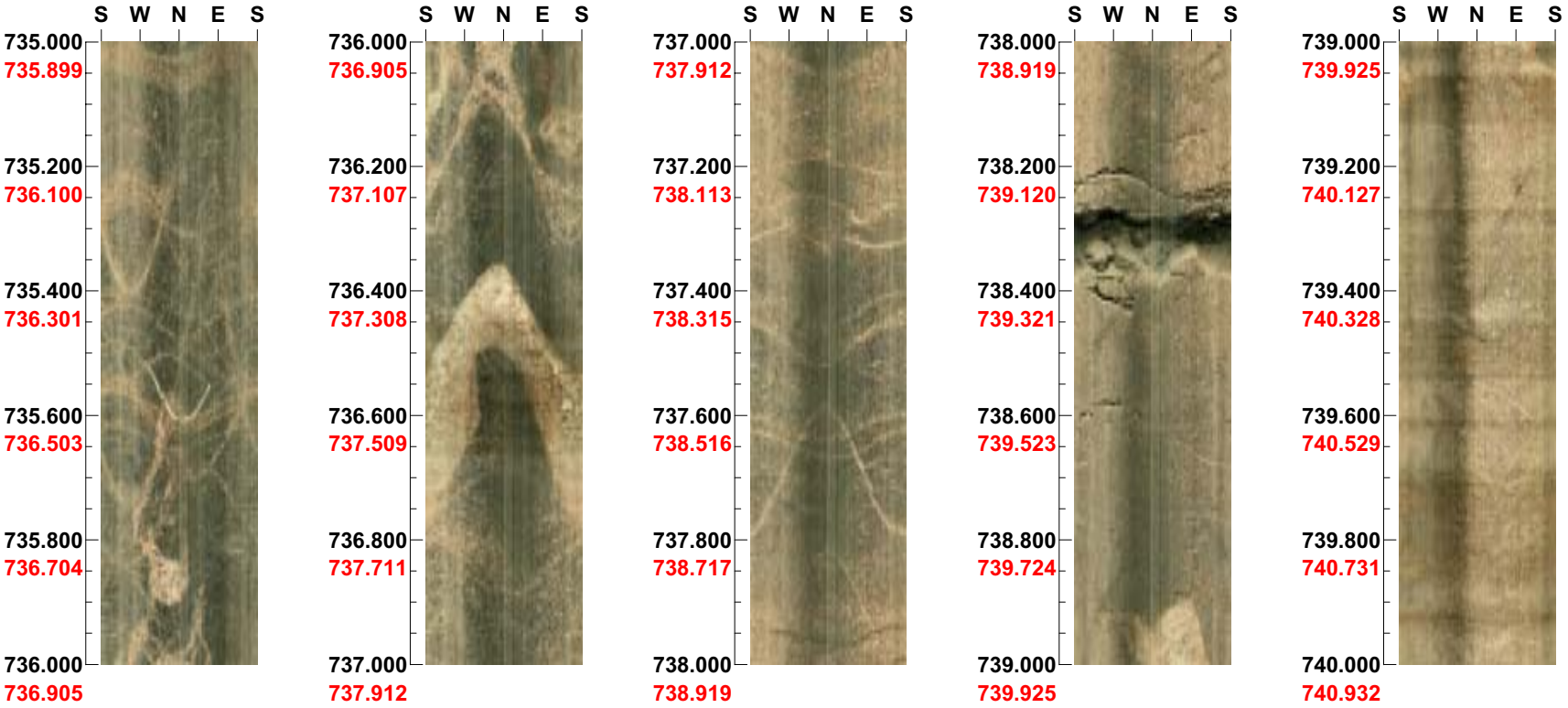
Depth range: 730.000 - 735.000 m



(33 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 735.000 - 740.000 m



(34 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 740.000 - 745.000 m

(35 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 745.000 - 750.000 m

(36 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 750.000 - 755.000 m

(37 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

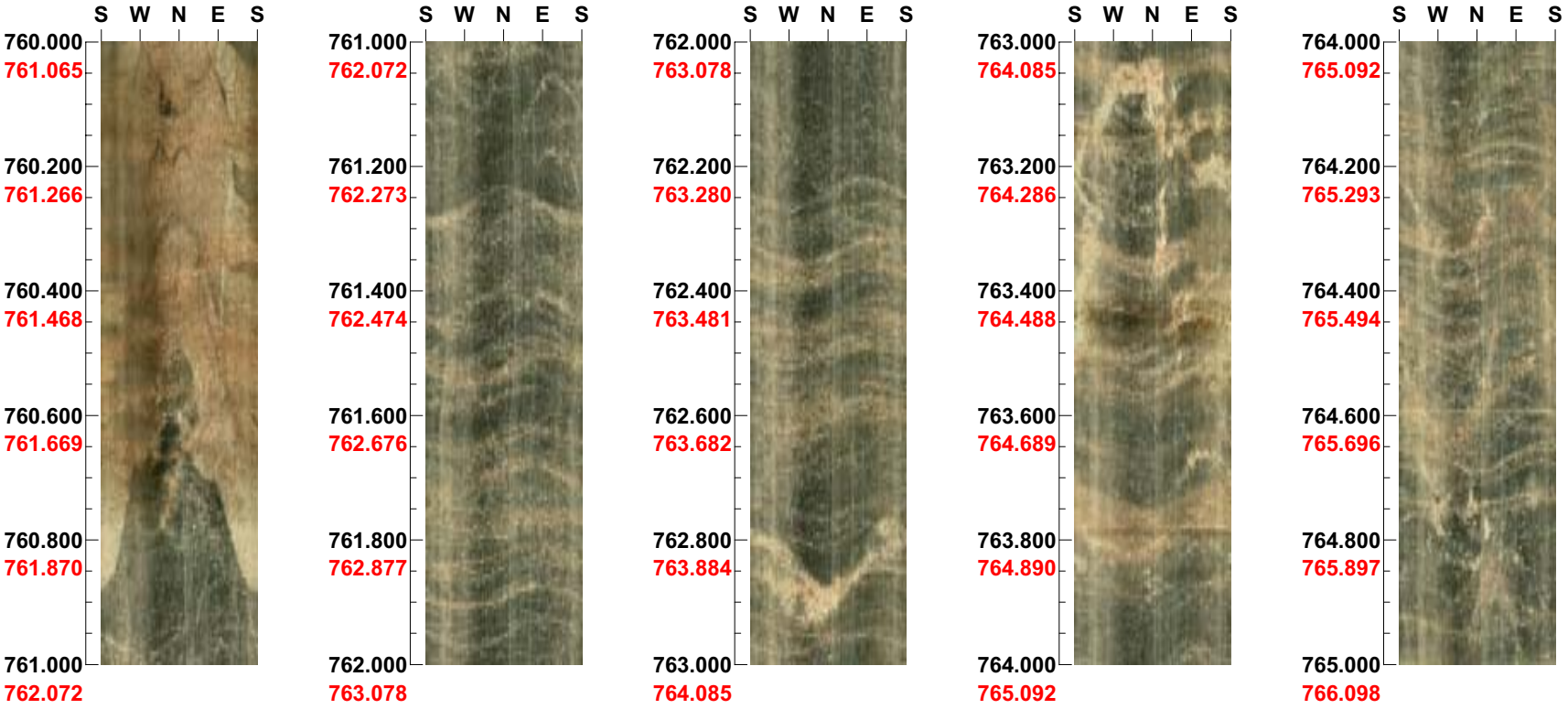
Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 755.000 - 760.000 m

