

			Alvin dive 4617 Portside Transcript Karl Gronvold
1509			Landed at WP1
1512			In lobate flows. Large lobates almost sheets with small lobe in between.
1513	1691		Sheets with small lobes in between. Fairly thick sediment in between the lobes in in cracked surfaces.
1515	1691		Contact between a lobate and sheet flows.
1520			Samples 1 folded sheet flow and sample 2 lobate flow with ornamented pillows.
			Sheet flow with less sediment.
1534	1693		Lobate flow/pillow and with some ornamented pillows
1544	1692	14	More pillows and patches of small pillows and others with ornamented pillows.
1545	1689	10.7	Pillows with patches of lobates. Fairly heavily sediment – similar to sample 2.
1547	1685	10.9	Large lobes mainly and ornamented pillow.
1549	1684	18.7	Ornamented pillows plus lobates of varying sizes.
1550	1682	51.9	WP2 - Same lobate pillow lava with ornamented pillows.
1553	1682	70	Large ornamented pillows in lobate flow. Possibly less sediment
1555	1681	77.1	Quite sedimented - lows all filled
1556	1680	79	More sedimented pillow/lobate Crossed contact?
1559			Collect sample 3 at WP3
1620	1681	68	Direct from WP3 to WP5. Lobate/pillow ornamented.
1621	1682	69	Notable patches of ornamented pillows/large lobate pillows. Heavily sedimented.
1627	1681	17.8	Mainly lobated –heavily sedimented.
1629	1680	78.7	Contact. Pillow to sheet flow less sedimented. Narrow band of sheet and then deep channel with broken and folded sheet lava.
1632	1683	156	At WP5 collecting sample 4 at bottom of channel. Lightly sedimented.
1642	1681	55.7	Out of lava channel and into loby flow sedimented.
1644			Contact is sharp between lobate flows and sheet flow and then collapses into lava channel with folded and broken sheets. Or channel can in places be straight into lobate flows.
1646	1685		Sample 5 at WP6. Just outside the lava channel in lobate flow.
1656	1684	280	In a channel over broken sheet flow – then into lobate and the sheeted again.
1659			Over a lobate flow and then on the edge of a channel. Steep wall on my left made up of thin sheet flows and lobes. On the edge no bottom seen.
1706	1683	144	On the steep edge of a lava channel.
1709	1691		
1711	1688	110	On a steep edge of a deep channel – part of the lava channel system.
	1685		In sheeted lava.
1714	1687	343	Mainly sheets with lobates in between. Change from sheets to lobate lava.
1715	1684		In a N-S limb of the channel system. Broken up lobes and sheet. Turning east along the channel system.
1716			At the bottom of lava channel with lobate and broken lobate pillows with intermittent sheets.
1717			Wall of the lava channel. Nicely flow-banded thin sheets. Lava pillars also

