

U.S. DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

The Pu`u `O`o - Kupaianaha Eruption of Kilauea Volcano:
June 1990 through August 1994 Lava Sample Archive

by

Margaret Mangan, Christina Heliker, Tari Mattox,
James Kauahikaua

U.S. Geological Survey, Hawaiian Volcano Observatory
Hawaii National Park, HI 96718

and

Rosalind Helz, Carter Hearn

U.S. Geological Survey, MS 959 National Center
Reston, VA 22092

Open File Report 95-496

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards. Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government

1995

/

Introduction

The Pu`u `O`o - Kupaianaha eruption (1983-present) is the longest-lived rift eruption of either Kilauea or neighboring Mauna Loa in recorded history. The initial fissure eruptions started on January 3 and were followed by three years of episodic fire fountains at the Pu`u `O`o vent on Kilauea's east rift zone approximately 19 km from the summit (episodes 4-47). July 1986 saw the end of these spectacular events and the beginning of five-and-a-half years of near-continuous, low-level effusion from the Kupaianaha vent, 3 km to the northeast (episode 48). The 49th episode began in November 1991 with the opening of a new fissure between Pu`u `O`o and Kupaianaha. This three-week-long outburst was the result of the gradual decline of the Kupaianaha vent, which shut-down in February 1992. Subsequently, the eruption returned to Pu`u `O`o through vents on the west flank of the cone (episodes 50 through 53).

This report provides a listing of all lava samples collected during the eruption between June 2, 1990 and August 3, 1994. The listing includes sample type, location, collection procedure and, for select samples, lava chemistry. Collection sites are keyed to the flow map in Figure 1. Lava temperatures can be obtained from the glass chemistry using the experimental calibration $T(^{\circ}\text{C}) = 20.1 (\text{wt.}\% \text{ glass MgO}) + 1014^{\circ}\text{C}$ from Helz and Thornber (1987, Bulletin of Volcanology, v.49). An explanation of the various data categories follows:

- Sample* - identification number assigned to sample
- Episode* - designated eruptive interval
- Collect* - date sample was collected in month/day/year format
- Erupt* - date sample was erupted in month/day/year and hour format (Hawaii standard time)
- Days* - *Erupt* date calculated as time elapsed since Jan 3, 1983 0031 hr (the start of the eruption)
- Type* - sample type
- Molten* - designates whether sample was molten at the time of collection (Y = yes; N = no)
- Quench* - designates whether molten samples were quenched artificially (water) or naturally (air)
- Device* - method of obtaining sample (cable = hammer head or stainless steel pipe lowered by cable into active flow, usually through an opening in the roof of a lava tube (skylight); hammer = rock hammer dipped into active flow;

rebar = rebar dipped into active flow; log or branch = tree branch dipped into active flow

Vent - source vent

Elev - absolute elevation of sampling locality (feet above sea level)

Coordinates - coordinates of sampling locality keyed to eruption map in fig. 1

Note - miscellaneous comments

Bulk Chemistry - whole-rock major element data (X-ray fluorescence; all iron as Fe⁺⁺)

Glass Chemistry - major element glass data (microprobe analysis; all iron as Fe⁺⁺)

Requests to obtain splits of lava samples within the archive should be directed as follows: Staff Geologist, USGS, Hawaiian Volcano Observatory, Hawaii National Park, HI 96718.

Acknowledgments

The authors gratefully acknowledge the entire staff of the Hawaiian Volcano Observatory and a dedicated contingent of USGS Volunteers for Science for help in collecting and archiving samples.

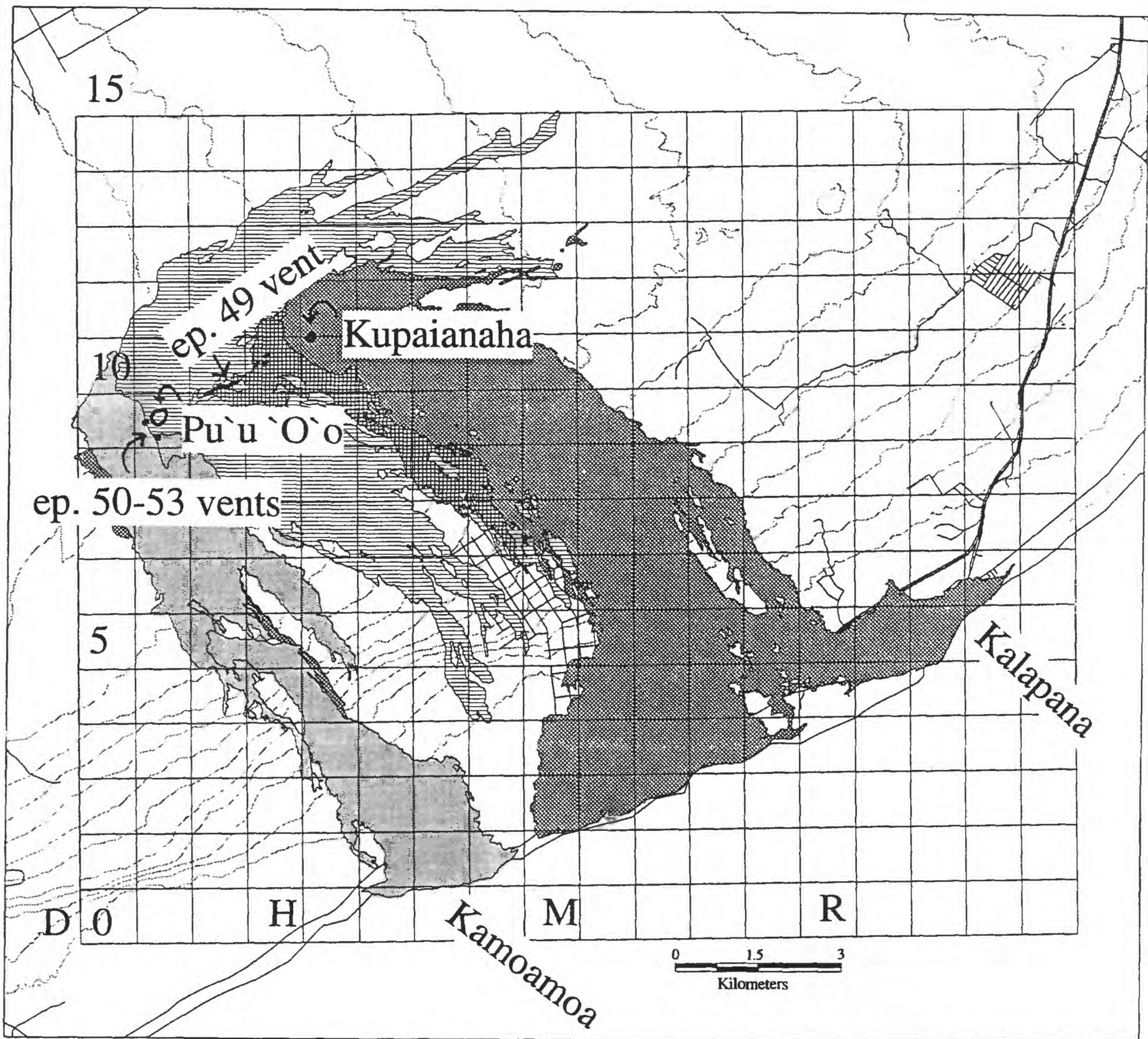


Figure 1.