(38 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

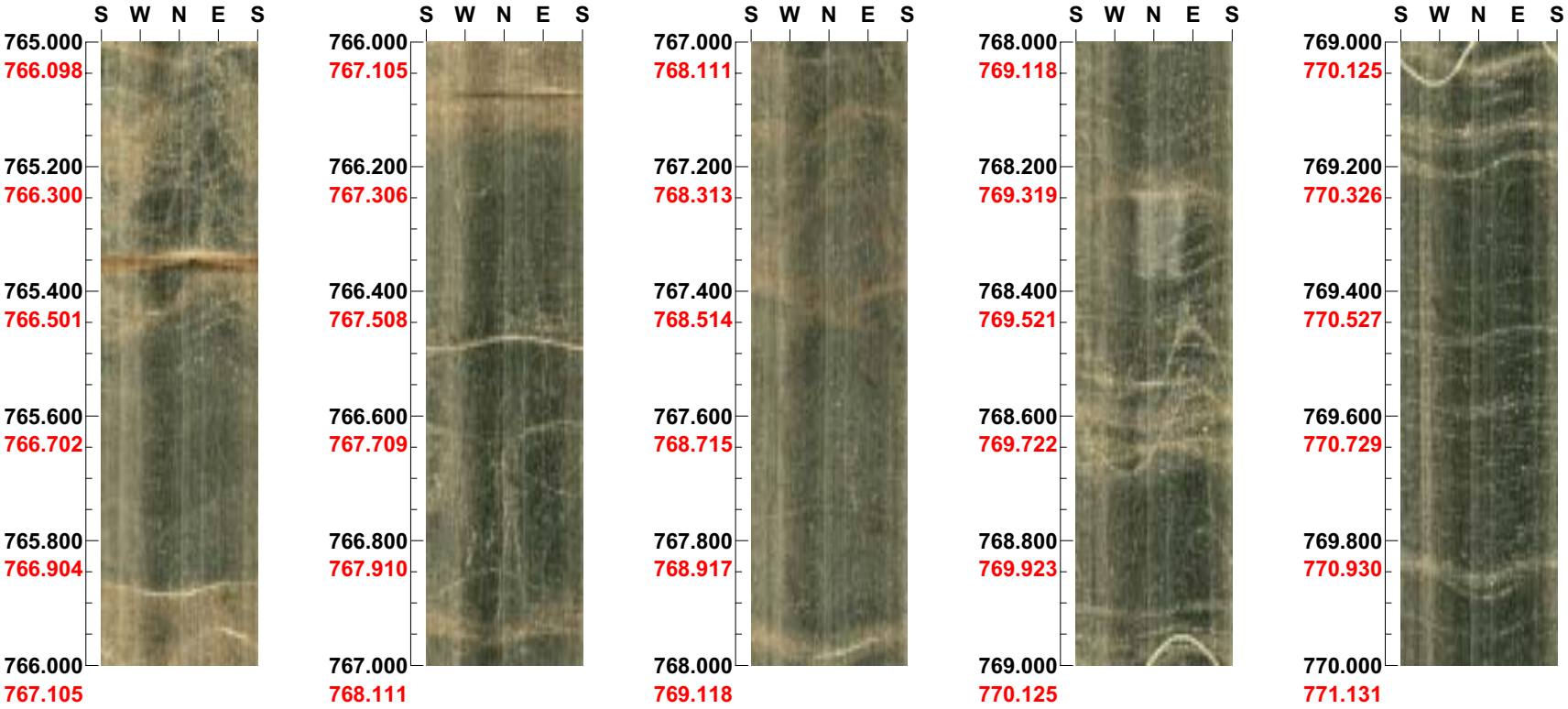
Depth range: 760.000 - 765.000 m



(39 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

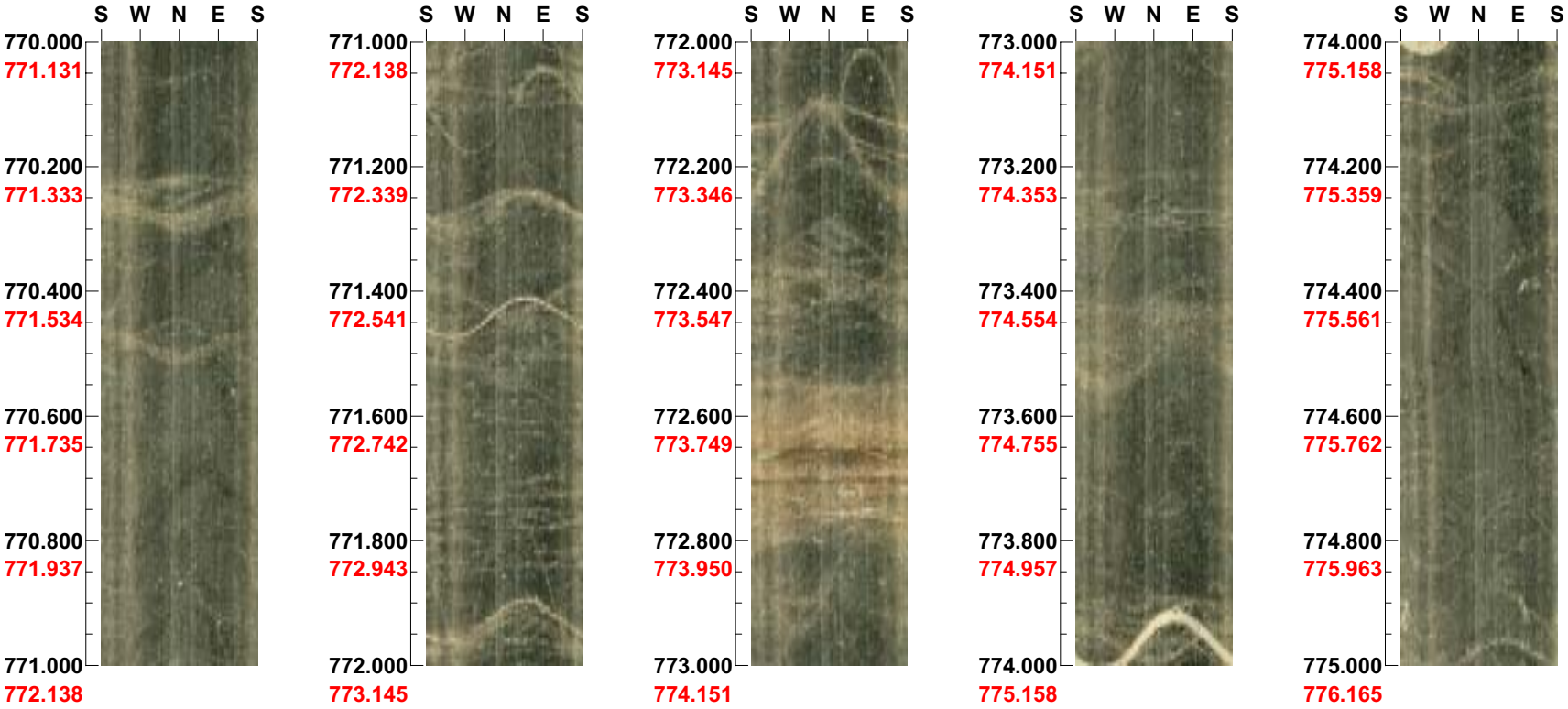
Depth range: 765.000 - 770.000 m



(40 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

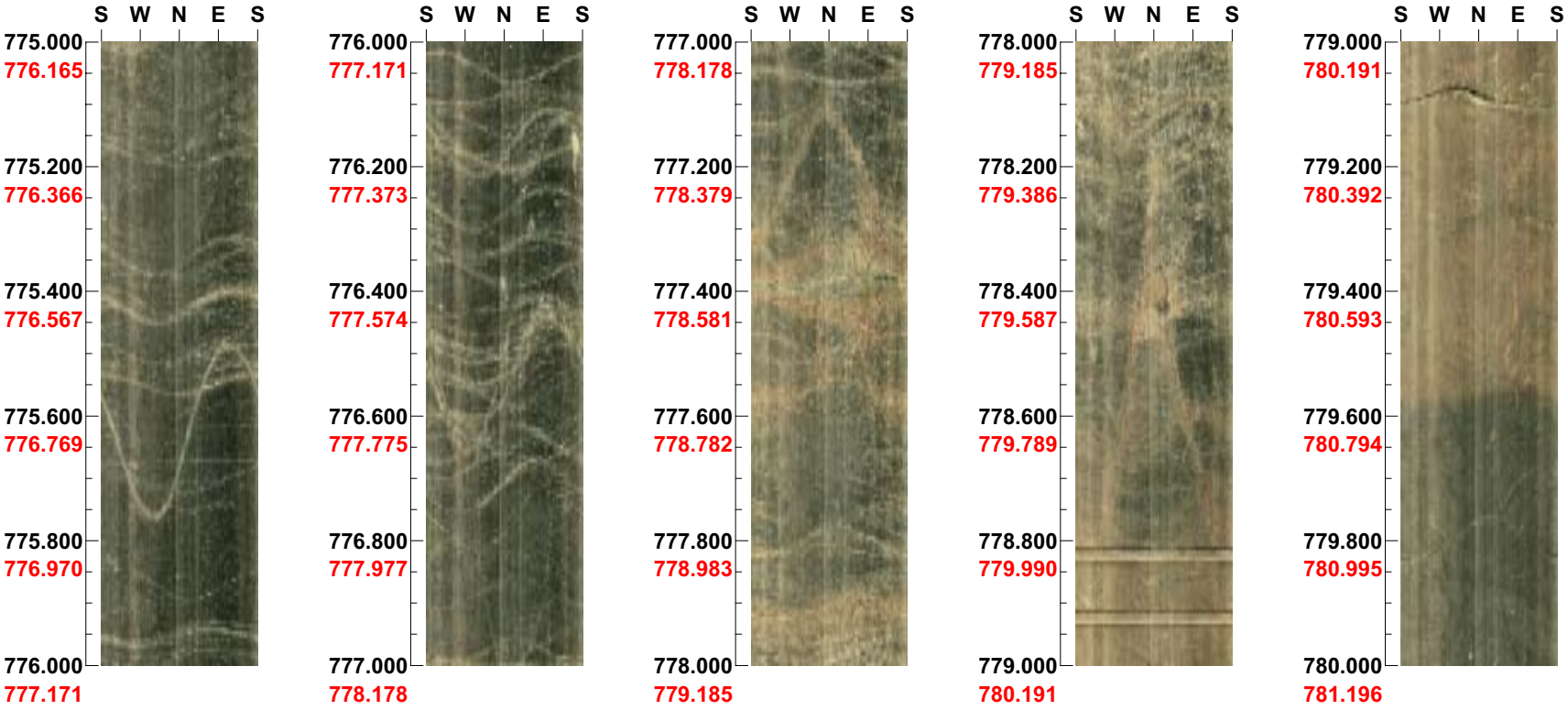
Depth range: 770.000 - 775.000 m



(41 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 775.000 - 780.000 m



(42 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

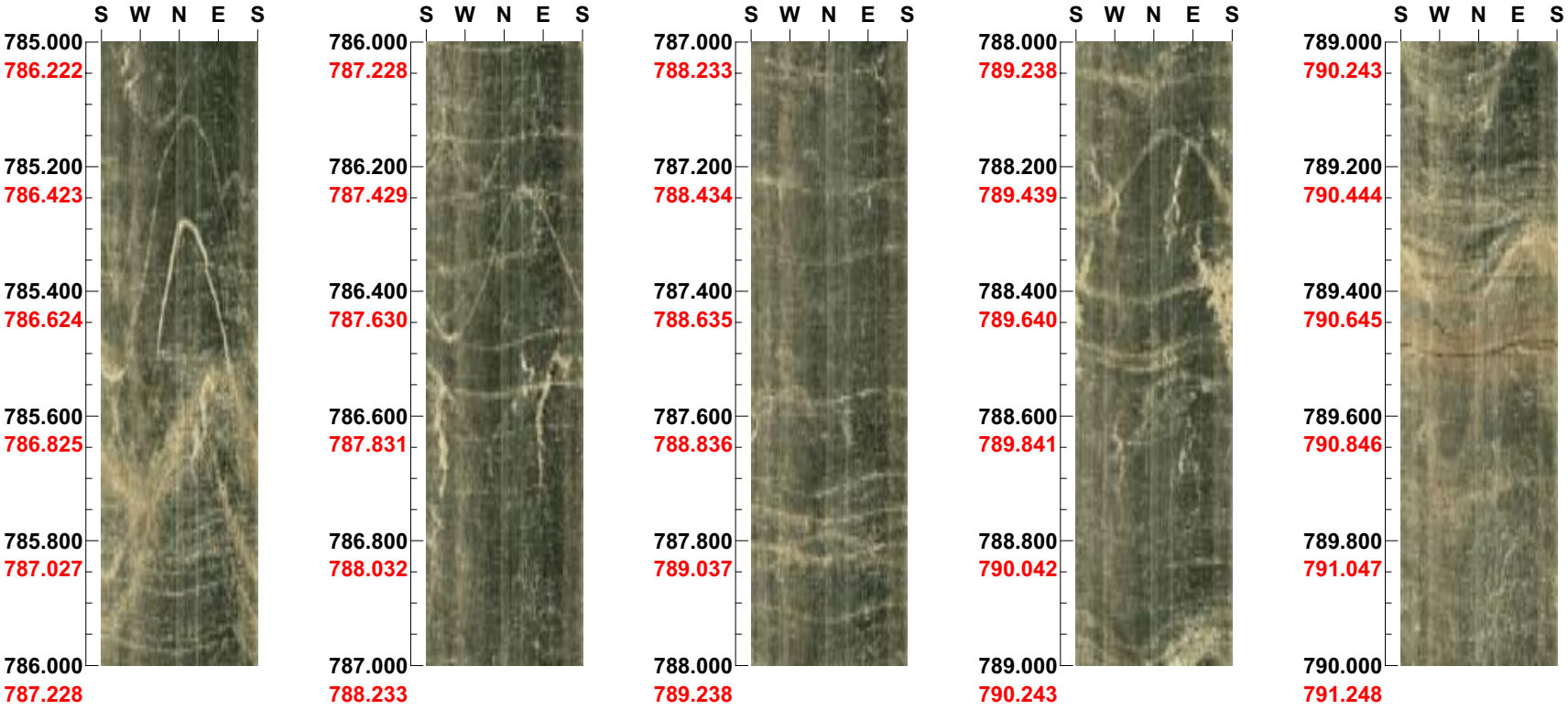
Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 780.000 - 785.000 m

(43 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 785.000 - 790.000 m



(44 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

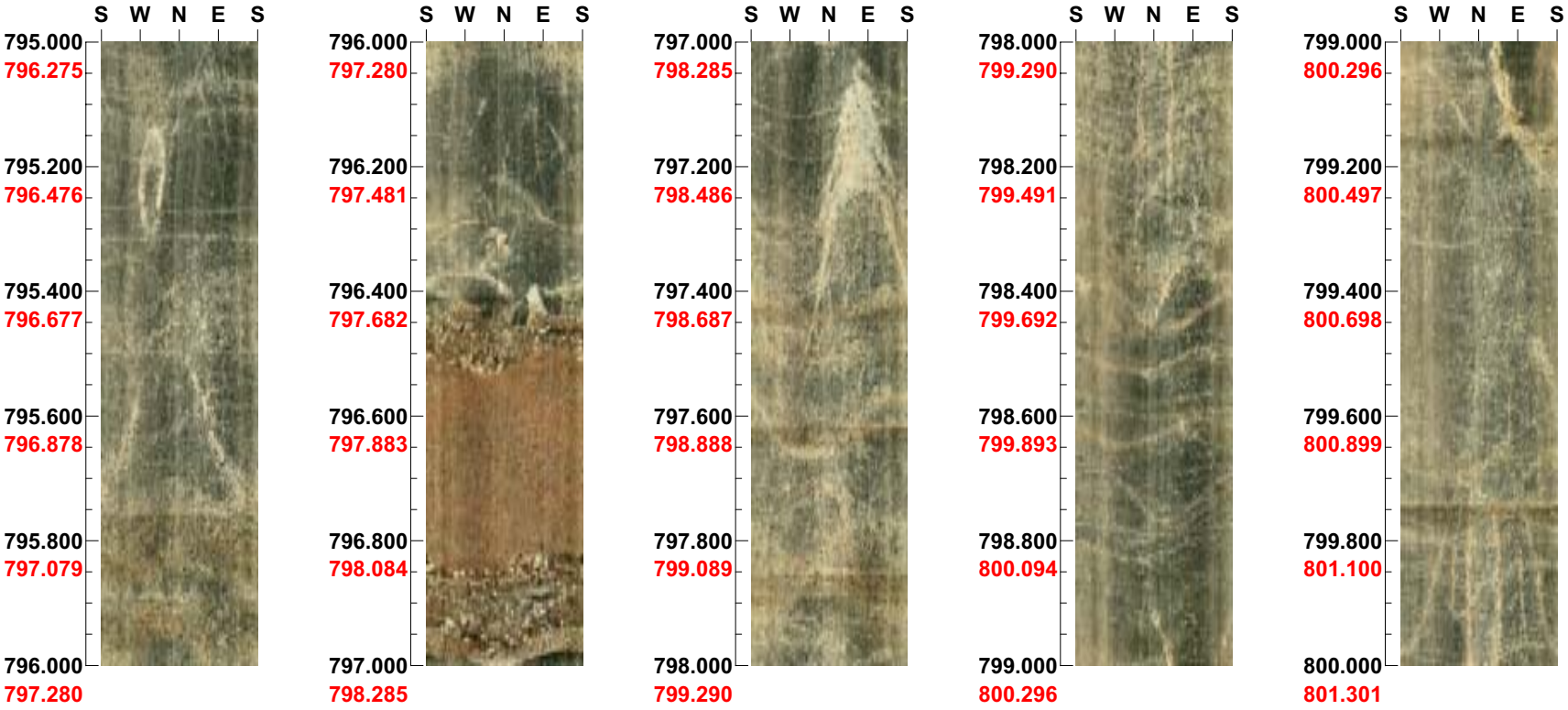
Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 790.000 - 795.000 m

(45 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 795.000 - 800.000 m



(46 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 800.000 - 805.000 m

(47 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

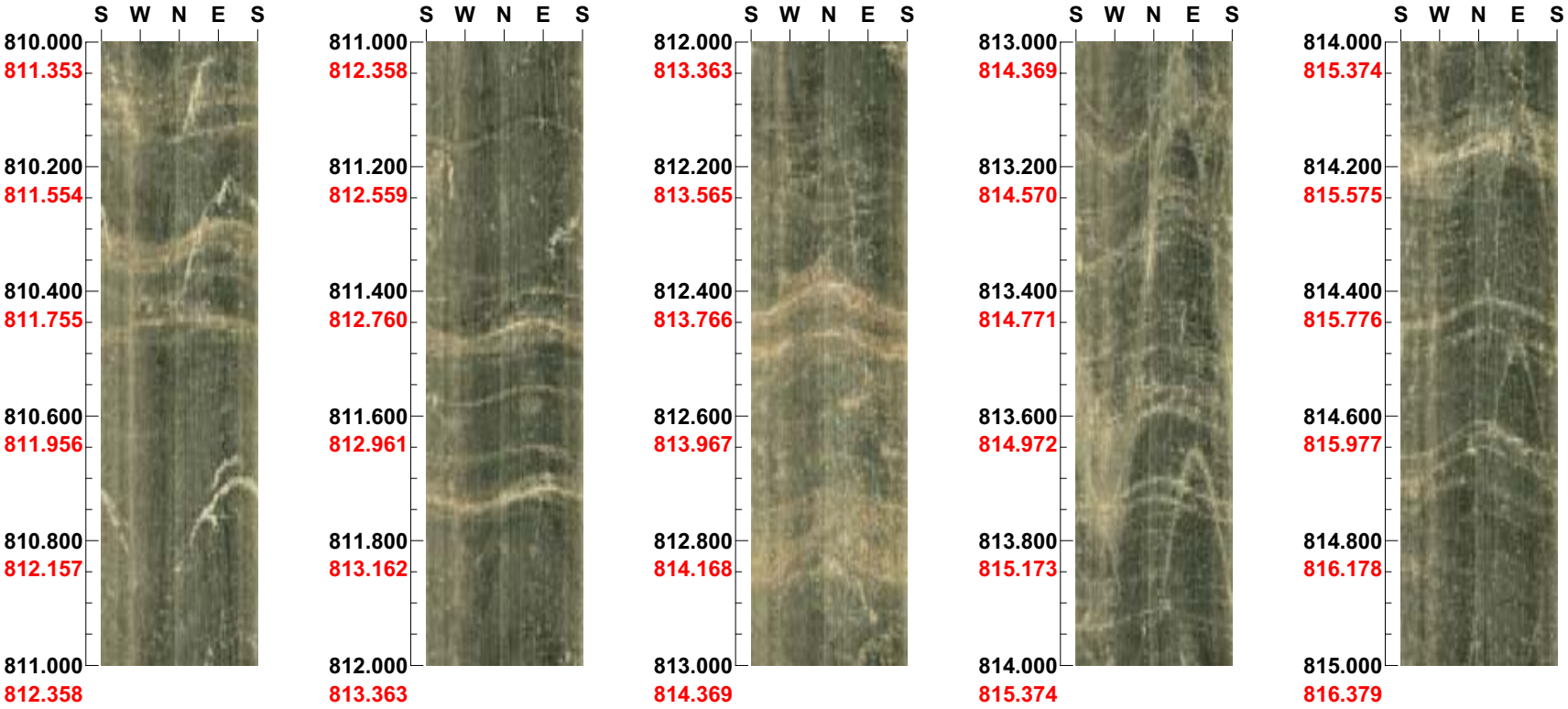
Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 805.000 - 810.000 m

(48 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 810.000 - 815.000 m



(49 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 815.000 - 820.000 m

(50 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

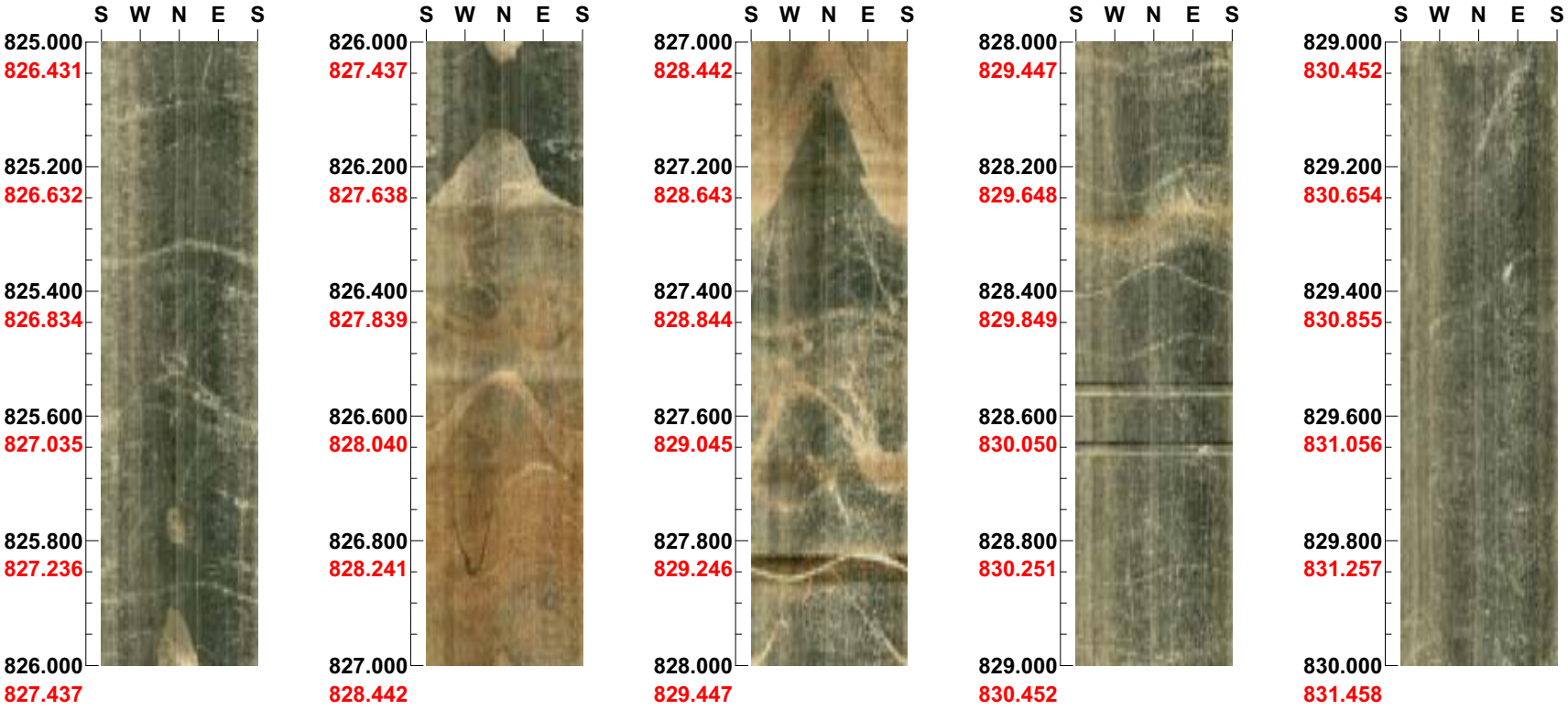
Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 820.000 - 825.000 m