			flow banded sheeted flow units similar to the walls. Bottom of the channel mainly made of broken sheets.
1719	1683	82	Still in lava channel – walls made of sheeted lava layers. Broken up sheets at the bottom.
1721	1681	81	Left the lava edge and are in relatively sedimented lobate flow.
1722	1681		At the edge of the channel system that appears to extend to WP7
1726	1682		WP7 Sample 6 in the channel system.
1731	1681	106	Over a lobate flow – coarse lobes. Heavily sedimented. Flow direction according to elongation seems to be at right angel to heading and be from left to right.
1732	1682	106	Heavily sedimented lobate flows.
1734	1683	105.8	Still heavily sedimented lobate flows.
1736	1686	105.6	The lobate flow is getting more pillowy – more ornamented pillows but similar sediment thickness.
1738	1685	86.4	Lobate flow sometimes broken up in places
1739			Seem to be collapse structures few square meters in diameter. Increasing in number as we approach next WP.
1740	1684	87	Crossing into fairly deep collapse structure few tens of meters. Heavily sedimented bottom with lobate/sheets. Depth over ten meters with large pillars. In the walls thin sheets and lobes. Top is covered by lobate flows. Deep channel.
1744	1681	136	Just passed an edge of a lava channel. On the edge are lobate flows.
1746	1680	114	Coarse lobate flow sometime with sheets. Sediment cover variable. Following a ridge to WP9.
1747	1677		Getting close to top of ridge in lobate flows
1748	1676		O n the top of a ridge. Collapse? or flow structures in lobate flows.
1751	1682		Sample 7. Between WP8 and WP9.
1800	1683	143	Lobate flow sometimes with sheet-like patches. Elongated lobes indicate flow direction from my left to right. Then into broken up lobes and sheets. Steep wall to my left. On to WP11 passed strange structure like an elongated sheep pen (possibly a break-out). Deep collapse (most likely lava channel) just dawn hill with broken up sheet flow at the bottom.
1805	1682	120	Over mainly ornamented pillows. Heavily sedimented. Into mixture of lobate and ornamented pillows.
1806	1681		Over a contact between lobate and sheet flows and into heavily sedimented lobate flow.
1810	1681	138	Over lobate flow mainly big lobes - heavily sedimented. Looking for a contact but only see mild increase in ornamented pillows.
1812			Climbing up but no significant change in sediment cover or rock appearance.
1814	1675		Sample 8 WP11 (-12 m)
1819	1675	108	Over heavily sedimented lobate flow.
1821	1677	144	Lobate flows. Passed a small collapse feature – into significant collapse.– possibly fault at the end of E-W fissure. Less sedimented.
1824	1674		Sample 9 WP12. Lobate flow – less sedimented.
1829	1676	82.6	Over lobate/ornamented pillows. Flow direction from left to right.
1832	1680	107	Over coarse pillow/lobate lava.

1833	1682	91	Lobate flows/ornamented pillows. Parallel to a fault – 2 meters wide with little vertical movement. And then another fault further to the left.
1835	1682		Lobate/pillows.
1837	1687		Sample 10 WP13. More sedimented than sample 9.
1844	1681	4.7	Heavily sedimented lobate flow with patches of ornamented pillows.
1847	1678	8.6	Coarse lobate flow.
			WP14 Lobate/sheets. Collapses with more gentle slope but look like lava channels.
1850	1678	44	Coarse lobate sometime turning into sheets.
1852	1681	356	Lobate flows – heavily sedimented. Clearly sailing up-slope and up-flow
1854	1671	348	Lobate lava flows. Crossed a big fault.
1857	1667	352	Coarse lobate/pillow flows.
1900	1665		Sample 11 WP 15. Sedimented.
1904	1665	65.4	Coarse lobate.
1907	1670		Sample 12 WP16. Lobate less sedimented.
1916	1676	248	Dropping down along the big fault wall. Exposed are lobes and pillows. Some pillows are broken – others show glassy buds. Some pillows up to 2 meters in diameter. Come down to talus deposits.
1919	1679	300	Still close to the fault wall over talus
1920	1680		Fault wall all pillow broken and whole and then talus at 1685m
1922	1691	312	Over talus and then into lobate/pillows. Sediment not overly thick. Spectacular fault country. Some faults only open cracks – no trow. Rocks at bottom are lobate/sheets.
1923	1692	339	Heavily sedimented lobate flow.
1925	1649?		Sample 13 - Heavily sediments lobate flow.
1932	1692	336	Bottom has changed to sheet flows
1935	1689	336	Back over lobate flows with sheets in between.
1938	1687	336	Sheets with lobates. Faults
19??	1688	336	Crossing a big fault at right angle – 10 m wide with some vertical displacement.
1941	1684	337	Crossing a big fault with vertical displacement. Fault wall sheets and pillows. On top of fault Lobate/sheets not folded nor broken.
1942	1682		Sheets/lobate. Crossing a 1 meter fault no vertical movement.
1943	1683	326	Lobate/sheets
1944	1682	326	Close to the big faults and moving into talus mainly made of pillow fragments.
1945	1671	325	Climbing up the fault wall – broken pillows and lobes
1947	1666	336	Over a lobate flow with occasional ornamented pillows.
1949	1666	349	Elongated lobate lava.
1952	1670		Sample 14 Lobate flow – sediment medium.
1959			Drop first weight.