The Pu'u 'O'o - Kupaianaha flow field. Vent locations are shown by arrows. Shading is as follows: Episode 1-47 = horizontal bars; Episode 48 = diamond hatching; Episode 49 flows = square hatching; Episode 50 through 53 flows = gray shading. Coordinate grid corresponds to locations given in listing. A more detailed map is given in Mangan, Heliker, Mattox, Kauahikaua, and Helz (1995, *Bulletin of Volcanology*, v. 57, n.9).

Table 1.

Pu`u`O`o - Kupaianaha eruption, Kilauea volcano
June 1990 - August 1994 lava samples

Sample: 1259
Episode: 48.5 Collect: 6/02/90 Erupt: 6/02/90 21hr Days: 2707.88
Type: SPATTER -LITTORAL Molten: Y Quench: AIR Device: NONE
Vent: KUPAIANAHA Elev (ft): 0 Coordinates: S 0.25 /5.05
Note:

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.0 FeO: 11.5 MgO: 8.52
CaO: 11.0 Na2O: 2.20 K2O: 0.42 TiO2: 2.47 P2O5: 0.24 MnO:0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1260
Episode: 48.5 Collect: 6/30/90 Erupt: 6/30/90 14hr Days: 2735.57
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE
Vent: Kupaianaha Elev (ft): 1850 Coordinates: J 0.90 /9.60
Note:SAMPLED FROM 1850-FT ELEV. SKYLIGHT

Bulk Chemistry-- SiO2: 50.3 Al2O3: 13.0 FeO: 11.5 MgO: 8.94
CaO: 11.0 Na2O: 2.14 K2O: 0.40 TiO2: 2.42 P2O5: 0.23 MnO:0.17

Glass Chemistry-- SiO2: 50.93 Al2O3: 13.91 FeO: 10.80 MgO: 6.90
CaO: 11.26 Na2O: 2.46 K2O: 0.46 TiO2: 2.38 P2O5: 0.21 MnO: 0.19

Sample: 1261
Episode: 48.5 Collect: 7/28/90 Erupt: 7/28/90 10hr Days: 2763.39
Type: PAHOEHOE-PILLOW Molten: Y Quench: H2O Device: NONE
Vent: Kupaianaha Elev (ft): 0 Coordinates: S 0.80 /5.90
Note:

Bulk Chemistry-- SiO2: 49.9 Al2O3: 12.6 FeO: 11.7 MgO: 9.72
CaO: 10.6 Na2O: 2.19 K2O: 0.40 TiO2: 2.36 P2O5: 0.23 MnO:0.17

Glass Chemistry-- SiO2: 50.91 Al2O3: 13.59 FeO: 11.27 MgO: 6.56
CaO: 11.15 Na2O: 2.60 K2O: 0.46 TiO2: 2.75 P2O5: 0.23 MnO: 0.20

Sample: 1262
Episode: 48.5 Collect: 8/02/90 Erupt: 8/02/90 7 hr Days: 2768.30
Type: PAHOEHOE-SLABBY Molten: Y Quench: AIR Device: HAMMER
Vent: Kupaianaha Elev (ft): 190 Coordinates: P 0.65 /5.90
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1263

Episode: 48.5 Collect: 8/02/90 Erupt: 8/02/90 9 hr Days: 2768.35

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE

Vent: Kupaianaha Elev (ft): 1200 Coordinates: N 0.60 /8.75

Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1264

Episode: 48.5 Collect: 8/02/90 Erupt: 8/02/90 8 hr Days: 2768.35

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE

Vent: Kupaianaha Elev (ft): 1850 Coordinates: J 0.90 /9.60

Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1265

Episode: 48.5 Collect: 8/05/90 Erupt: 8/05/90 14hr Days: 2771.59

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: OHIA BRANCH

Vent: Kupaianaha Elev (ft): 1200 Coordinates: N 0.60 /8.75

Note:

Bulk Chemistry-- SiO2: 50.6 Al2O3: 13.1 FeO: 11.4 MgO: 8.17
CaO: 11.2 Na2O: 2.19 K2O: 0.42 TiO2: 2.50 P2O5: 0.24 MnO: 0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1266

Episode: 48.5 Collect: 8/26/90 Erupt: 8/26/90 16hr Days: 2792.64

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE

Vent: Kupaianaha Elev (ft): 1200 Coordinates: N 0.60 /8.75

Note:

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.2 FeO: 11.4 MgO: 8.21
CaO: 11.2 Na2O: 2.19 K2O: 0.42 TiO2: 2.48 P2O5: 0.24 MnO: 0.17

Glass Chemistry-- SiO2: 51.07 Al2O3: 14.07 FeO: 10.94 MgO: 6.71
CaO: 11.10 Na2O: 2.43 K2O: 0.46 TiO2: 2.67 P2O5: 0.27 MnO: 0.17

Sample: 1267
Episode: 48.5 Collect: 8/30/90 Erupt: 8/30/90 hr Days: 2795.98
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: Kupaianaha Elev (ft): 2100 Coordinates: H 0.90 /10.40
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1268
Episode: 48.5 Collect: 9/01/90 Erupt: 9/01/90 13hr Days: 2798.55
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: Kupaianaha Elev (ft): 2100 Coordinates: I 0.20 /10.60
Note: FLOW 150M WEST OF KALALUA, ABOUT 300 M SOUTH OF KUPAIANAHA

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1269
Episode: 48.5 Collect: 9/02/90 Erupt: 9/02/90 16hr Days: 2799.64
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: OHIA LOG
Vent: Kupaianaha Elev (ft): 1200 Coordinates: N 0.60 /8.75
Note:

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.1 FeO: 11.4 MgO: 8.26
CaO: 11.2 Na2O: 2.20 K2O: 0.42 TiO2: 2.47 P2O5: 0.24 MnO: 0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1270
Episode: 48.5 Collect: 9/08/90 Erupt: 9/08/90 14hr Days: 2805.56
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: Kupaianaha Elev (ft): 2000 Coordinates: I 0.75 /10.30
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1271