(51 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

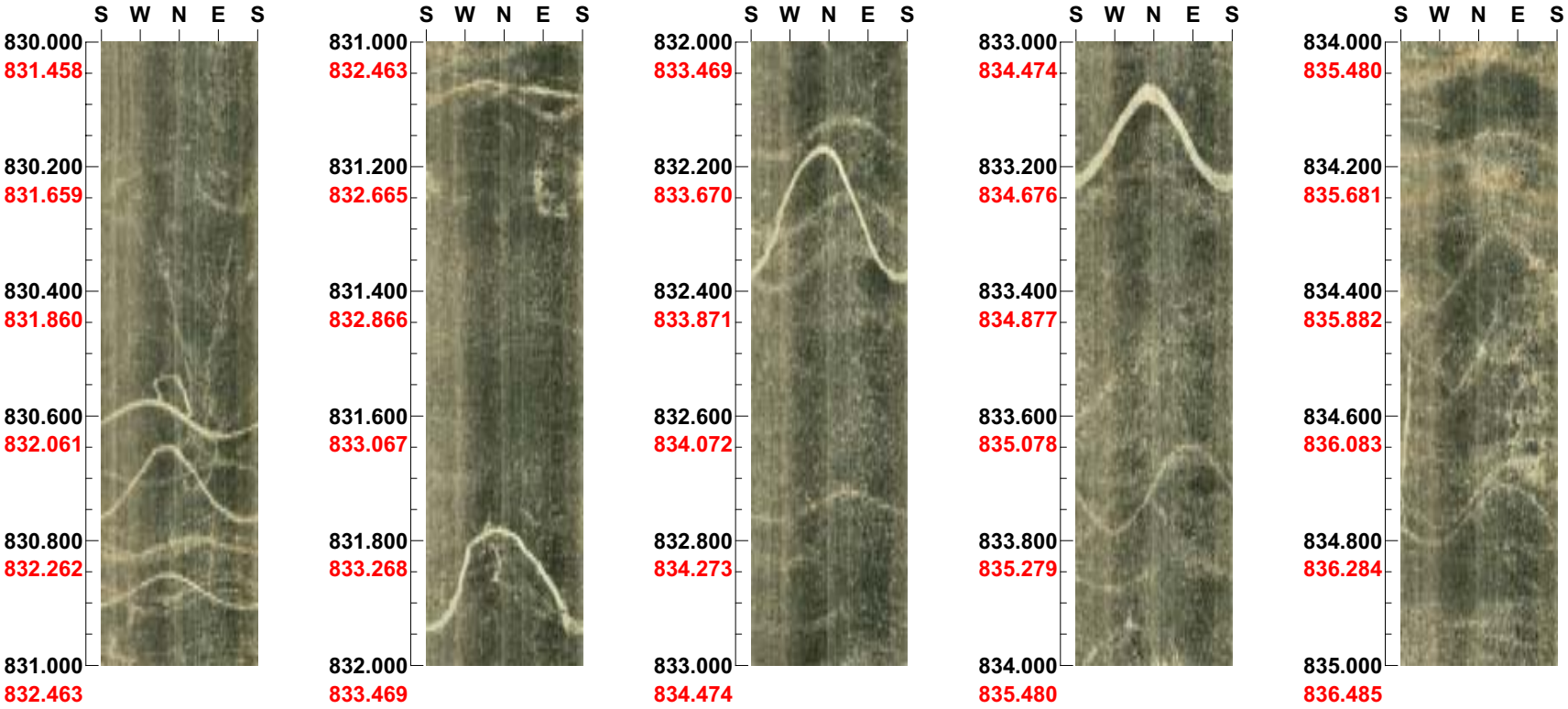
Depth range: 825.000 - 830.000 m



(52 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

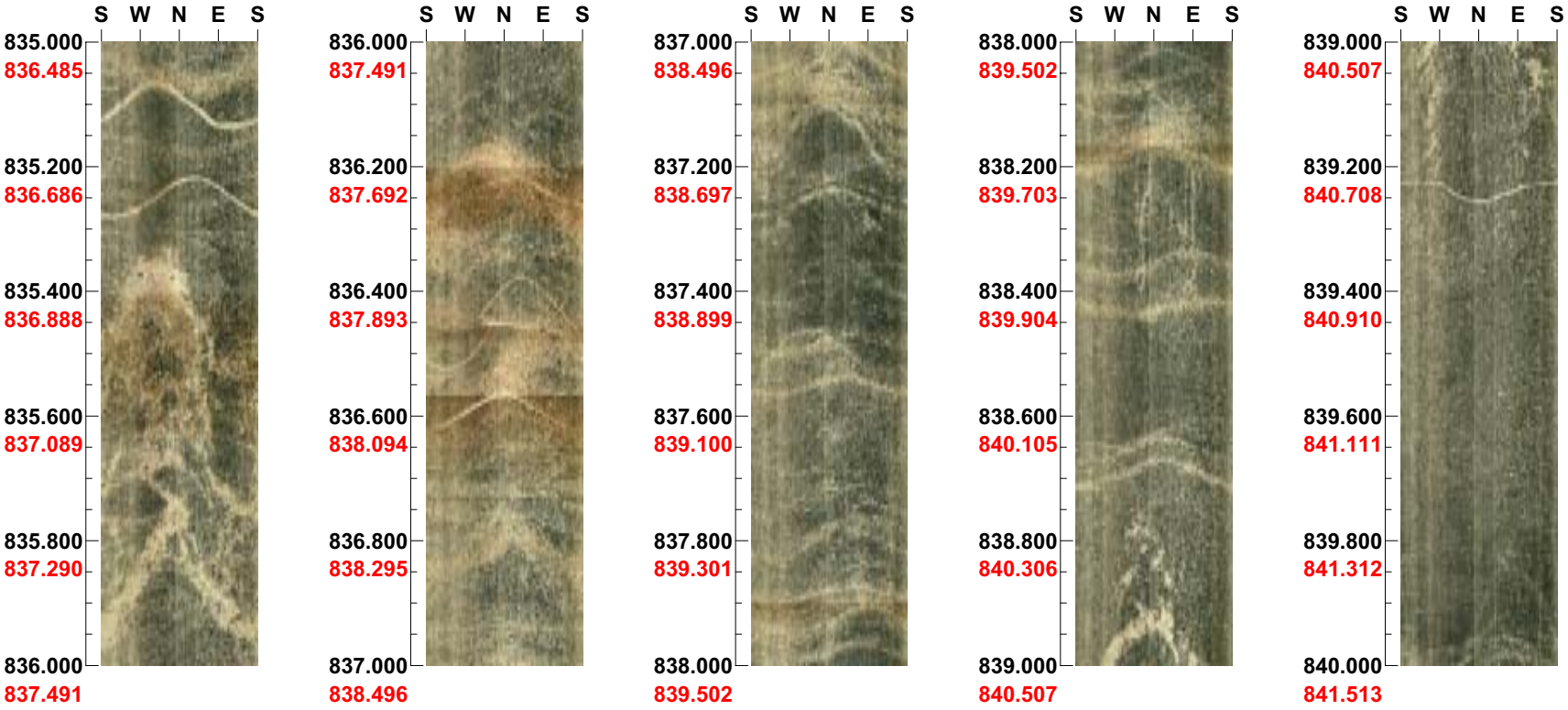
Depth range: 830.000 - 835.000 m



(53 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

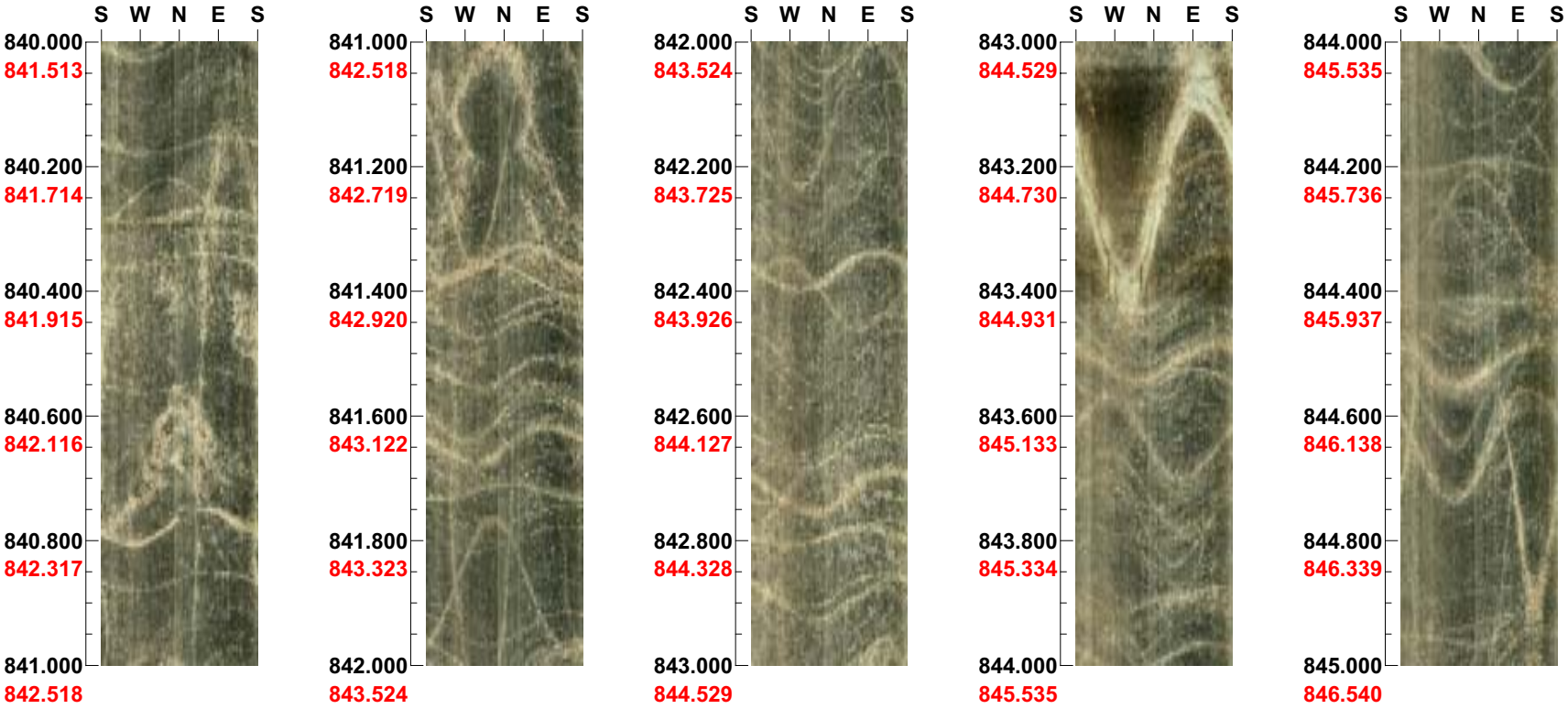
Depth range: 835.000 - 840.000 m



(54 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

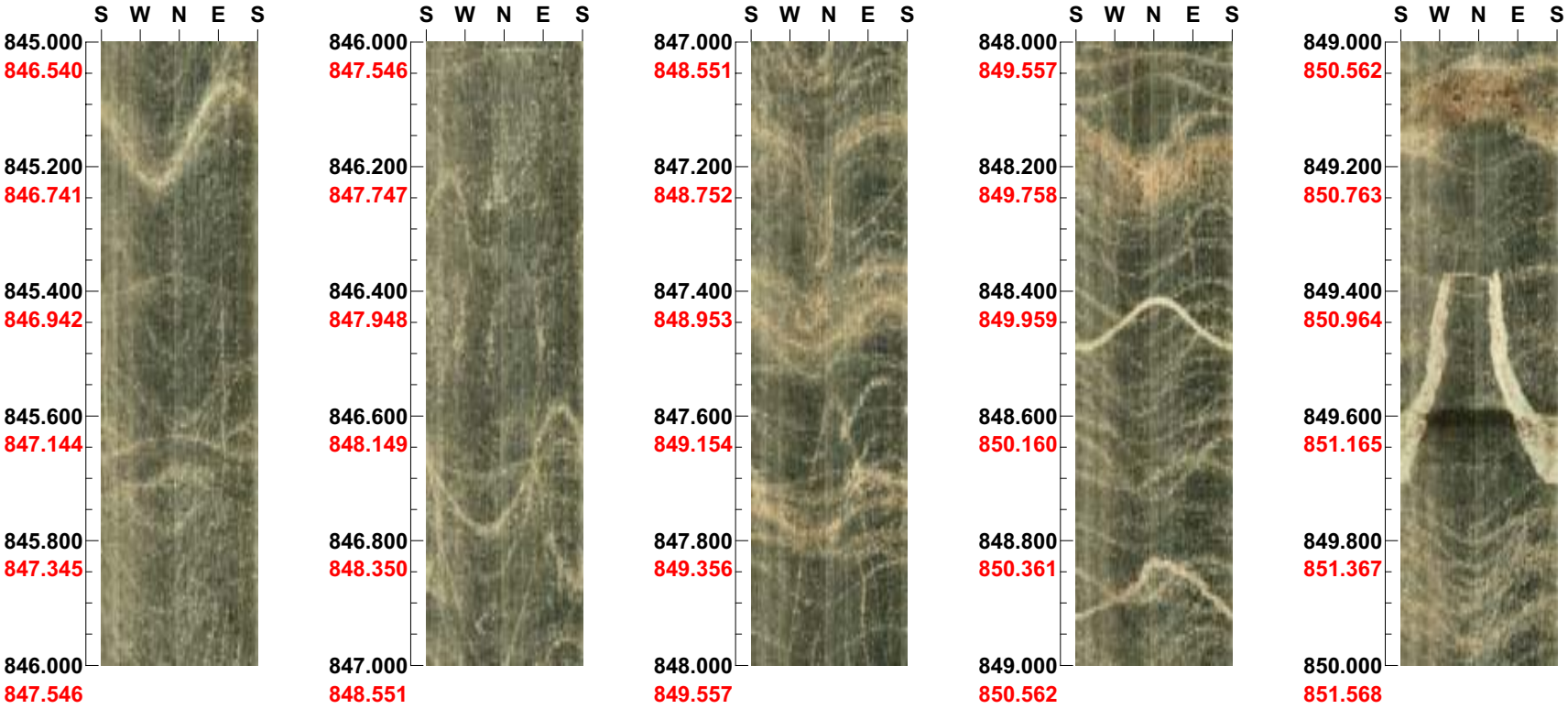
Depth range: 840.000 - 845.000 m



(55 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

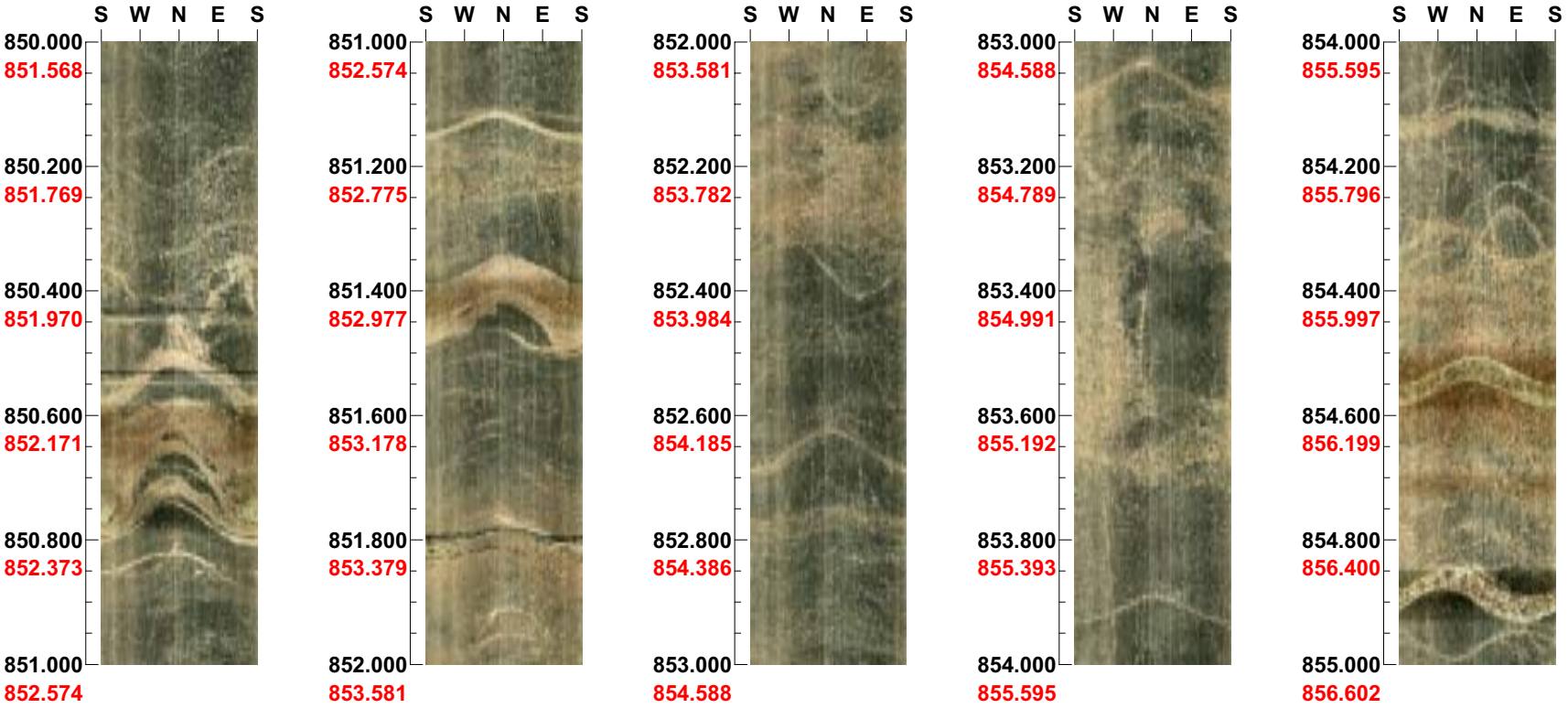
Depth range: 845.000 - 850.000 m



(56 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

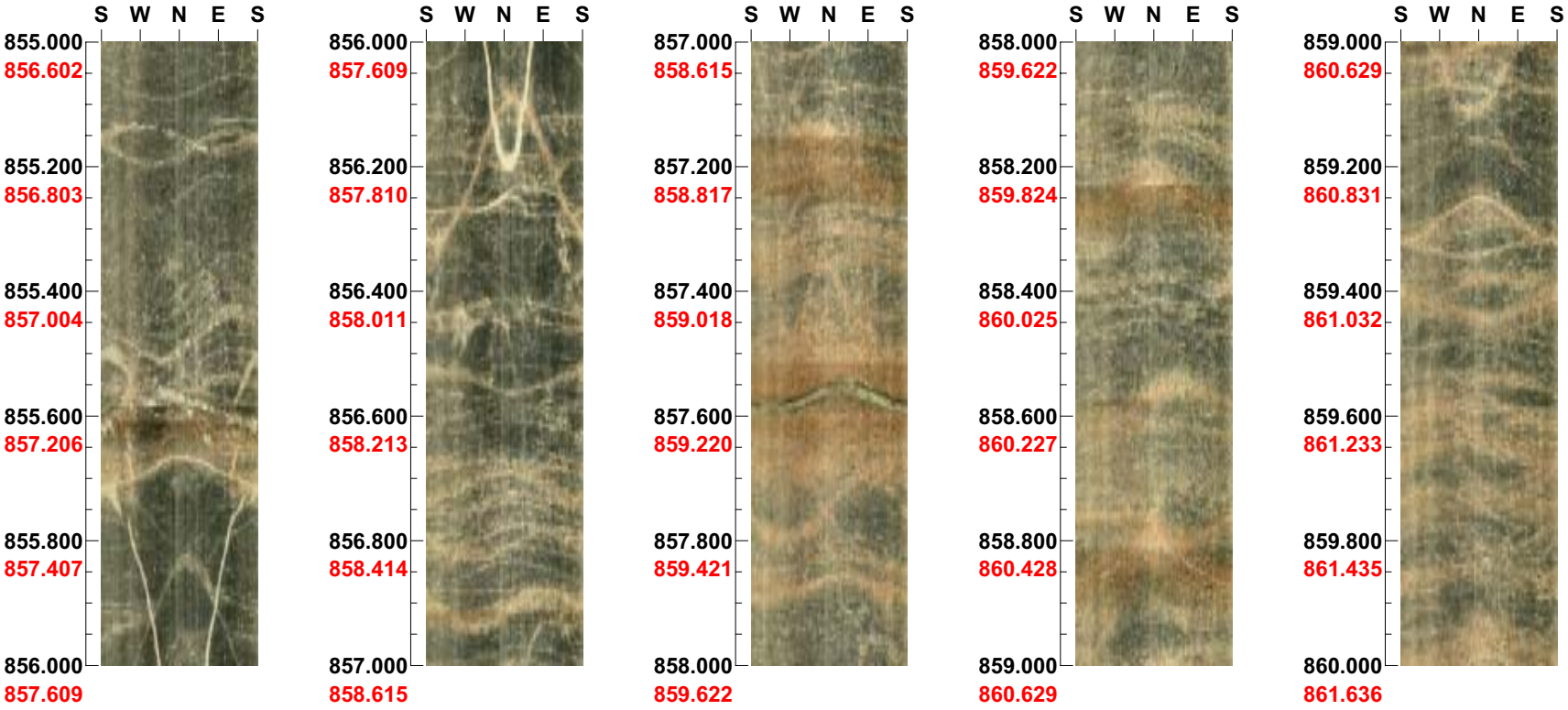
Depth range: 850.000 - 855.000 m



(57 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

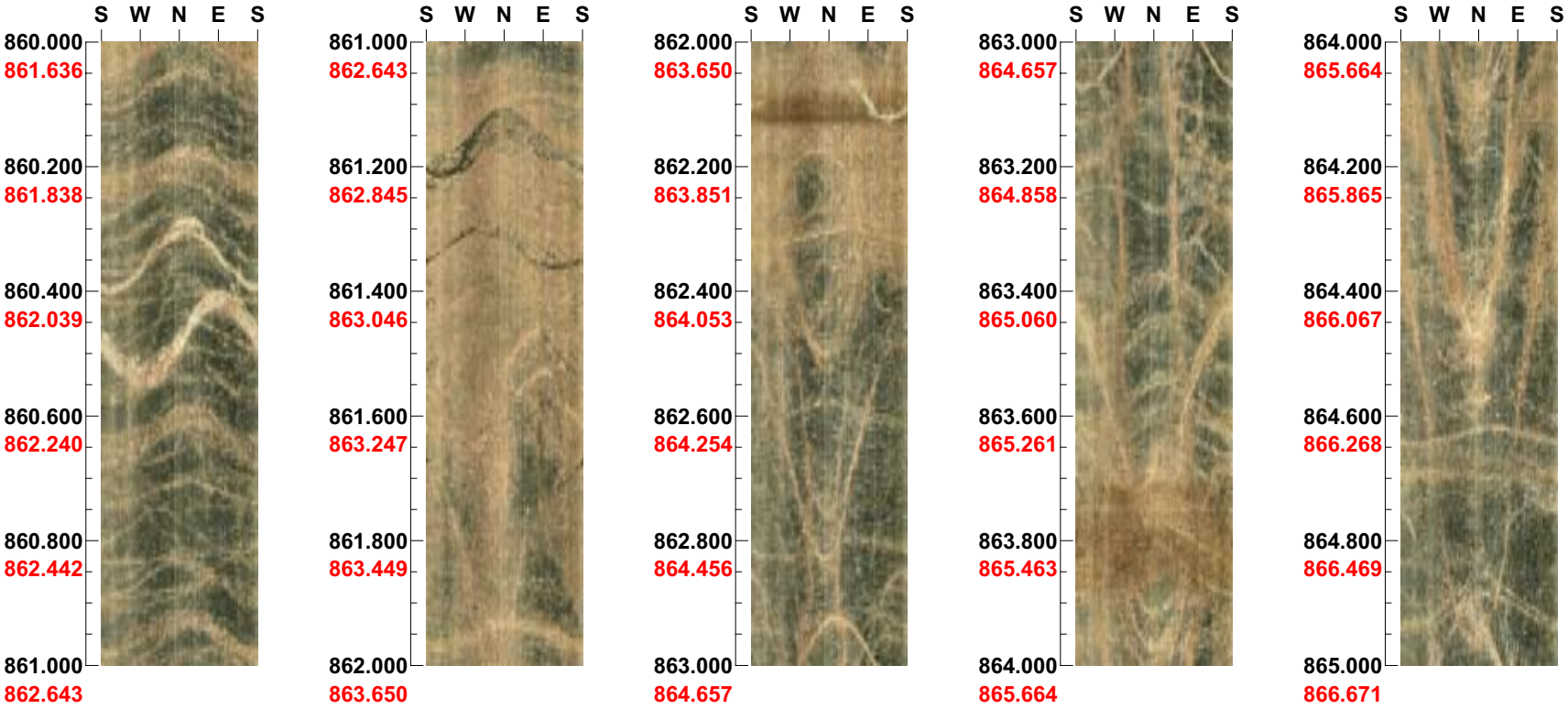
Depth range: 855.000 - 860.000 m



(58 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

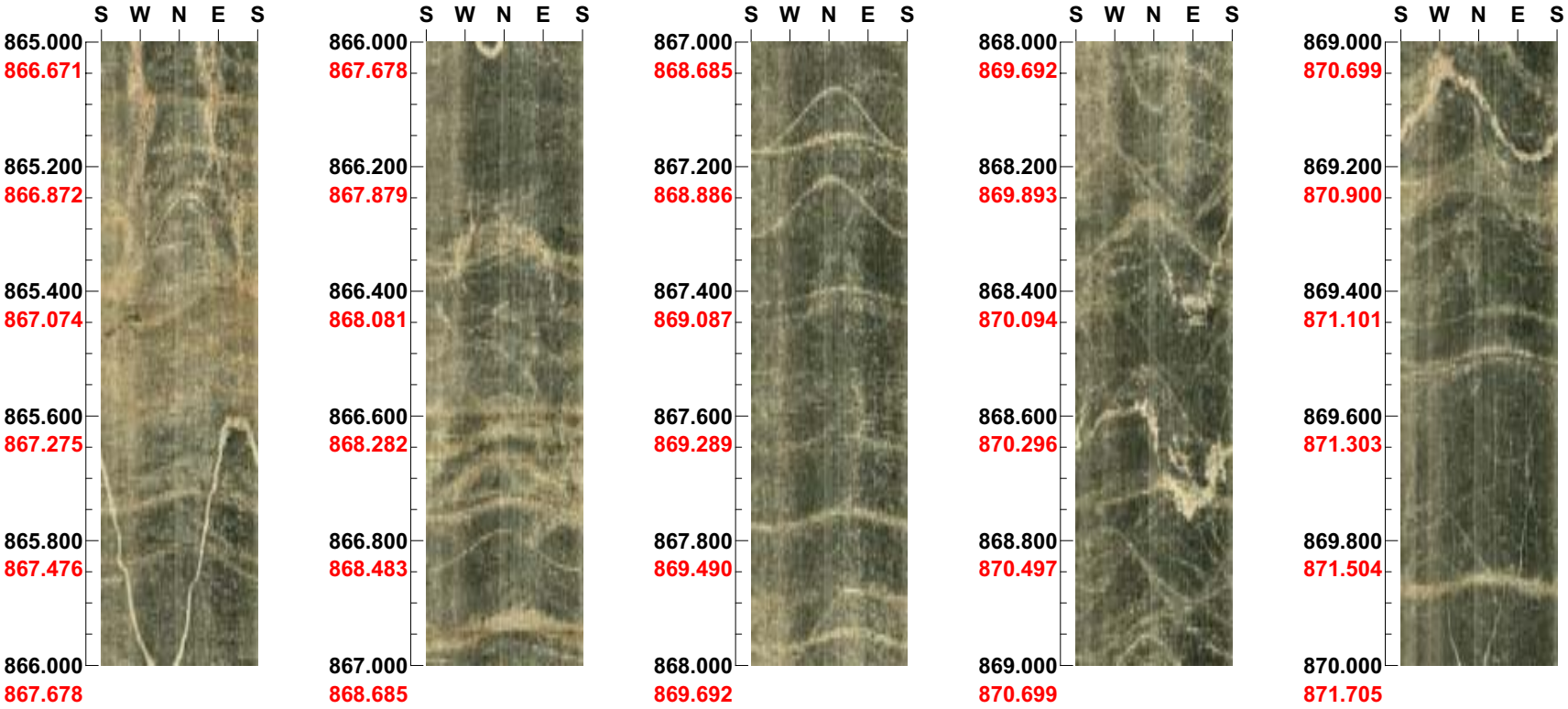
Depth range: 860.000 - 865.000 m



Scale: 1/10 **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

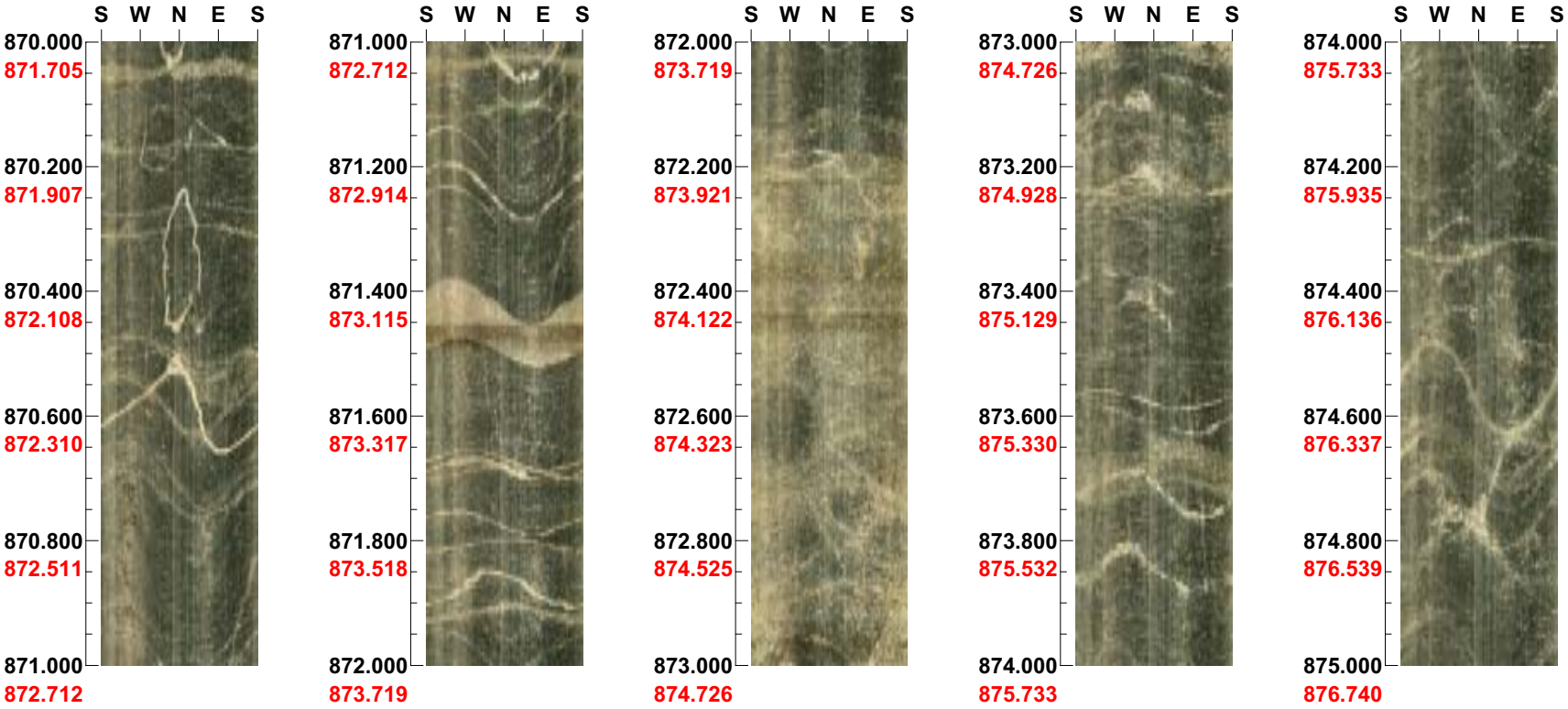
Depth range: 865.000 - 870.000 m



(60 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

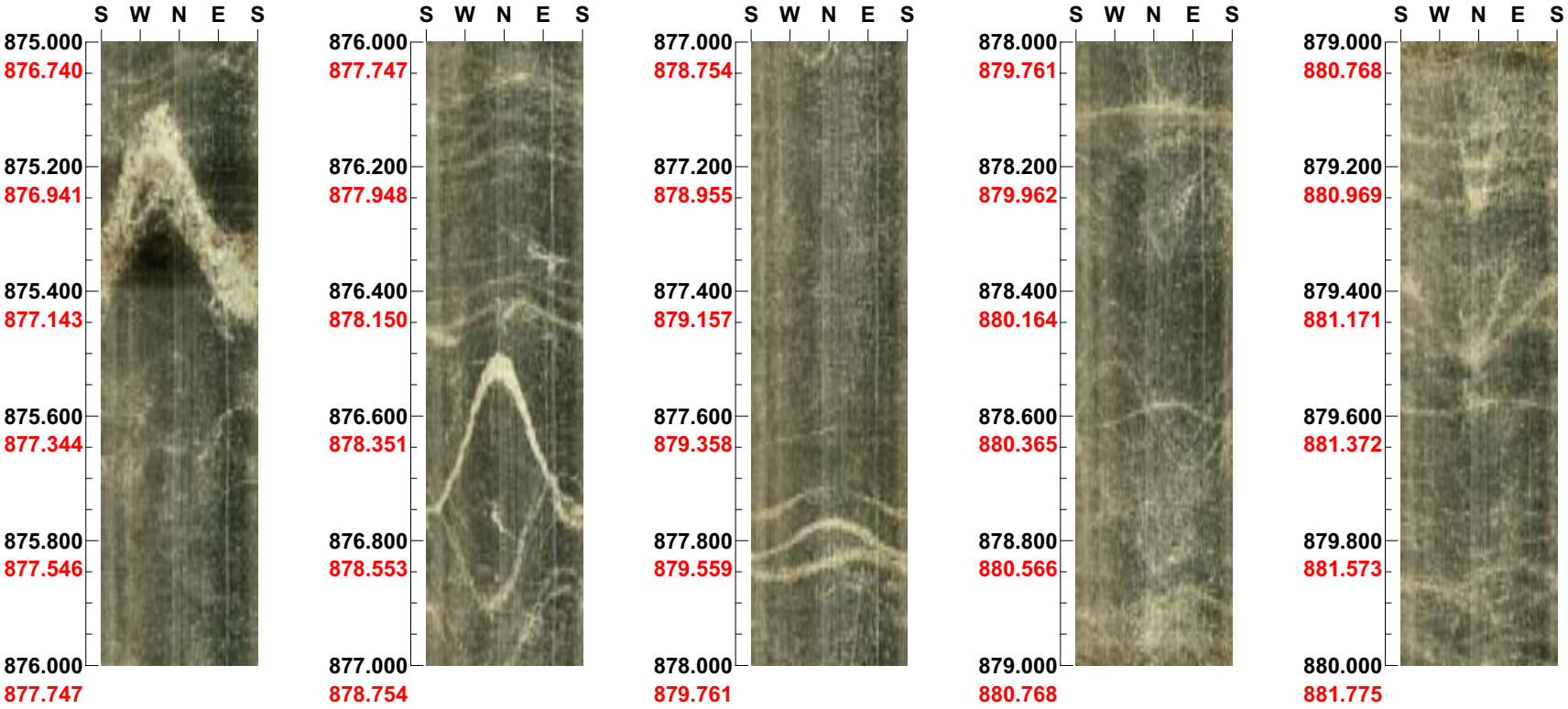
Depth range: 870.000 - 875.000 m



(61 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

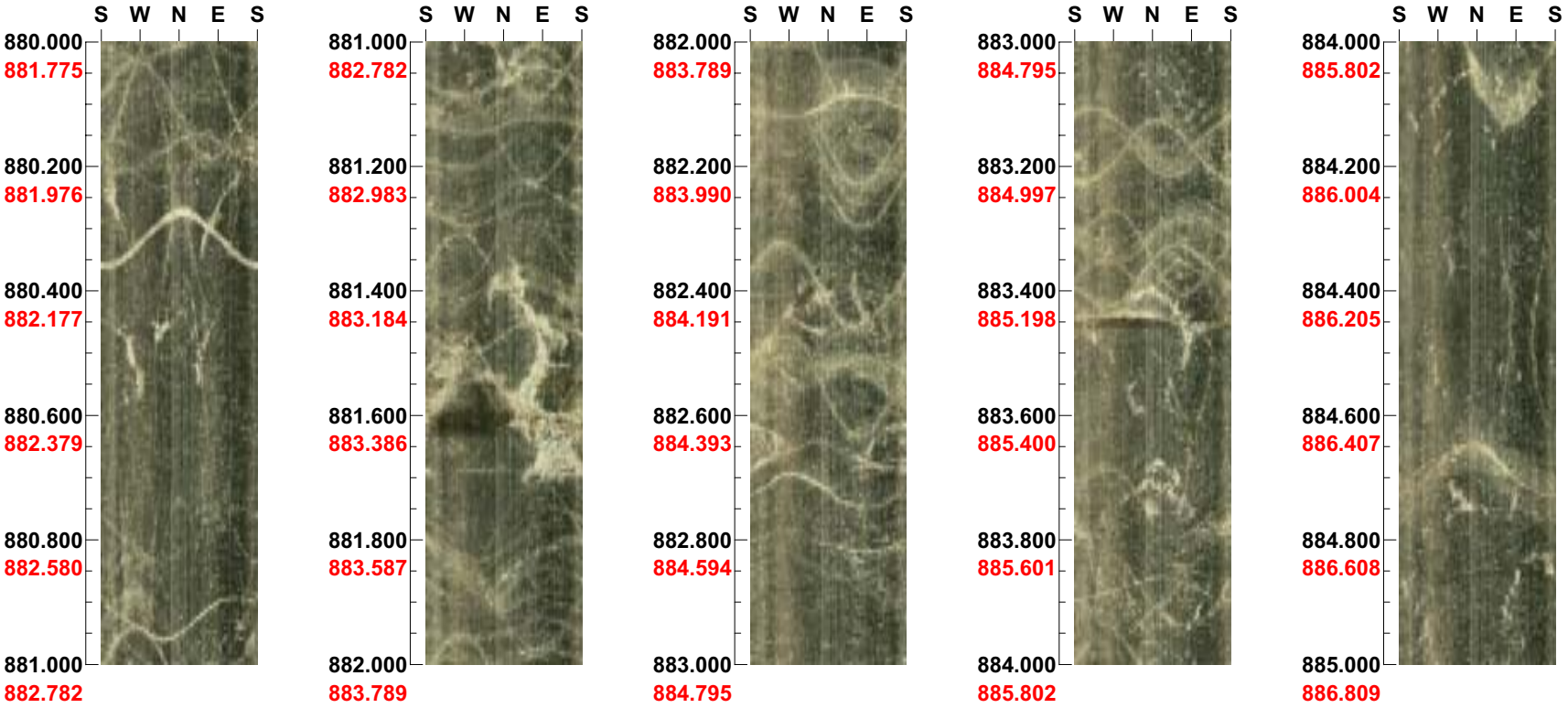
Depth range: 875.000 - 880.000 m