Episode: 48.5 Collect: 9/08/90 Erupt: 9/08/90 10hr Days: 2805.39

Type: PAHOEHOE-PILLOW Molten: Y Quench: H2O Device: NONE

Vent: Kupaianaha Elev (ft): 0 Coordinates: S 3.00 /5.00

Note:

Bulk Chemistry-- SiO2: 50.1 Al2O3: 12.6 FeO: 11.6 MgO: 9.36
CaO: 10.8 Na2O: 2.20 K2O: 0.40 TiO2: 2.41 P2O5: 0.24 MnO:0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1272

Episode: 48.5 Collect: 9/16/90 Erupt: 9/16/90 15hr Days: 2813.62

Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER

Vent: Kupaianaha Elev (ft): 2120 Coordinates: H 0.10 /10.30

Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1273

Episode: 48.5 Collect: 9/24/90 Erupt: 9/24/90 15hr Days: 2821.60

Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER

Vent: Kupaianaha Elev (ft): 1750 Coordinates: J 0.90 /9.30

Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1274

Episode: 48.5 Collect: 9/27/90 Erupt: 9/27/90 9 hr Days: 2824.37

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE

Vent: Kupaianaha Elev (ft): 1200 Coordinates: N 0.60 /8.75

Note:

Bulk Chemistry-- SiO2: 50.3 Al2O3: 13.2 FeO: 11.4 MgO: 8.71
CaO: 11.0 Na2O: 2.16 K2O: 0.41 TiO2: 2.44 P2O5: 0.24 MnO:0.17

Glass Chemistry-- SiO2: 51.13 Al2O3: 13.77 FeO: 10.94 MgO: 6.84
CaO: 11.41 Na2O: 2.54 K2O: 0.44 TiO2: 2.58 P2O5: 0.22 MnO: 0.18

Sample: 1275
Episode: 48.5 Collect: 9/28/90 Erupt: 9/27/90 hr Days: 2823.98
Type: SPATTER -LITTORAL Molten: Y Quench: AIR Device: NONE
Vent: Kupaianaha Elev (ft): 0 Coordinates: T 0.30 /6.25
Note:

Bulk Chemistry-- SiO2: 50.3 Al2O3: 12.8 FeO: 11.5 MgO: 8.92
CaO: 10.9 Na2O: 2.17 K2O: 0.41 TiO2: 2.44 P2O5: 0.24 MnO:0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1276
Episode: 48.5 Collect: 10/06/90 Erupt: 10/06/90 12hr Days: 2833.48
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: Kupaianaha Elev (ft): 1880 Coordinates: J 0.60 /9.80
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1277
Episode: 48.5 Collect: 10/08/90 Erupt: 10/08/90 13hr Days: 2835.54
Type: SPATTER -LITTORAL Molten: Y Quench: AIR Device: NONE
Vent: Kupaianaha Elev (ft): 0 Coordinates: T 0.55 /6.45
Note:

Bulk Chemistry-- SiO2: 50.3 Al2O3: 12.8 FeO: 11.5 MgO: 8.90
CaO: 11.0 Na2O: 2.22 K2O: 0.40 TiO2: 2.45 P2O5: 0.24 MnO:0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1278
Episode: 48.5 Collect: 10/21/90 Erupt: 10/21/90 15hr Days: 2848.62
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: Kupaianaha Elev (ft): 1845 Coordinates: J 0.50 /9.35
Note:WEST TUBE/ROYAL GARDENS FLOW

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1279

Episode: 48.5 Collect: 10/25/90 Erupt: 10/25/90 hr Days: 2851.98
Type: PAHOEHOE-PILLOW Molten: Y Quench: H2O Device: NONE
Vent: Kupaianaha Elev (ft): 0 Coordinates: N 0.00 /2.35
Note: FROM NEW POUPOU ENTRY, ON EAST SIDE OF WAHAULA

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1280

Episode: 48.5 Collect: 10/25/90 Erupt: 10/25/90 hr Days: 2851.98
Type: PAHOEHOE-PILLOW Molten: Y Quench: H2O Device: NONE
Vent: Kupaianaha Elev (ft): 0 Coordinates: N 0.00 /2.35
Note: FROM NEW POUPOU ENTRY, EAST OF WAHAULA

Bulk Chemistry-- SiO2: 50.2 Al2O3: 12.8 FeO: 11.5 MgO: 9.30
CaO: 10.8 Na2O: 2.16 K2O: 0.40 TiO2: 2.40 P2O5: 0.24 MnO: 0.18

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1281

Episode: 48.5 Collect: 10/31/90 Erupt: 10/31/90 13hr Days: 2858.53
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE
Vent: Kupaianaha Elev (ft): 1200 Coordinates: N 0.60 /8.75
Note:

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.1 FeO: 11.4 MgO: 8.35
CaO: 11.1 Na2O: 2.21 K2O: 0.41 TiO2: 2.47 P2O5: 0.24 MnO: 0.17

Glass Chemistry-- SiO2: 51.01 Al2O3: 13.59 FeO: 11.28 MgO: 6.72
CaO: 11.20 Na2O: 2.50 K2O: 0.44 TiO2: 2.67 P2O5: 0.22 MnO: 0.16

Sample: 1282

Episode: 48.5 Collect: 11/08/90 Erupt: 11/08/90 13hr Days: 2866.54
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE
Vent: Kupaianaha Elev (ft): 1200 Coordinates: N 0.60 /8.75
Note:

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.2 FeO: 11.4 MgO: 8.05
CaO: 11.2 Na2O: 2.23 K2O: 0.41 TiO2: 2.52 P2O5: 0.25 MnO: 0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1283

Episode: 48.5 Collect: 11/17/90 Erupt: 11/17/90 14hr Days: 2875.57
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE
Vent: Kupaianaha Elev (ft): 1200 Coordinates: N 0.60 /8.75
Note:

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.1 FeO: 11.4 MgO: 8.31
CaO: 11.1 Na2O: 2.22 K2O: 0.41 TiO2: 2.48 P2O5: 0.24 MnO:0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1284

Episode: 48.5 Collect: 11/28/90 Erupt: 11/28/90 13hr Days: 2886.52
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE
Vent: Kupaianaha Elev (ft): 1200 Coordinates: N 0.60 /8.75
Note:

Bulk Chemistry-- SiO2: 50.2 Al2O3: 12.7 FeO: 11.5 MgO: 9.38
CaO: 10.8 Na2O: 2.13 K2O: 0.40 TiO2: 2.39 P2O5: 0.24 MnO:0.18