(62 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

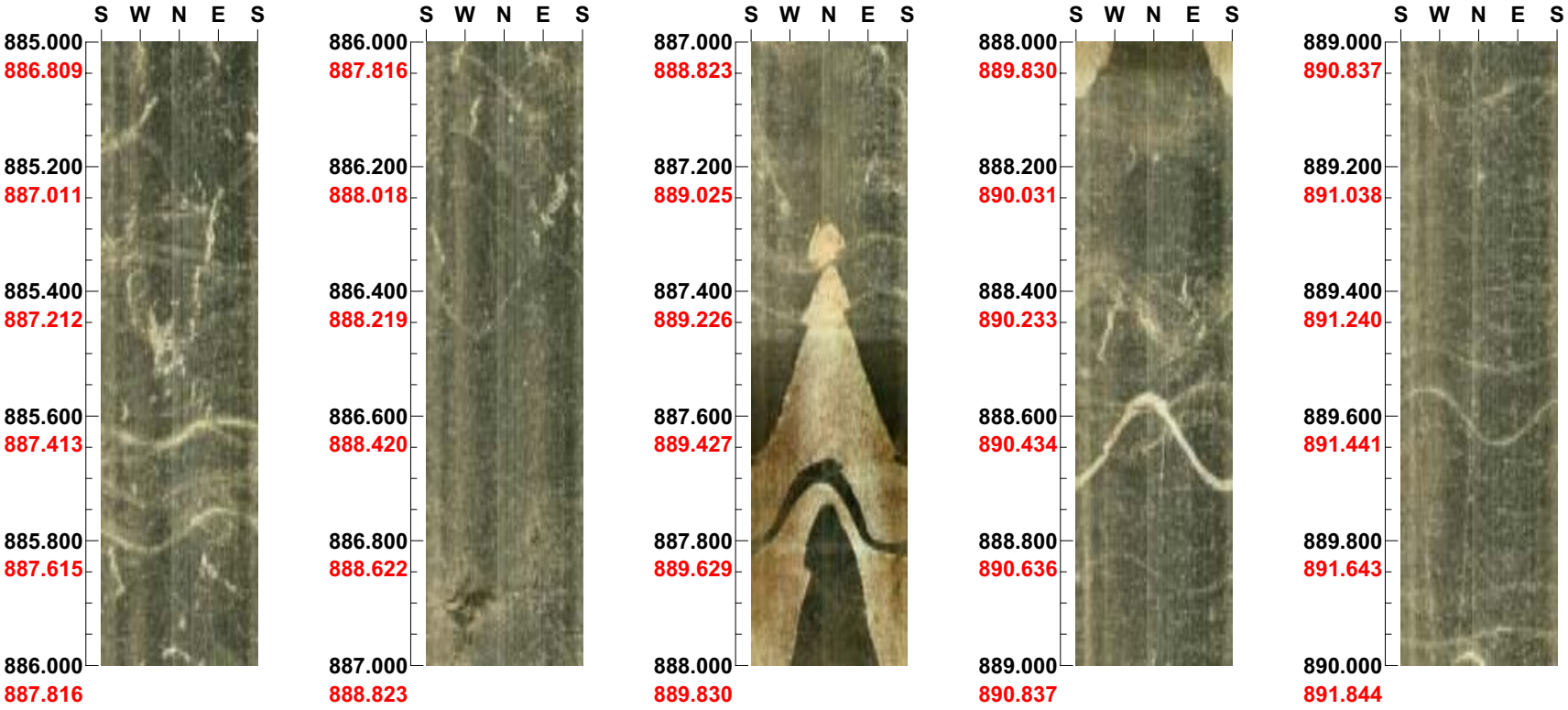
Depth range: 880.000 - 885.000 m



(63 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

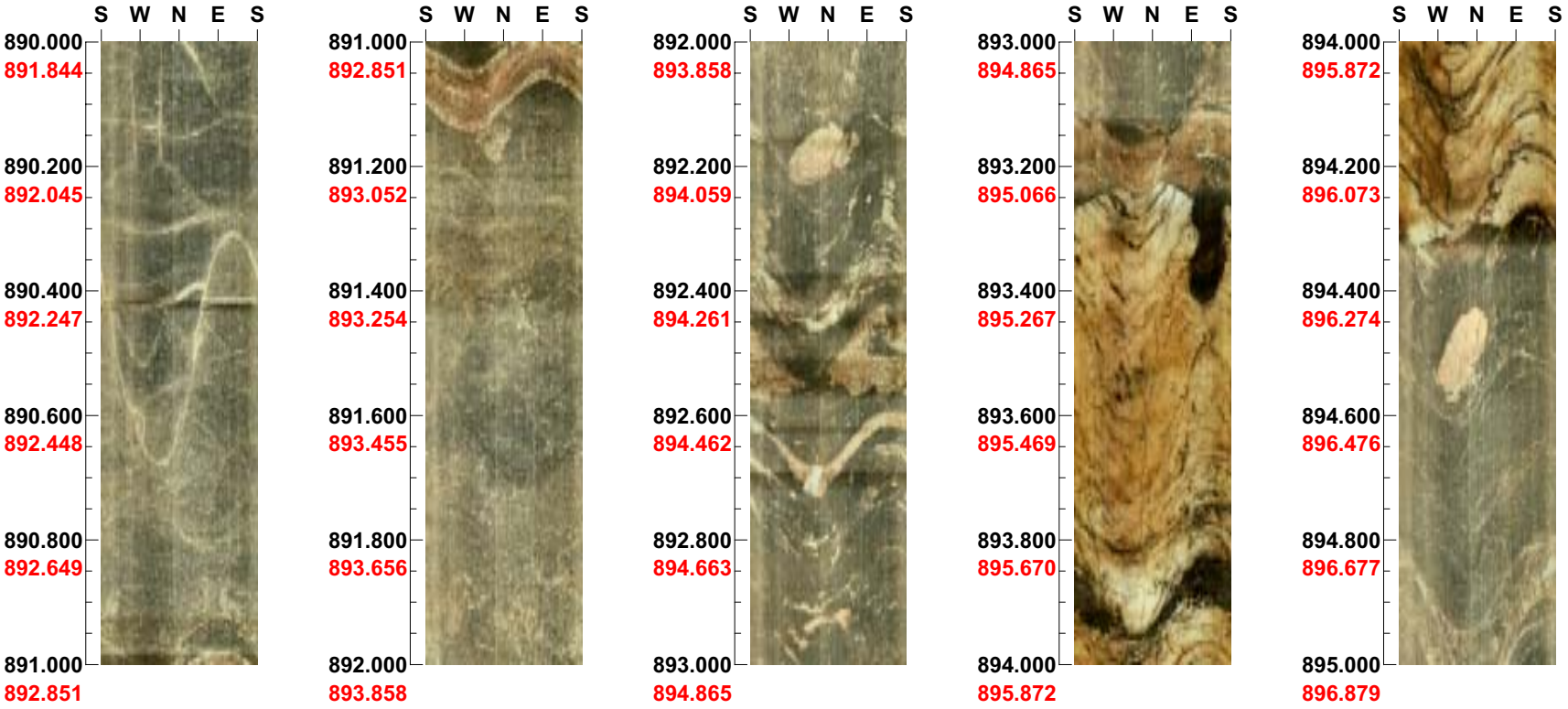
Depth range: 885.000 - 890.000 m



(64 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

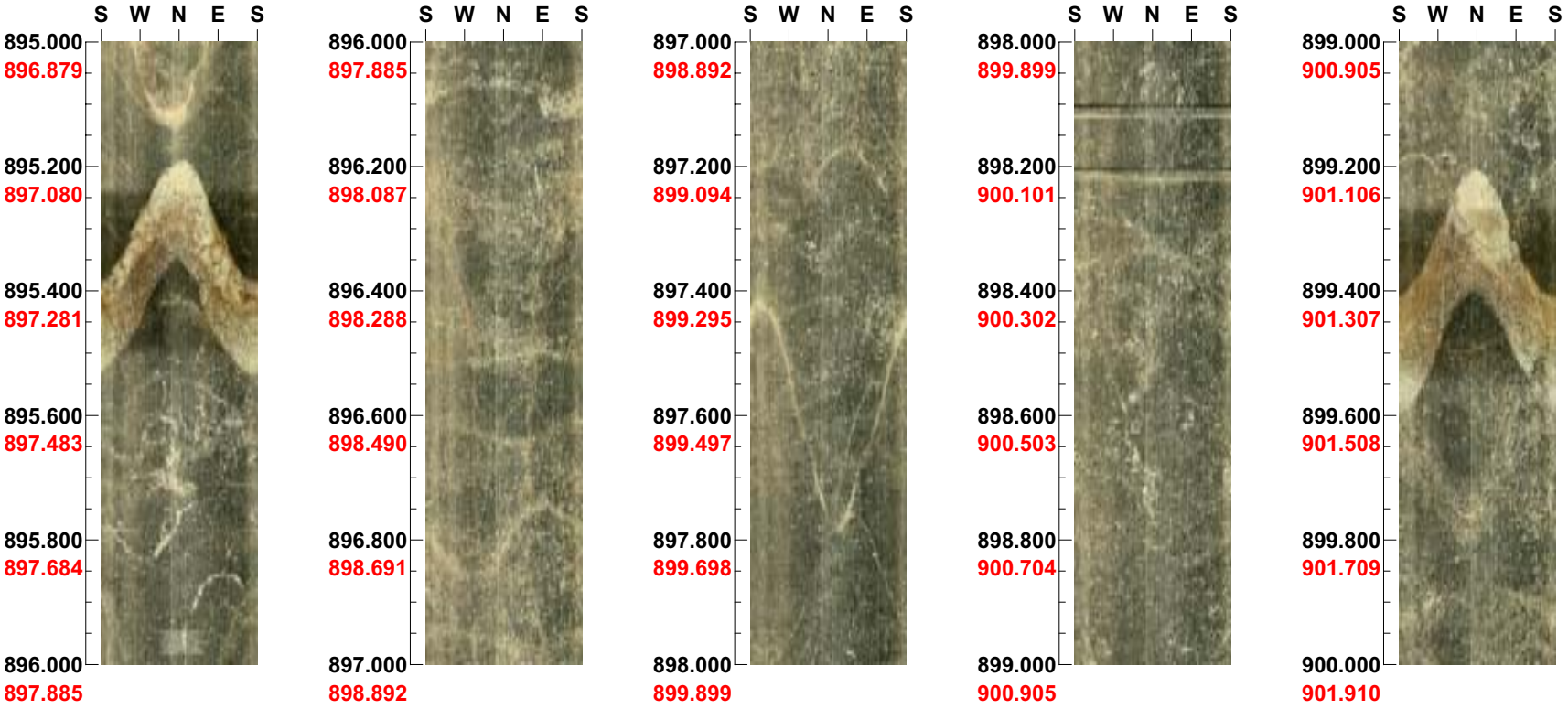
Depth range: 890.000 - 895.000 m



(65 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

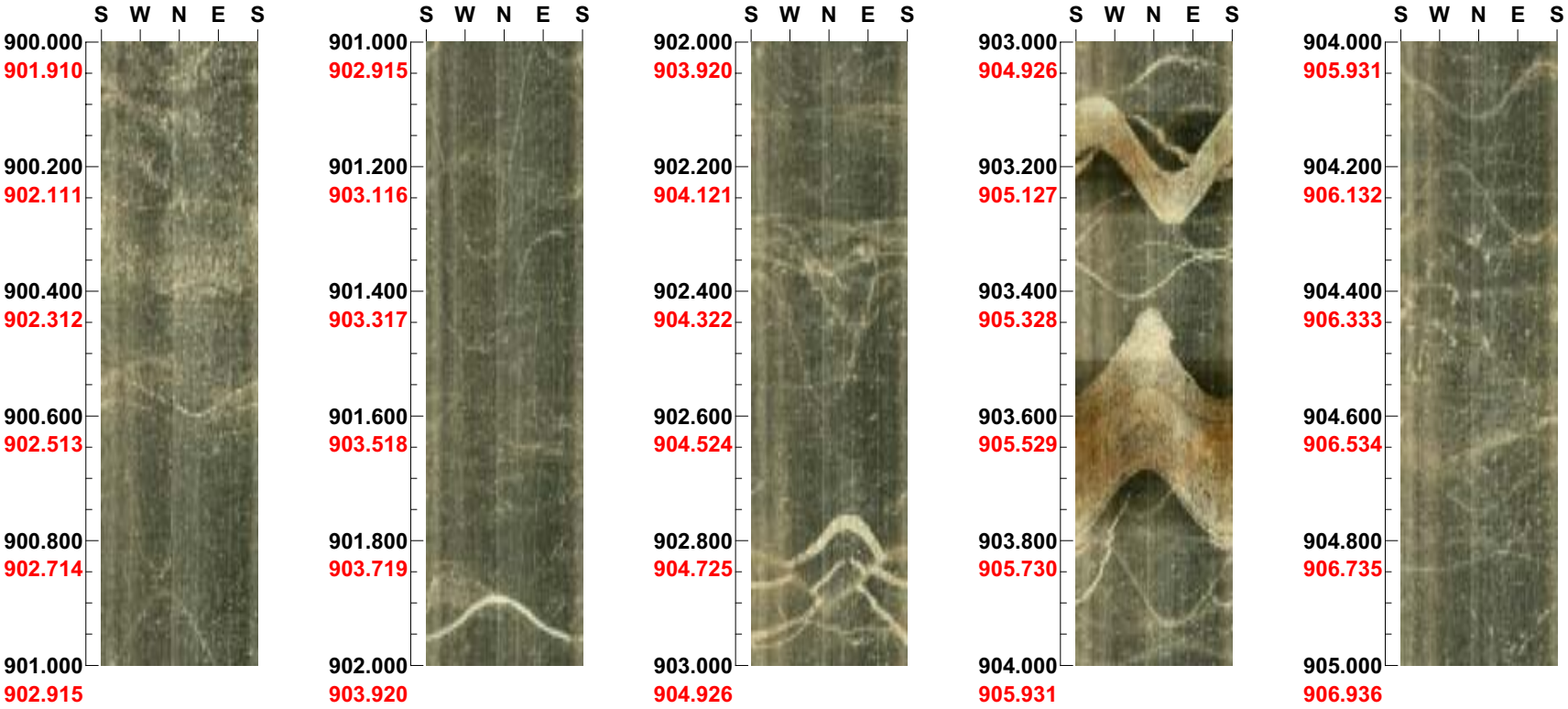
Depth range: 895.000 - 900.000 m



(66 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

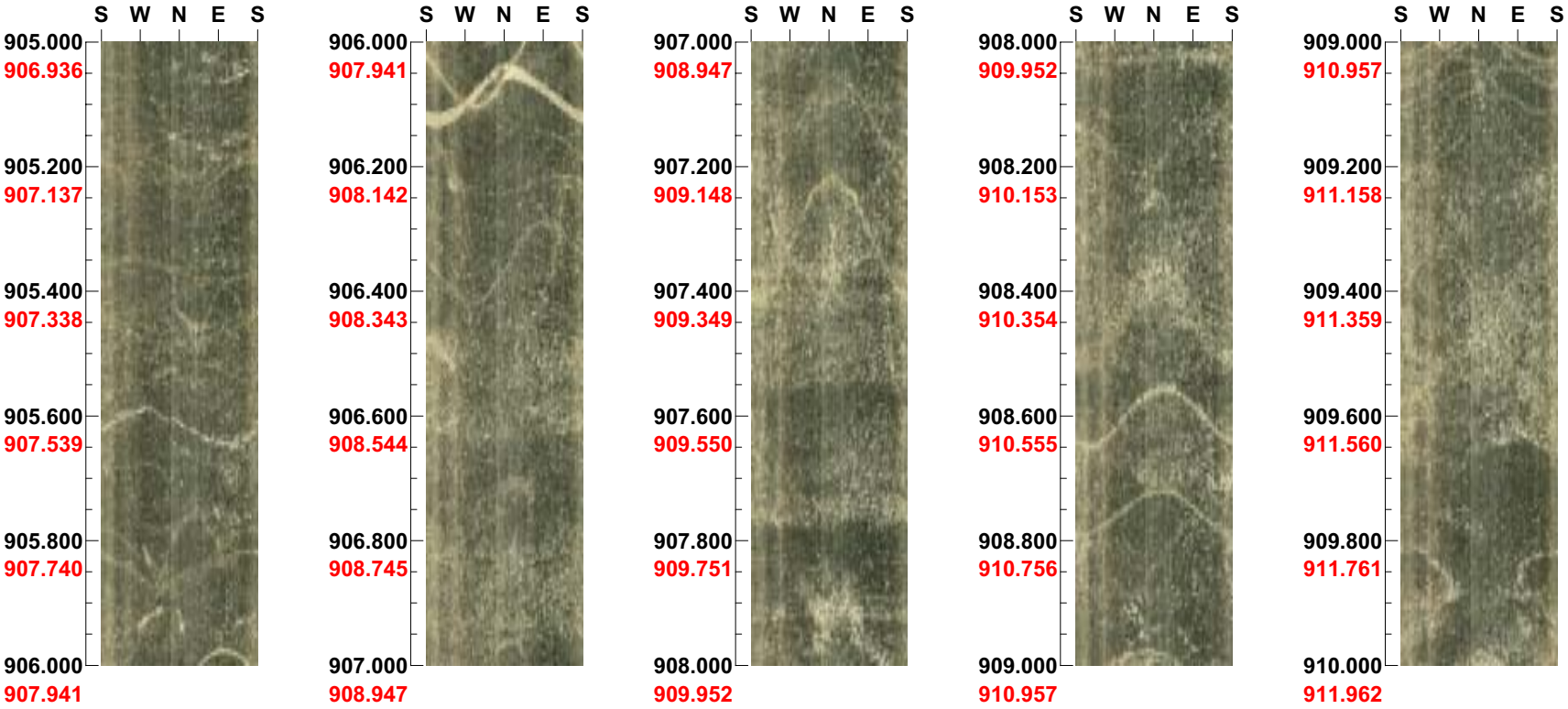
Depth range: 900.000 - 905.000 m



(67 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 905.000 - 910.000 m