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1285

Episode: 48.5 Collect: 12/05/90 Erupt: 12/05/90 15hr Days: 2893.60
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE
Vent: Kupaianaha Elev (ft): 1000 Coordinates: H 0.30 /11.10
Note:SKYLIGHT AT 1000-FT ELEV. ON THE WAHAULA (WEST) TUBE SYSTEM, JUST
EAST OF ROYAL GARDENS

Bulk Chemistry-- SiO2: 50.2 Al2O3: 12.8 FeO: 11.5 MgO: 9.15
CaO: 10.9 Na2O: 2.14 K2O: 0.40 TiO2: 2.41 P2O5: 0.23 MnO:0.17

Glass Chemistry-- SiO2: 51.39 Al2O3: 13.71 FeO: 10.82 MgO: 6.90
CaO: 11.47 Na2O: 2.45 K2O: 0.46 TiO2: 2.55 P2O5: 0.21 MnO: 0.19

Sample: 1286

Episode: 48.5 Collect: 12/07/90 Erupt: 12/07/90 14hr Days: 2895.58
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE
Vent: Kupaianaha Elev (ft): 1200 Coordinates: N 0.60 /8.75
Note:

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.1 FeO: 11.4 MgO: 8.33
CaO: 11.1 Na2O: 2.18 K2O: 0.42 TiO2: 2.47 P2O5: 0.25 MnO:0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1287

Episode: 48.5 Collect: 12/14/90 Erupt: 12/14/90 13hr Days: 2902.52

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE

Vent: Kupaianaha Elev (ft): 920 Coordinates: H 0.30 /11.10

Note: 920-FT ELEVATION SKYLIGHT ON THE WAHAULA (WEST) TUBE SYSTEM

Bulk Chemistry-- SiO2: 50.3 Al2O3: 12.9 FeO: 11.5 MgO: 8.95
CaO: 10.9 Na2O: 2.14 K2O: 0.40 TiO2: 2.42 P2O5: 0.24 MnO: 0.17

Glass Chemistry-- SiO2: 51.24 Al2O3: 13.65 FeO: 10.86 MgO: 6.81
CaO: 11.43 Na2O: 2.42 K2O: 0.43 TiO2: 2.50 P2O5: 0.21 MnO: 0.20

Sample: 1288

Episode: 48.5 Collect: 12/15/90 Erupt: 12/15/90 13hr Days: 2903.54

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE

Vent: Kupaianaha Elev (ft): 1200 Coordinates: N 0.60 /8.75

Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1289

Episode: 48.5 Collect: 12/27/90 Erupt: 12/27/90 13hr Days: 2915.52

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE

Vent: Kupaianaha Elev (ft): 1200 Coordinates: N 0.60 /8.75

Note: 1200-FT ELEV SKYLIGHT ON WOODCHIP (EASTERN) TUBE SYSTEM

Bulk Chemistry-- SiO2: 50.2 Al2O3: 12.8 FeO: 11.6 MgO: 9.26
CaO: 10.8 Na2O: 2.16 K2O: 0.41 TiO2: 2.41 P2O5: 0.24 MnO: 0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1290

Episode: 48.5 Collect: 1/03/91 Erupt: 1/03/91 13hr Days: 2922.54

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE

Vent: Kupaianaha Elev (ft): 1720 Coordinates: K 0.00 /9.00

Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1291

Episode: 48.5 Collect: 1/12/91 Erupt: 1/12/91 15hr Days: 2931.62
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE
Vent: Kupaianaha Elev (ft): 1845 Coordinates: J 0.50 /9.00
Note: WAHAULA (WEST) TUBE SYSTEM

Bulk Chemistry-- SiO2: 50.4 Al2O3: 12.9 FeO: 11.5 MgO: 8.92
CaO: 10.9 Na2O: 2.17 K2O: 0.40 TiO2: 2.43 P2O5: 0.24 MnO: 0.17

Glass Chemistry-- SiO2: 51.13 Al2O3: 13.87 FeO: 10.84 MgO: 6.94
CaO: 11.40 Na2O: 2.27 K2O: 0.44 TiO2: 2.57 P2O5: 0.21 MnO: 0.18

Sample: 1292

Episode: 48.5 Collect: 1/15/91 Erupt: 1/15/91 10hr Days: 2934.42
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE
Vent: Kupaianaha Elev (ft): 15 Coordinates: N 0.00 /2.35
Note:

Bulk Chemistry-- SiO2: 50.8 Al2O3: 13.4 FeO: 11.2 MgO: 7.51
CaO: 11.4 Na2O: 2.25 K2O: 0.42 TiO2: 2.54 P2O5: 0.25 MnO: 0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1293

Episode: 48.5 Collect: 1/19/91 Erupt: 1/19/91 12hr Days: 2938.50
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE
Vent: Kupaianaha Elev (ft): 1845 Coordinates: J 0.50 /9.00
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1294

Episode: 48.5 Collect: 1/24/91 Erupt: 1/24/91 10hr Days: 2943.42
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: Kupaianaha Elev (ft): 20 Coordinates: N 0.00 /3.00
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1295
Episode: 48.5 Collect: 1/26/91 Erupt: 1/26/91 13hr Days: 2945.55
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE
Vent: Kupaianaha Elev (ft): 1845 Coordinates: J 0.50 /9.00
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1296
Episode: 48.5 Collect: 1/30/91 Erupt: 1/30/91 13hr Days: 2949.53
Type: SPATTER -LITTORAL Molten: Y Quench: AIR Device: NONE
Vent: Kupaianaha Elev (ft): 0 Coordinates: M 0.85 /2.30
Note: SAMPLE IS FROM POUPOU ENTRY, WEST ENTRY POINT

Bulk Chemistry-- SiO2: 50.4 Al2O3: 12.9 FeO: 11.4 MgO: 8.78
CaO: 11.0 Na2O: 2.20 K2O: 0.40 TiO2: 2.43 P2O5: 0.24 MnO: 0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1297
Episode: 48.5 Collect: 1/31/91 Erupt: 1/31/91 16hr Days: 2950.64
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE
Vent: Kupaianaha Elev (ft): 1720 Coordinates: K 0.00 /9.00
Note:

Bulk Chemistry-- SiO2: 50.3 Al2O3: 13.0 FeO: 11.5 MgO: 8.81
CaO: 11.0 Na2O: 2.17 K2O: 0.41 TiO2: 2.44 P2O5: 0.24 MnO: 0.18

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1298
Episode: 48.5 Collect: 2/03/91 Erupt: 2/03/91 14hr Days: 2953.59
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE
Vent: Kupaianaha Elev (ft): 1845 Coordinates: J 0.50 /9.00
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1303