(68 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 910.000 - 915.000 m

(69 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

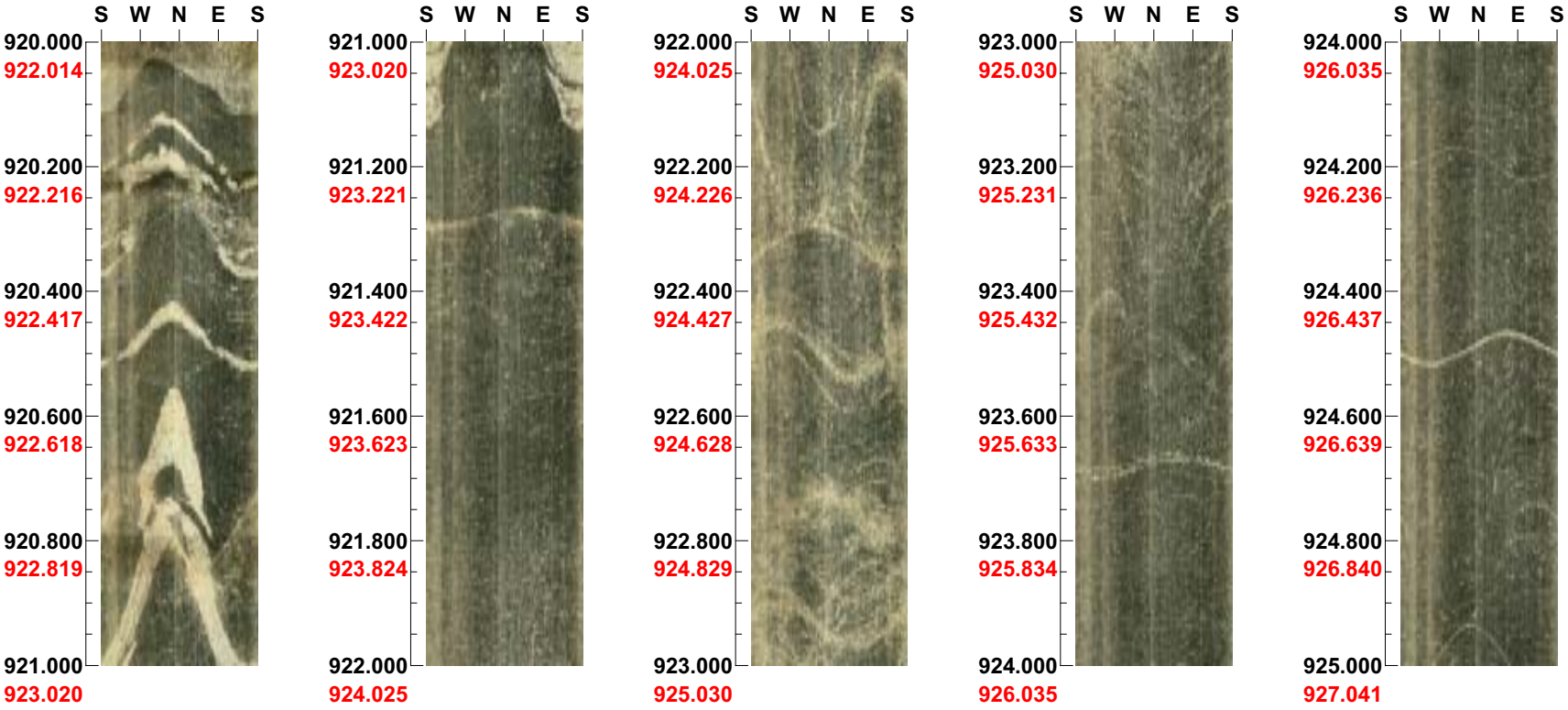
Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 915.000 - 920.000 m

(70 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

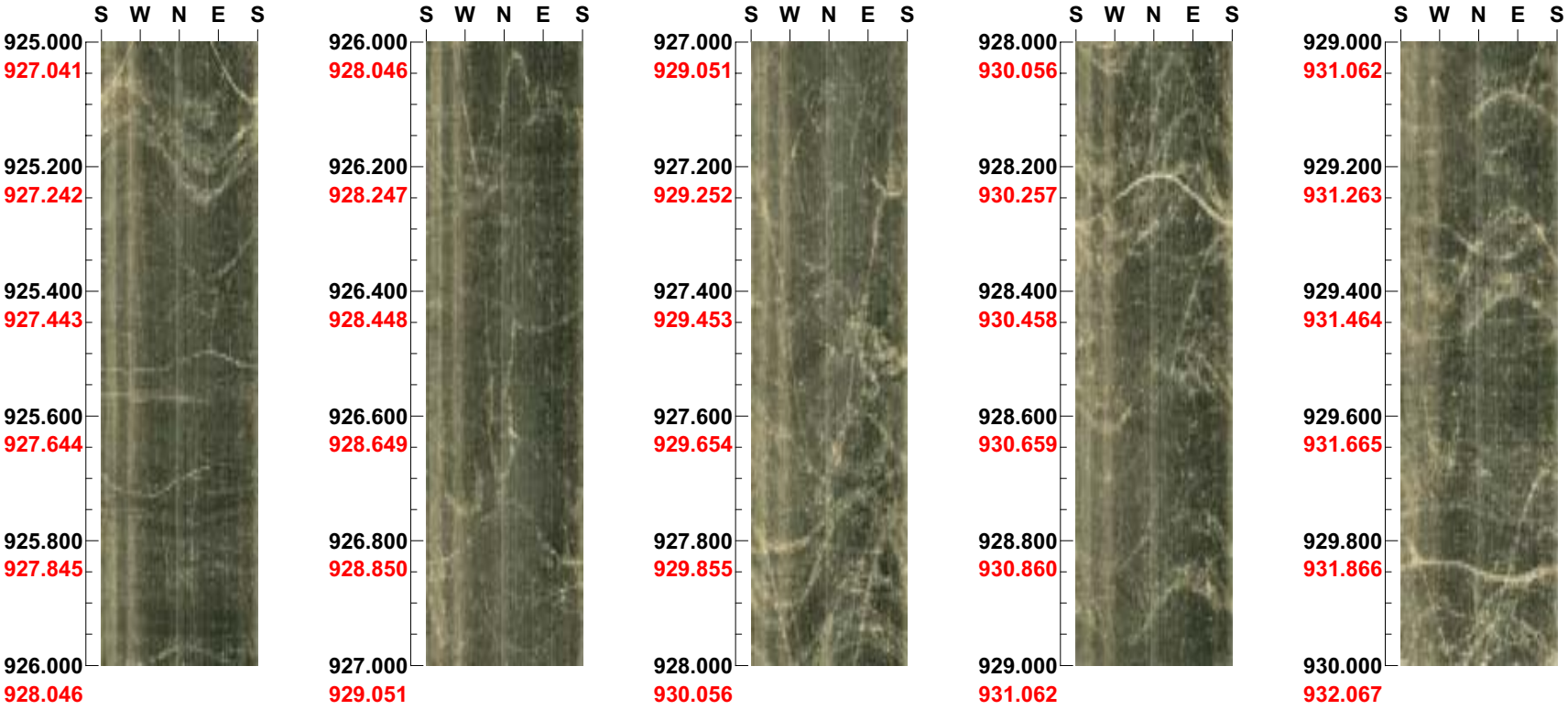
Depth range: 920.000 - 925.000 m



(71 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 925.000 - 930.000 m



(72 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 930.000 - 935.000 m

(73 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

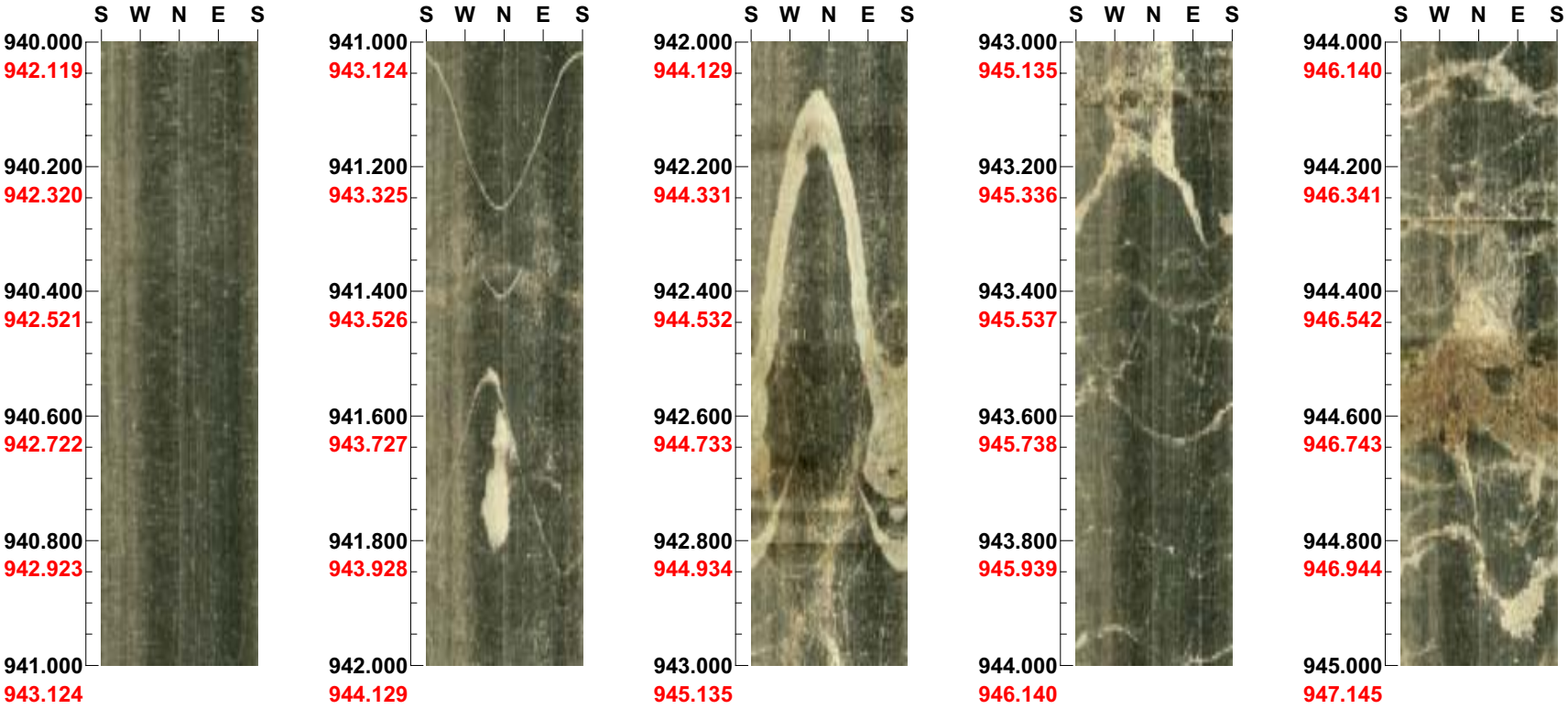
Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 935.000 - 940.000 m

(74 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

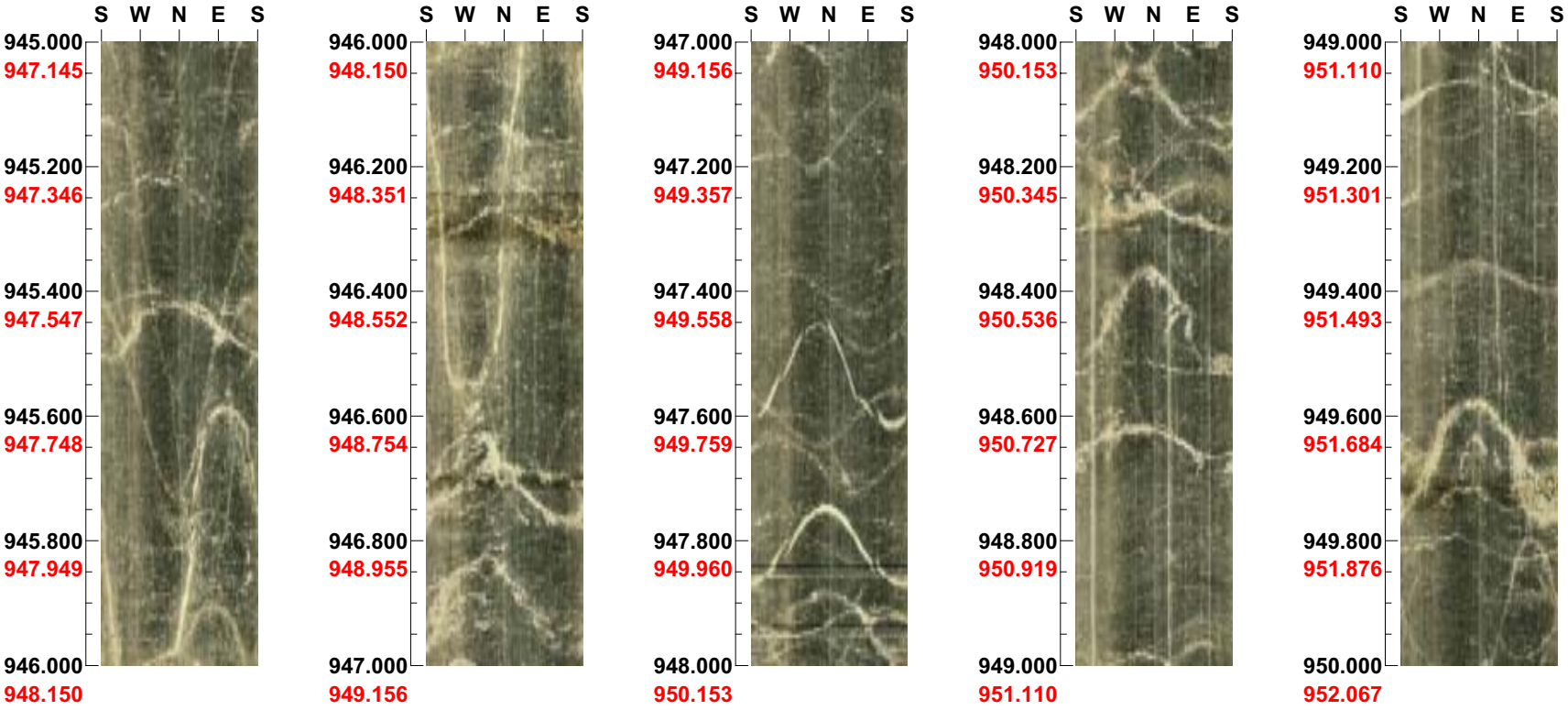
Depth range: 940.000 - 945.000 m



(75 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

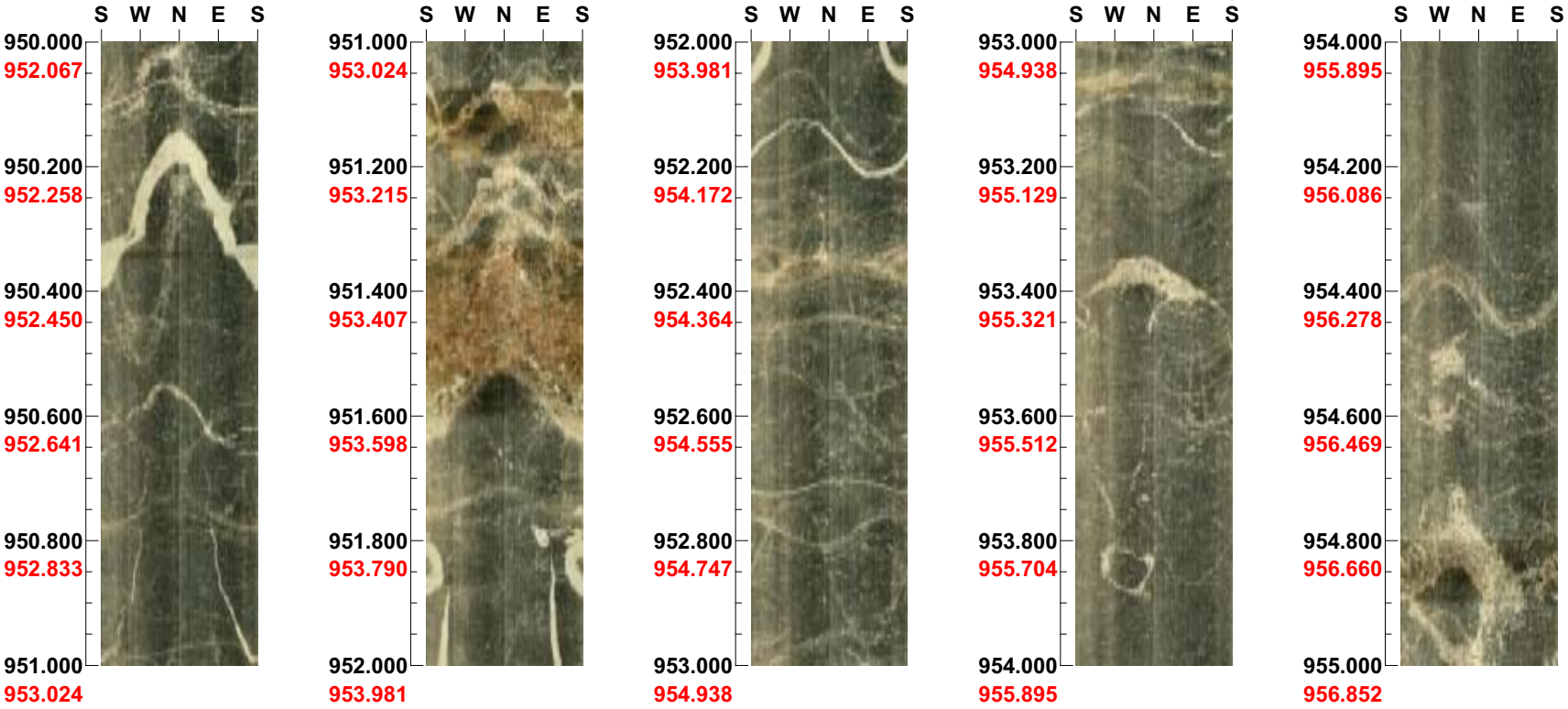
Depth range: 945.000 - 950.000 m



(76 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 950.000 - 955.000 m



(77 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

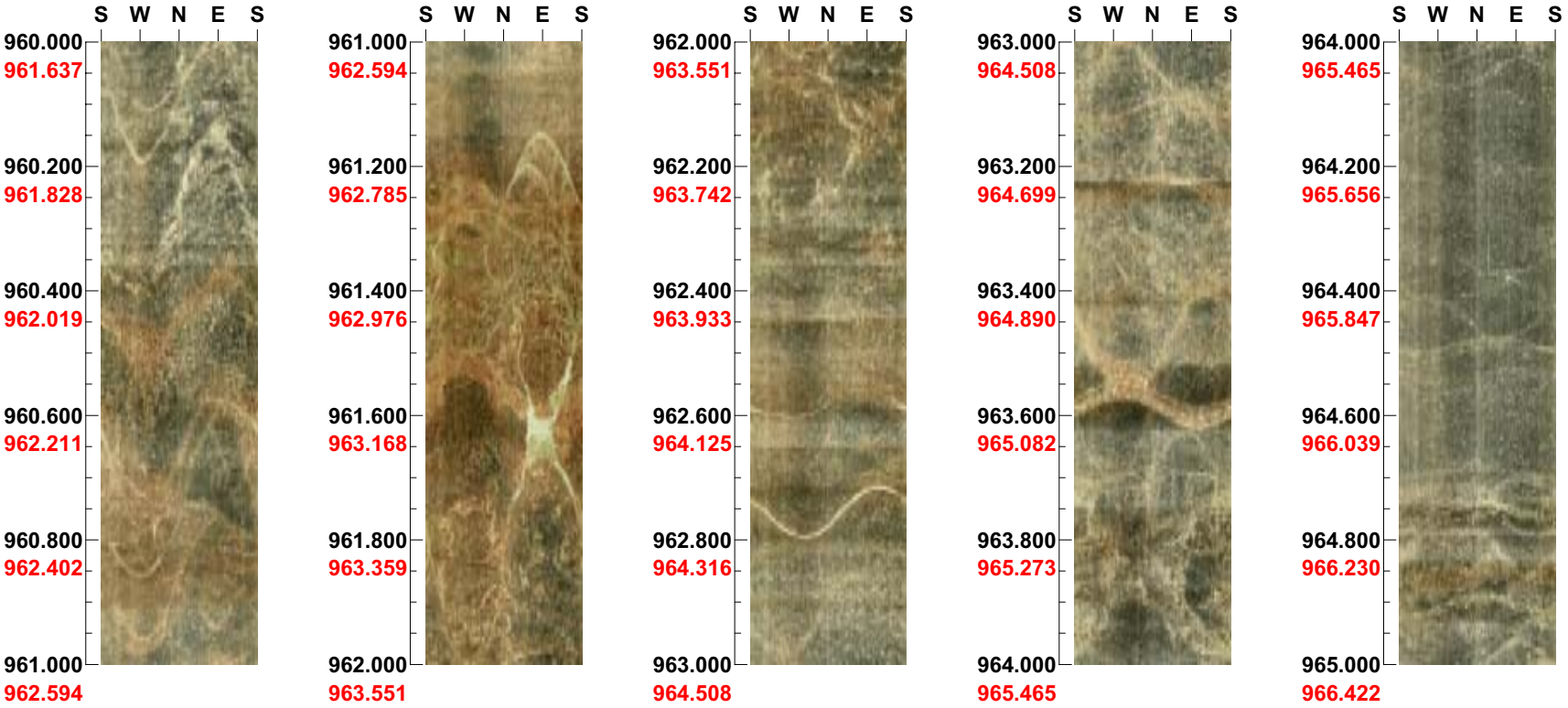
Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 955.000 - 960.000 m