Episode: 48.5 Collect: 2/17/91 Erupt: 2/17/91 13hr Days: 2967.52
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE
Vent: Kupaianaha Elev (ft): 1845 Coordinates: J 0.50 /9.00
Note: WEST SIDE OF FLOW FIELD

Bulk Chemistry-- SiO2: 50.3 Al2O3: 12.9 FeO: 11.5 MgO: 8.86
CaO: 11.0 Na2O: 2.18 K2O: 0.40 TiO2: 2.43 P2O5: 0.24 MnO: 0.18

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1304

Episode: 48.5 Collect: 2/27/91 Erupt: 2/27/91 12hr Days: 2977.51
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: Kupaianaha Elev (ft): 40 Coordinates: M 0.80 /3.75
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO: MnO:
CaO: Na2O: K2O: TiO2: P2O5:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO: MnO:
CaO: Na2O: K2O: TiO2: P2O5:

Sample: 1305

Episode: 48.5 Collect: 2/27/91 Erupt: 2/27/91 10hr Days: 2977.42
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL
Vent: Kupaianaha Elev (ft): 1845 Coordinates: J 0.50 /9.00
Note:

Bulk Chemistry-- SiO2: 50.3 Al2O3: 12.9 FeO: 11.5 MgO: 8.88
CaO: 11.0 Na2O: 2.15 K2O: 0.41 TiO2: 2.44 P2O5: 0.24 MnO: 0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO: MnO:
CaO: Na2O: K2O: TiO2: P2O5:

Sample: 1306

Episode: 48.5 Collect: 2/27/91 Erupt: 2/27/91 11hr Days: 2977.47
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL
Vent: Kupaianaha Elev (ft): 1840 Coordinates: H 0.30 /11.10
Note: APPROXIMATELY 300 FT FROM 1845-FT ELEV. SKYLIGHT.

Bulk Chemistry-- SiO2: 50.3 Al2O3: 12.9 FeO: 11.5 MgO: 8.85
CaO: 11.0 Na2O: 2.17 K2O: 0.41 TiO2: 2.45 P2O5: 0.24 MnO: 0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO: MnO:
CaO: Na2O: K2O: TiO2: P2O5:

Sample: 1307

Episode: 48.5 Collect: 2/27/91 Erupt: 2/27/91 13hr Days: 2977.54
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: Kupaianaha Elev (ft): 1380 Coordinates: H 0.30 /11.10
Note:

Bulk Chemistry-- SiO2: 50.4 Al2O3: 12.9 FeO: 11.5 MgO: 8.71
CaO: 11.1 Na2O: 2.20 K2O: 0.41 TiO2: 2.45 P2O5: 0.25 MnO: 0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1308

Episode: 48.5 Collect: 3/01/91 Erupt: 3/01/91 11hr Days: 2979.44
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE
Vent: Kupaianaha Elev (ft): 2080 Coordinates: H 0.30 /11.10
Note: SKYLIGHT ON WAHAULA TUBE SYSTEM

Bulk Chemistry-- SiO2: 50.3 Al2O3: 12.9 FeO: 11.5 MgO: 8.83
CaO: 11.0 Na2O: 2.16 K2O: 0.40 TiO2: 2.43 P2O5: 0.24 MnO: 0.17

Glass Chemistry-- SiO2: 51.44 Al2O3: 13.71 FeO: 10.59 MgO: 7.07
CaO: 11.24 Na2O: 2.49 K2O: 0.44 TiO2: 2.52 P2O5: 0.20 MnO: 0.18

Sample: 1309

Episode: 48.5 Collect: 3/01/91 Erupt: 3/01/91 11hr Days: 2979.46
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: Kupaianaha Elev (ft): 80 Coordinates: N 0.00 /4.00
Note:

Bulk Chemistry-- SiO2: 50.3 Al2O3: 12.8 FeO: 11.6 MgO: 9.06
CaO: 10.9 Na2O: 2.15 K2O: 0.41 TiO2: 2.43 P2O5: 0.25 MnO: 0.18

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1310

Episode: 48.5 Collect: 3/01/91 Erupt: 3/01/91 12hr Days: 2979.50
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE
Vent: Kupaianaha Elev (ft): 1845 Coordinates: J 0.50 /9.00
Note: SAME SKYLIGHT AS SAMPLE FROM FEB 27, 1991

Bulk Chemistry-- SiO2: 50.4 Al2O3: 13.0 FeO: 11.5 MgO: 8.76
CaO: 11.0 Na2O: 2.18 K2O: 0.42 TiO2: 2.45 P2O5: 0.24 MnO: 0.18

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1311

Episode: 48.5 Collect: 3/01/91 Erupt: 3/01/91 12hr Days: 2979.50
Type: SPATTER -LITTORAL Molten: Y Quench: AIR Device: NONE
Vent: Kupaianaha Elev (ft): 0 Coordinates: M 0.85 /2.30
Note:POUPOU 1 OCEAN ENTRY

Bulk Chemistry-- SiO2: 50.4 Al2O3: 12.9 FeO: 11.5 MgO: 8.77
CaO: 11.0 Na2O: 2.18 K2O: 0.41 TiO2: 2.44 P2O5: 0.24 MnO:0.18

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1312

Episode: 48.5 Collect: 3/07/91 Erupt: 3/07/91 9 hr Days: 2985.39
Type: SPATTER -LITTORAL Molten: Y Quench: AIR Device: NONE
Vent: Kupaianaha Elev (ft): 0 Coordinates: M 0.85 /2.30
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1313

Episode: 48.5 Collect: 3/25/91 Erupt: 3/25/91 13hr Days: 3003.53
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL
Vent: Kupaianaha Elev (ft): 1880 Coordinates: H 0.30 /11.10
Note:1880-FT ELEVATION SKYLIGHT ON THE WAHAULA TUBE SYSTEM

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.0 FeO: 11.4 MgO: 8.65
CaO: 11.0 Na2O: 2.11 K2O: 0.42 TiO2: 2.47 P2O5: 0.24 MnO:0.18

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1314

Episode: 48.5 Collect: 3/25/91 Erupt: 3/25/91 15hr Days: 3003.61
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL
Vent: Kupaianaha Elev (ft): 1970 Coordinates: H 0.30 /11.10
Note:SKYLIGHT AT 1970-FT ELEVATION ON WAHAULA TUBE SYSTEM

Bulk Chemistry-- SiO2: 50.5 Al2O3: 12.9 FeO: 11.4 MgO: 8.77
CaO: 11.0 Na2O: 2.09 K2O: 0.41 TiO2: 2.46 P2O5: 0.24 MnO:0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1315
Episode: 48.5 Collect: 3/27/91 Erupt: 3/27/91 9 hr Days: 3005.37
Type: SPATTER -LITTORAL Molten: Y Quench: AIR Device: NONE
Vent: Kupaianaha Elev (ft): 0 Coordinates: M 0.85 /2.30
Note:

Bulk Chemistry-- SiO2: 50.5 Al2O3: 12.9 FeO: 11.4 MgO: 8.85
CaO: 11.0 Na2O: 2.13 K2O: 0.41 TiO2: 2.45 P2O5: 0.24 MnO:0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1316
Episode: 48.5 Collect: 4/05/91 Erupt: 4/05/91 20hr Days: 3014.81
Type: SPATTER -LITTORAL Molten: Y Quench: AIR Device: NONE
Vent: Kupaianaha Elev (ft): 0 Coordinates: M 0.85 /2.30
Note:POUPOU ENTRY, WEST ENTRY POINT

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.0 FeO: 11.4 MgO: 8.72
CaO: 11.0 Na2O: 2.10 K2O: 0.42 TiO2: 2.47 P2O5: 0.24 MnO:0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1317
Episode: 48.5 Collect: 4/16/91 Erupt: 4/16/91 15hr Days: 3025.62
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL
Vent: Kupaianaha Elev (ft): 1880 Coordinates: H 0.30 /11.10
Note:SKYLIGHT ON WAHAULA TUBE SYSTEM, 1850-FT ELEVATION

Bulk Chemistry-- SiO2: 50.6 Al2O3: 12.9 FeO: 11.5 MgO: 8.64
CaO: 11.0 Na2O: 2.11 K2O: 0.41 TiO2: 2.44 P2O5: 0.24 MnO:0.17

Glass Chemistry-- SiO2: 50.93 Al2O3: 13.75 FeO: 10.89 MgO: 6.96
CaO: 11.42 Na2O: 2.51 K2O: 0.42 TiO2: 2.54 P2O5: 0.21 MnO: 0.19

Sample: 1318
Episode: 48.5 Collect: 4/21/91 Erupt: 4/21/91 18hr Days: 3030.76
Type: SPATTER -LITTORAL Molten: Y Quench: AIR Device: NONE
Vent: Kupaianaha Elev (ft): 0 Coordinates: M 0.85 /2.30
Note:

Bulk Chemistry-- SiO2: 50.4 Al2O3: 12.8 FeO: 11.5 MgO: 8.90
CaO: 11.0 Na2O: 2.11 K2O: 0.41 TiO2: 2.45 P2O5: 0.25 MnO:0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1319

Episode: 48.5 Collect: 5/09/91 Erupt: 5/09/91 13hr Days: 3048.54

Type: SPATTER -LITTORAL Molten: Y Quench: AIR Device: NONE

Vent: Kupaianaha Elev (ft): 0 Coordinates: M 0.85 /2.30

Note:

Bulk Chemistry-- SiO2: 50.5 Al2O3: 12.9 FeO: 11.4 MgO: 8.72
CaO: 11.0 Na2O: 2.11 K2O: 0.41 TiO2: 2.45 P2O5: 0.24 MnO: 0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1320

Episode: 48.5 Collect: 4/19/91 Erupt: 4/19/91 12hr Days: 3028.51

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL

Vent: Kupaianaha Elev (ft): 1845 Coordinates: J 0.50 /9.00

Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1321

Episode: 48.5 Collect: 4/28/91 Erupt: 4/28/91 11hr Days: 3037.44

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL

Vent: Kupaianaha Elev (ft): 1845 Coordinates: J 0.50 /9.00

Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1322

Episode: 48.5 Collect: 5/05/91 Erupt: 5/05/91 11hr Days: 3044.44

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL

Vent: Kupaianaha Elev (ft): 1845 Coordinates: J 0.50 /9.00

Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1323

Episode: 48.5 Collect: 5/18/91 Erupt: 5/18/91 11hr Days: 3057.44
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: Kupaianaha Elev (ft): 20 Coordinates: N 0.00 /2.70
Note:150 M NE OF ENTRY TUBE (WAHAULA TUBE) ABOUT 300 M FROM OCEAN

Bulk Chemistry--	SiO2:	Al2O3:	FeO:	MgO:		
CaO:	Na2O:	K2O:	TiO2:	P2O5:	MnO:	
Glass Chemistry--	SiO2:	Al2O3:	FeO:	MgO:		
CaO:	Na2O:	K2O:	TiO2:	P2O5:	MnO:	

Sample: 1324

Episode: 48.5 Collect: 5/23/91 Erupt: 5/23/91 11hr Days: 3062.45
Type: SPATTER -LITTORAL Molten: Y Quench: AIR Device: NONE
Vent: Kupaianaha Elev (ft): 0 Coordinates: M 0.85 /2.30
Note:

Bulk Chemistry--	SiO2:	Al2O3:	FeO:	MgO:							
CaO:	10.8	Na2O:	2.13	K2O:	0.43	TiO2:	2.39	P2O5:	0.23	MnO:	0.17
Glass Chemistry--	SiO2:	Al2O3:	FeO:	MgO:							
CaO:	Na2O:	K2O:	TiO2:	P2O5:	MnO:						

Sample: 1325

Episode: 48.5 Collect: 5/28/91 Erupt: 5/28/91 17hr Days: 3067.69
Type: SPATTER -LITTORAL Molten: Y Quench: AIR Device: NONE
Vent: Kupaianaha Elev (ft): 0 Coordinates: M 0.85 /2.30
Note:WEST POUPOU ENTRY POINT

Bulk Chemistry--	SiO2:	Al2O3:	FeO:	MgO:		
CaO:	Na2O:	K2O:	TiO2:	P2O5:	MnO:	
Glass Chemistry--	SiO2:	Al2O3:	FeO:	MgO:		
CaO:	Na2O:	K2O:	TiO2:	P2O5:	MnO:	

Sample: 1326

Episode: 48.5 Collect: 6/07/91 Erupt: 6/07/91 12hr Days: 3077.50
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: Kupaianaha Elev (ft): 40 Coordinates: O 0.25 /4.15
Note:

Bulk Chemistry--	SiO2:	Al2O3:	FeO:	MgO:		
CaO:	Na2O:	K2O:	TiO2:	P2O5:	MnO:	
Glass Chemistry--	SiO2:	Al2O3:	FeO:	MgO:		
CaO:	Na2O:	K2O:	TiO2:	P2O5:	MnO:	

Sample: 1327

Episode: 48.5 Collect: 6/13/91 Erupt: 6/13/91 11hr Days: 3083.46
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL
Vent: Kupaianaha Elev (ft): 2140 Coordinates: I 0.25 /10.25
Note:2140-FT ELEVATION SKYLIGHT

Bulk Chemistry-- SiO2: 50.4 Al2O3: 13.0 FeO: 11.5 MgO: 9.17
CaO: 10.6 Na2O: 2.11 K2O: 0.43 TiO2: 2.37 P2O5: 0.24 MnO:0.17

Glass Chemistry-- SiO2: 50.71 Al2O3: 13.93 FeO: 10.86 MgO: 6.97
CaO: 11.45 Na2O: 2.40 K2O: 0.42 TiO2: 2.57 P2O5: 0.19 MnO: 0.20

Sample: 1328

Episode: 48.5 Collect: 6/20/91 Erupt: 6/20/91 13hr Days: 3090.52
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL
Vent: Kupaianaha Elev (ft): 2140 Coordinates: I 0.25 /10.25
Note:DIP FROM 2140-FT ELEV. SKYLIGHT

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1329

Episode: 48.5 Collect: 7/02/91 Erupt: 7/02/91 11hr Days: 3102.44
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL
Vent: Kupaianaha Elev (ft): 2140 Coordinates: I 0.25 /10.25
Note:DIP FROM 2140-FT ELEVATION SKYLIGHT

Bulk Chemistry-- SiO2: 50.6 Al2O3: 13.0 FeO: 11.4 MgO: 8.83
CaO: 10.7 Na2O: 2.16 K2O: 0.43 TiO2: 2.41 P2O5: 0.24 MnO:0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1330

Episode: 48.5 Collect: 7/04/91 Erupt: 7/01/91 10hr Days: 3100.98
Type: SPATTER -LITTORAL Molten: N Quench: AIR Device: NONE
Vent: Kupaianaha Elev (ft): 0 Coordinates: O 0.50 /3.25
Note:PARADISE BENCH

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1331

Episode: 48.5 Collect: 7/16/91 Erupt: 7/16/91 11hr Days: 3116.44
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL
Vent: Kupaianaha Elev (ft): 2140 Coordinates: I 0.25 /10.25
Note: DIP FROM 2140-FT ELEV. SKYLIGHT

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.2 FeO: 11.4 MgO: 8.81
CaO: 10.7 Na2O: 2.12 K2O: 0.43 TiO2: 2.41 P2O5: 0.24 MnO: 0.17

Glass Chemistry-- SiO2: 51.21 Al2O3: 13.95 FeO: 10.83 MgO: 6.95
CaO: 11.41 Na2O: 2.40 K2O: 0.42 TiO2: 2.57 P2O5: 0.21 MnO: 0.18

Sample: 1332

Episode: 48.5 Collect: 7/29/91 Erupt: 7/29/91 11hr Days: 3129.44
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL
Vent: Kupaianaha Elev (ft): 2140 Coordinates: I 0.25 /10.25
Note: DIP FROM 2140-FT ELEV. SKYLIGHT

Bulk Chemistry-- SiO2: 50.4 Al2O3: 13.0 FeO: 11.4 MgO: 8.84
CaO: 10.7 Na2O: 2.43 K2O: 0.44 TiO2: 2.40 P2O5: 0.24 MnO: 0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1333

Episode: 48.5 Collect: 7/30/91 Erupt: 7/30/91 11hr Days: 3130.44
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE
Vent: Kupaianaha Elev (ft): 140 Coordinates: M 0.95 /4.40
Note: DIP FROM WAHAULA TUBE SKYLIGHT, WEST BRANCH

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1334

Episode: 48.5 Collect: 2/24/91 Erupt: 2/24/91 13hr Days: 2974.52
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL
Vent: Kupaianaha Elev (ft): 1820 Coordinates: H 0.30 /11.10
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1335

Episode: 48.5 Collect: 5/12/91 Erupt: 5/12/91 13hr Days: 3051.52
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: Kupaianaha Elev (ft): 1250 Coordinates: H 0.30 /11.10
Note:WAHAULA TUBE

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1336

Episode: 48.5 Collect: 6/19/91 Erupt: 6/19/91 14hr Days: 3089.56
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL
Vent: Kupaianaha Elev (ft): 2150 Coordinates: I 0.25 /10.20
Note:WAHAULA TUBE

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1337

Episode: 48.5 Collect: 6/27/91 Erupt: 6/27/91 hr Days: 3096.98
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL
Vent: Kupaianaha Elev (ft): 2150 Coordinates: I 0.25 /10.20
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1338

Episode: 48.5 Collect: 7/29/91 Erupt: 7/29/91 hr Days: 3128.98
Type: SPATTER -VENT Molten: Y Quench: AIR Device: CABLE
Vent: Kupaianaha Elev (ft): 2820 Coordinates: E 0.50 /9.50
Note:PUU 'O'O

Bulk Chemistry-- SiO2: 50.6 Al2O3: 13.1 FeO: 11.4 MgO: 8.83
CaO: 10.7 Na2O: 2.11 K2O: 0.43 TiO2: 2.40 P2O5: 0.25 MnO:0.17

Glass Chemistry-- SiO2: 50.83 Al2O3: 13.70 FeO: 10.91 MgO: 7.23
CaO: 11.37 Na2O: 2.47 K2O: 0.42 TiO2: 2.44 P2O5: 0.21 MnO: 0.16

Sample: 1339

Episode: 48.5 Collect: 8/02/91 Erupt: 8/02/91 14hr Days: 3133.57

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL

Vent: Kupaianaha Elev (ft): 2140 Coordinates: I 0.25 /10.25

Note:WAHAULA TUBE

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1340

Episode: 48.5 Collect: 8/11/91 Erupt: 8/11/91 hr Days: 3141.98

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL

Vent: Kupaianaha Elev (ft): 2140 Coordinates: I 0.25 /10.25

Note:WAHAULA TUBE

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1341

Episode: 48.5 Collect: 8/10/91 Erupt: 8/10/91 11hr Days: 3141.44

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE

Vent: Kupaianaha Elev (ft): 140 Coordinates: M 0.95 /4.40

Note:WAHAULA TUBE, SMALL CRACK OVER TUBE

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1342

Episode: 48.5 Collect: 8/15/91 Erupt: 8/15/91 11hr Days: 3146.46

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE

Vent: Kupaianaha Elev (ft): 140 Coordinates: M 0.95 /4.40

Note:WAHAULA TUBE, SMALL CRACK OVER TUBE

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1343

Episode: 48.5 Collect: 8/16/91 Erupt: 8/16/91 hr Days: 3146.98

Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER

Vent: Kupaianaha Elev (ft): 40 Coordinates: M 0.20 /3.30

Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1344

Episode: 48.5 Collect: 8/16/91 Erupt: 8/16/91 11hr Days: 3147.47

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL

Vent: Kupaianaha Elev (ft): 2140 Coordinates: I 0.25 /10.50

Note: WAHAULA TUBE, SKYLIGHT

Bulk Chemistry-- SiO2: 50.6 Al2O3: 13.1 FeO: 11.4 MgO: 8.72
CaO: 10.8 Na2O: 2.11 K2O: 0.43 TiO2: 2.41 P2O5: 0.25 MnO: 0.17