(78 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

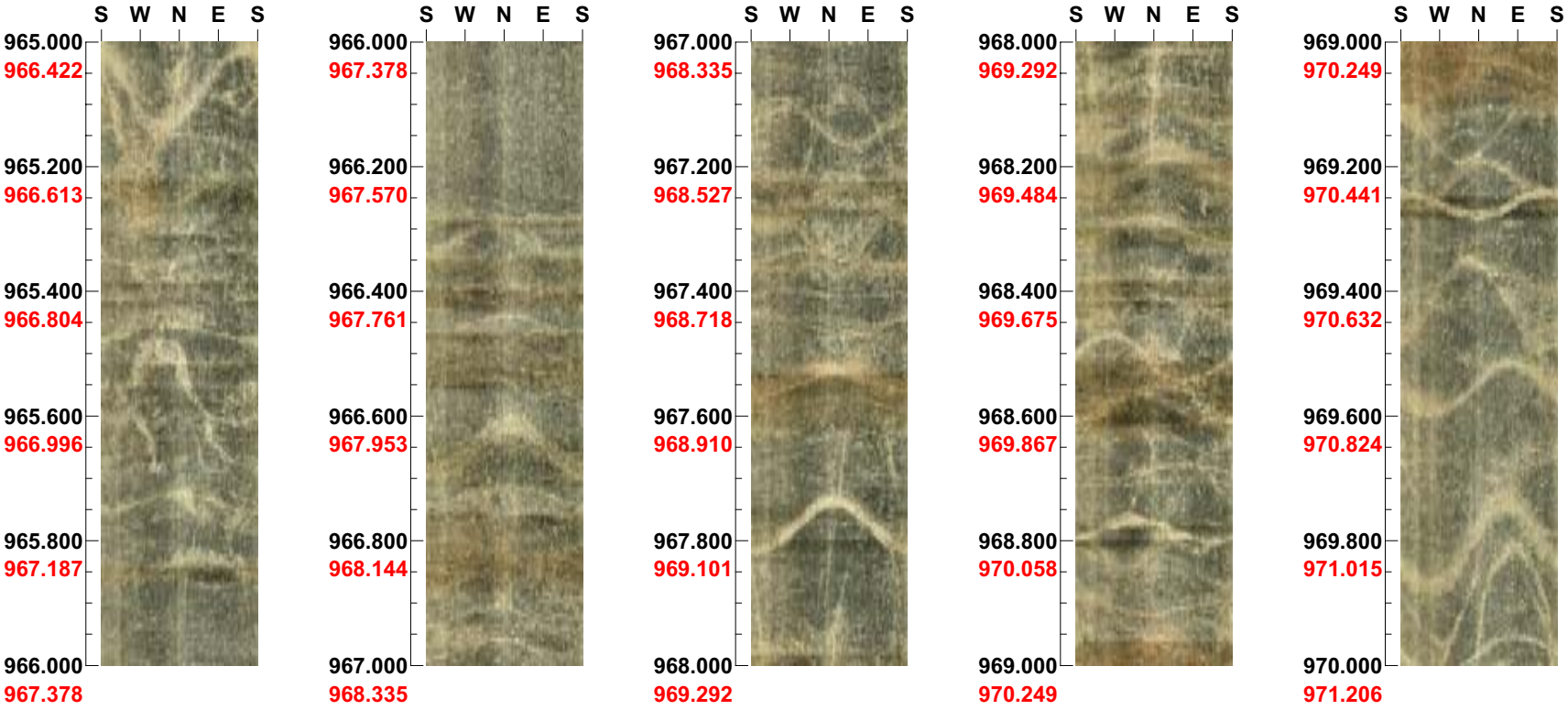
Depth range: 960.000 - 965.000 m



(79 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

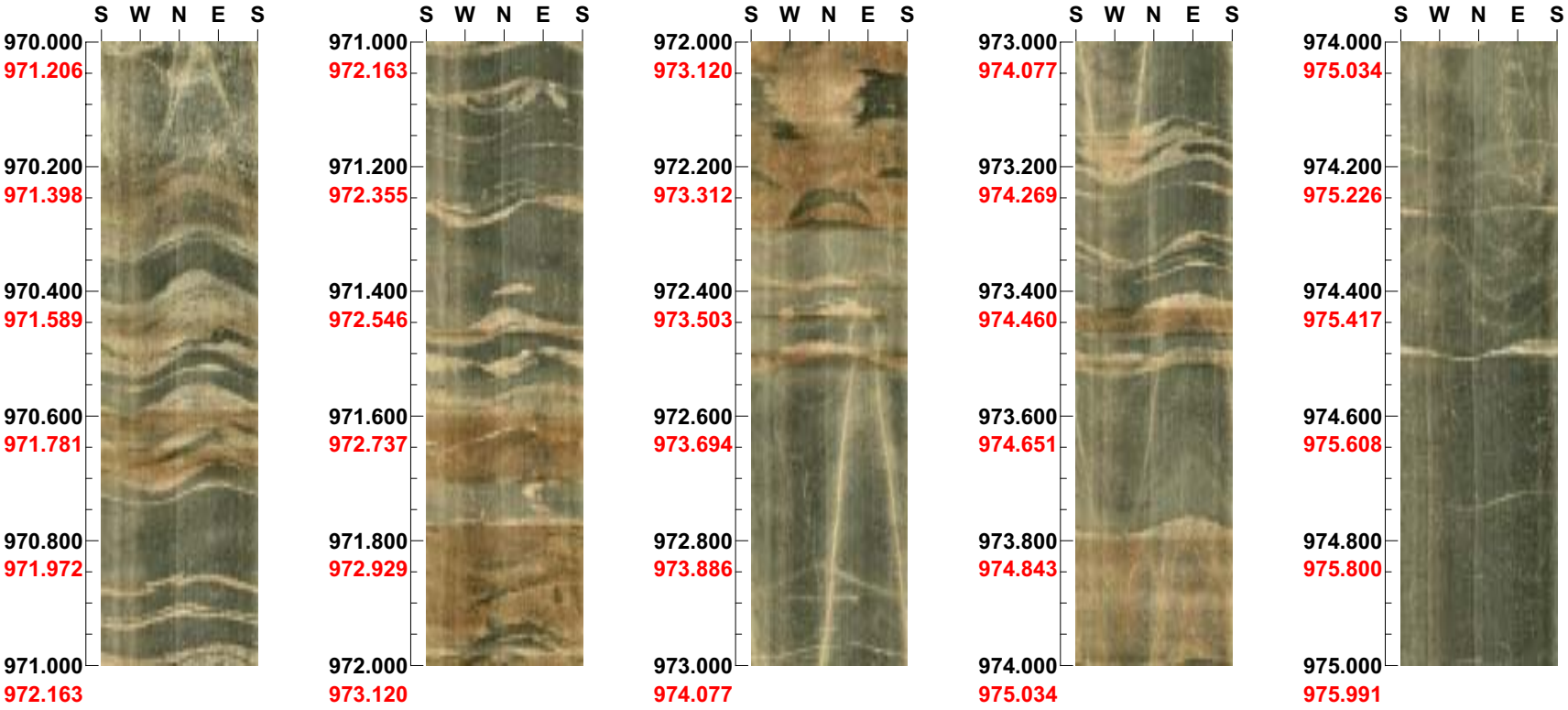
Depth range: 965.000 - 970.000 m



(80 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

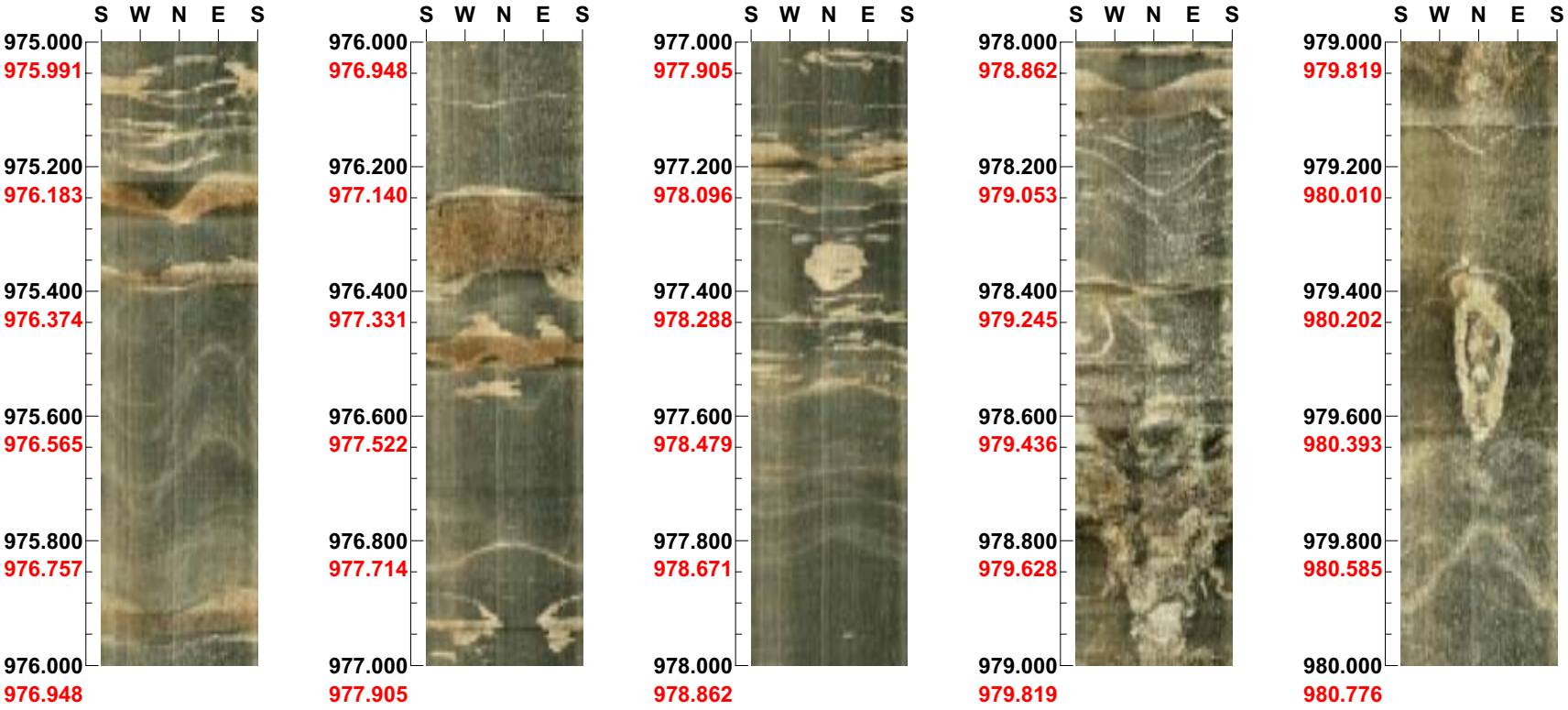
Depth range: 970.000 - 975.000 m



(81 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

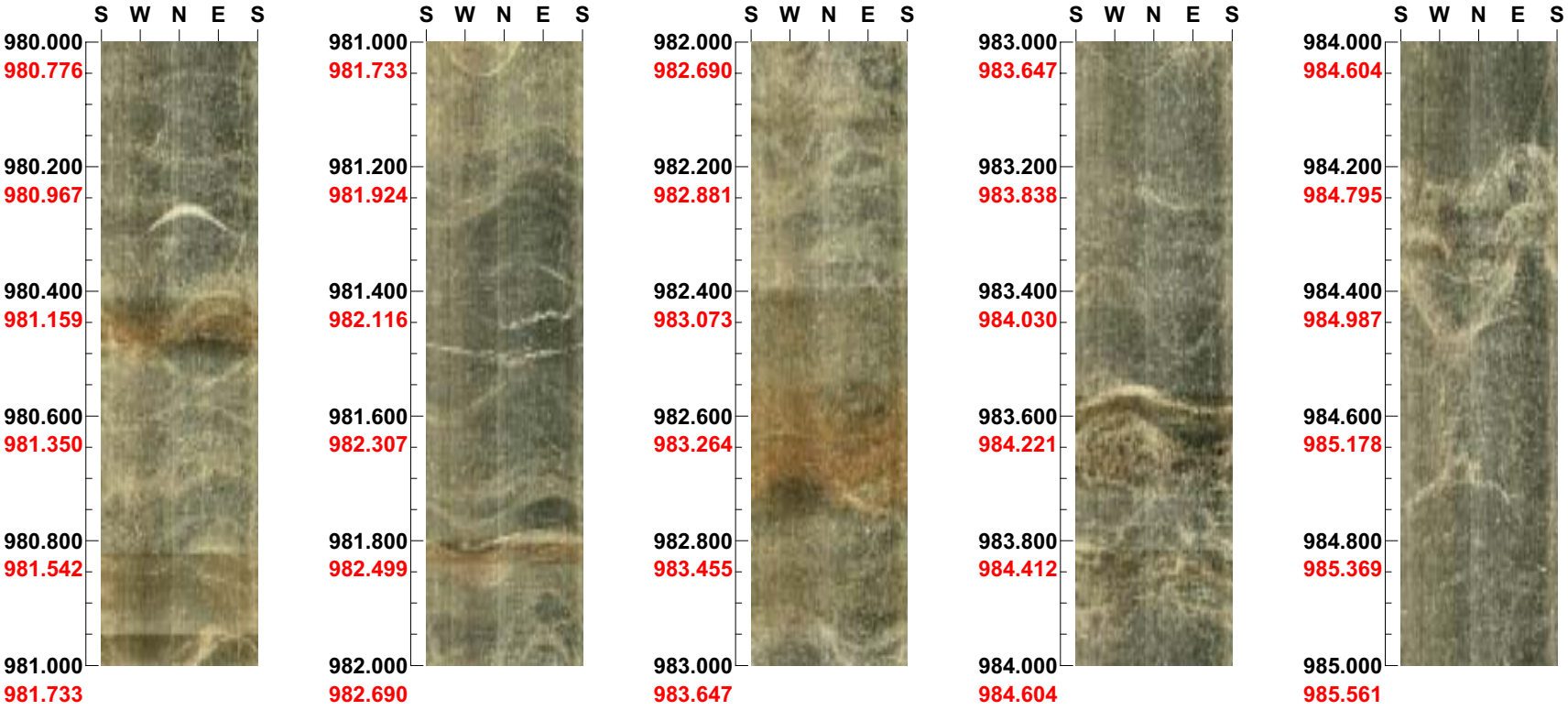
Depth range: 975.000 - 980.000 m



(82 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

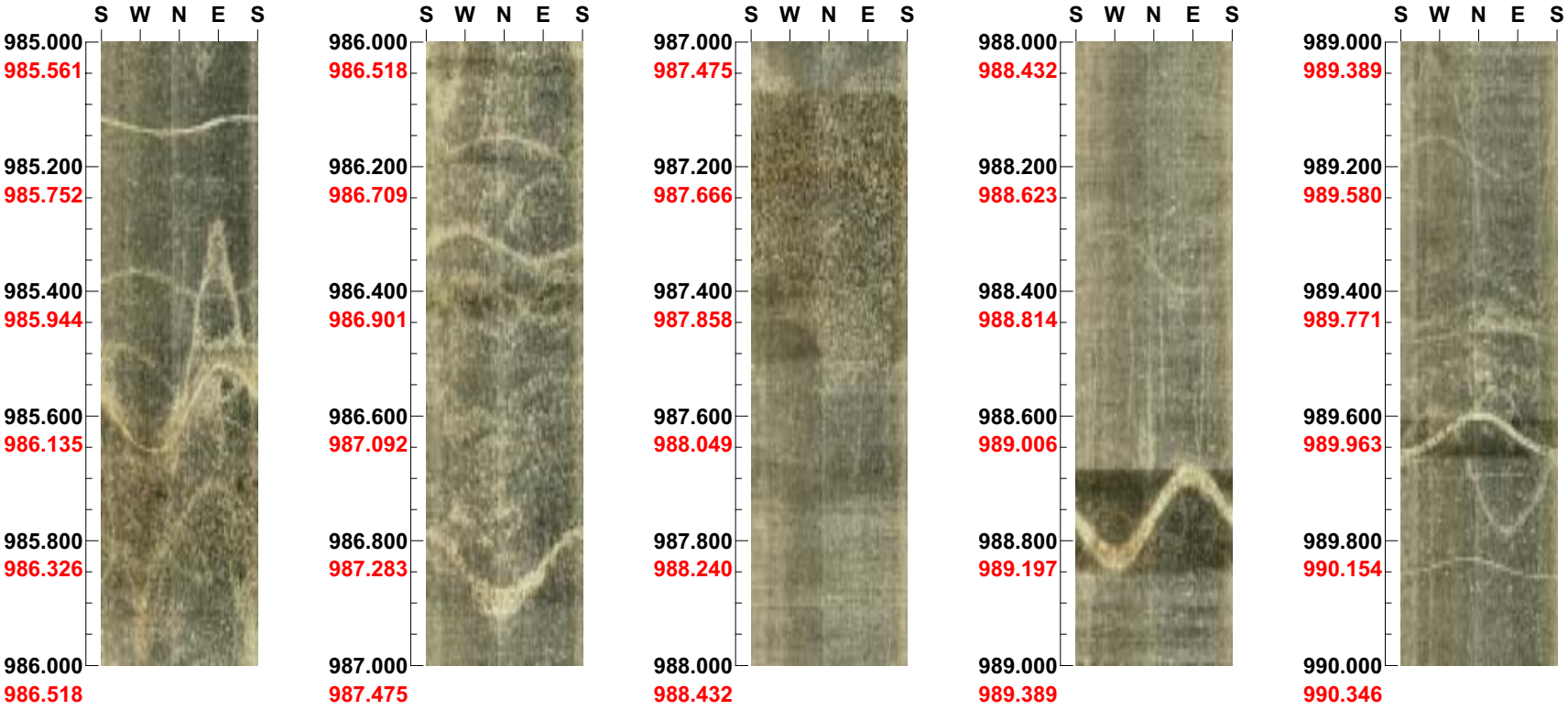
Depth range: 980.000 - 985.000 m



(83 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 985.000 - 990.000 m



(84 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

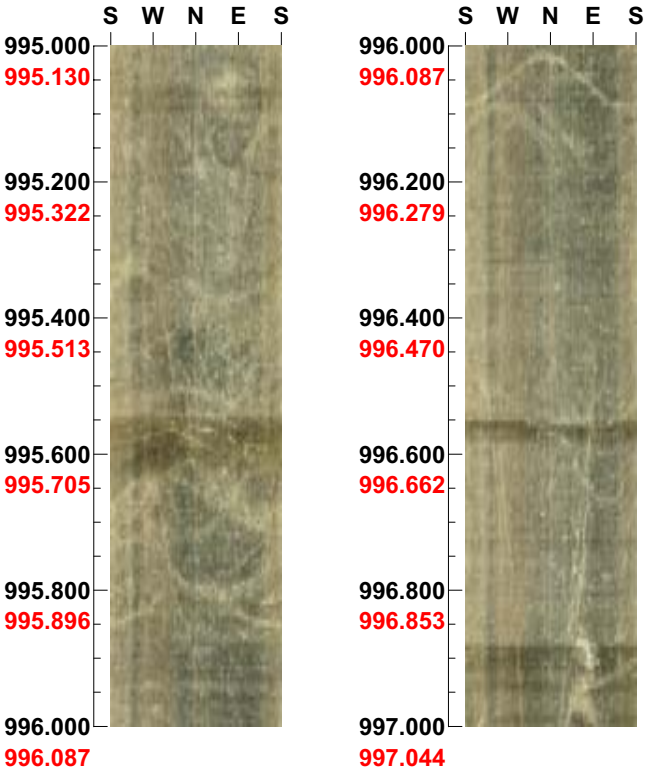
Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 990.000 - 995.000 m

(85 / 86) **Scale: 1/10** **Aspect ratio: 105 %**

Project name: Simpeverp
Bore hole No.: KSH02 **Azimuth: 0** **Inclination: -85**

Depth range: 995.000 - 997.000 m



(86 / 86) **Scale: 1/10** **Aspect ratio: 105 %**