Glass Chemistry-- SiO2: 51.07 Al2O3: 13.44 FeO: 10.79 MgO: 6.93
CaO: 11.33 Na2O: 2.42 K2O: 0.43 TiO2: 2.44 P2O5: 0.20 MnO: 0.16

Sample: 1345

Episode: 48.5 Collect: 8/17/91 Erupt: 8/17/91 13hr Days: 3148.52

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL

Vent: Kupaianaha Elev (ft): 2140 Coordinates: I 0.25 /10.25

Note: WAHAULA TUBE SKYLIGHT

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1346

Episode: 48.5 Collect: 9/05/91 Erupt: 9/04/91 hr Days: 3165.98

Type: PAHOEHOE-FLOW Molten: N Quench: AIR Device: NONE

Vent: Kupaianaha Elev (ft): 2150 Coordinates: I 0.25 /10.20

Note:

Bulk Chemistry-- SiO2: 50.6 Al2O3: 13.1 FeO: 11.4 MgO: 8.85
CaO: 10.7 Na2O: 2.11 K2O: 0.43 TiO2: 2.40 P2O5: 0.25 MnO: 0.17

Glass Chemistry-- SiO2: 50.84 Al2O3: 13.79 FeO: 10.82 MgO: 6.95
CaO: 11.40 Na2O: 2.40 K2O: 0.42 TiO2: 2.49 P2O5: 0.21 MnO: 0.19

Sample: 1347
Episode: 48.5 Collect: 9/17/91 Erupt: 9/17/91 13hr Days: 3179.54
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE
Vent: Kupaianaha Elev (ft): 1900 Coordinates: H 0.30 /11.10
Note:WAHAULA TUBE SKYLIGHT, CRUSTED OVER DIRECTLY BENEATH SKYLIGHT

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1348
Episode: 48.5 Collect: 11/08/91 Erupt: 11/01/91 hr Days: 3223.98
Type: SPATTER -VENT Molten: N Quench: AIR Device: NONE
Vent: PUU O'O Elev (ft): 2800 Coordinates: E 0.60 /9.70
Note:SAMPLE FOUND ON NORTH SPILLWAY, WITHIN 25 M OF RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1349
Episode: 49.0 Collect: 11/08/91 Erupt: 11/08/91 16hr Days: 3231.67
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: CABLE
Vent: 49 FISSURE Elev (ft): 2400 Coordinates: F 0.75 /10.25
Note:49 FISSURE LOCATED IMMEDIATELY UPRIFT FROM PUU HALULU (1123)

Bulk Chemistry-- SiO2: 50.2 Al2O3: 12.9 FeO: 11.5 MgO: 9.11
CaO: 10.9 Na2O: 2.16 K2O: 0.41 TiO2: 2.43 P2O5: 0.25 MnO:0.18

Glass Chemistry-- SiO2: 50.78 Al2O3: 13.69 FeO: 10.85 MgO: 6.74
CaO: 11.32 Na2O: 2.49 K2O: 0.44 TiO2: 2.59 P2O5: 0.17 MnO: 0.18

Sample: 1350
Episode: 49.0 Collect: 11/09/91 Erupt: 11/09/91 13hr Days: 3232.53
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: CABLE
Vent: 49 FISSURE Elev (ft): 2350 Coordinates: G 0.00 /10.25
Note:49 FISSURE LOCATED DOWNRIFT OF PUU HALULU (1123)

Bulk Chemistry-- SiO2: 50.1 Al2O3: 12.9 FeO: 11.5 MgO: 9.22
CaO: 10.9 Na2O: 2.16 K2O: 0.40 TiO2: 2.44 P2O5: 0.25 MnO:0.18

Glass Chemistry-- SiO2: 50.89 Al2O3: 13.73 FeO: 10.81 MgO: 6.81
CaO: 11.40 Na2O: 2.36 K2O: 0.43 TiO2: 2.36 P2O5: 0.20 MnO: 0.16

Sample: 1351

Episode: 48.5 Collect: 11/10/91 Erupt: 11/10/91 14hr Days: 3233.59
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL
Vent: Kupaianaha Elev (ft): 2150 Coordinates: I 0.25 /10.20
Note:SKYLIGHT ON WAHAULA TUBE

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1352

Episode: 48.5 Collect: 11/11/91 Erupt: 11/11/91 13hr Days: 3234.55
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL
Vent: Kupaianaha Elev (ft): 2150 Coordinates: I 0.25 /10.20
Note:SKYLIGHT ON WAHAULA TUBE

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1353

Episode: 49.0 Collect: 11/11/91 Erupt: 11/11/91 14hr Days: 3234.58
Type: AA -FLUID Molten: Y Quench: AIR Device: HAMMER
Vent: 49 VENT Elev (ft): 2050 Coordinates: I 0.25 /10.00
Note:VENT FEEDING CHANNELIZED AA FLOW IS WHERE EASTERNMOST FISSURE
FORMED ON 11/08/91

Bulk Chemistry-- SiO2: 50.2 Al2O3: 13.0 FeO: 11.5 MgO: 9.09
CaO: 10.9 Na2O: 2.11 K2O: 0.41 TiO2: 2.44 P2O5: 0.25 MnO:0.18

Glass Chemistry-- SiO2: 50.89 Al2O3: 13.75 FeO: 11.44 MgO: 6.55
CaO: 10.95 Na2O: 2.49 K2O: 0.41 TiO2: 2.66 P2O5: 0.23 MnO: 0.16

Sample: 1354

Episode: 49.0 Collect: 11/13/91 Erupt: 11/13/91 14hr Days: 3236.58
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: CABLE
Vent: 49 VENT Elev (ft): 2250 Coordinates: G 0.20 /10.60
Note:49 VENT FORMED OVER EASTERNMOST FISSURE FROM 11/08/91

Bulk Chemistry-- SiO2: 50.1 Al2O3: 12.9 FeO: 11.5 MgO: 9.15
CaO: 10.9 Na2O: 2.13 K2O: 0.40 TiO2: 2.43 P2O5: 0.25 MnO:0.18

Glass Chemistry-- SiO2: 50.78 Al2O3: 13.73 FeO: 10.86 MgO: 7.14
CaO: 11.32 Na2O: 2.38 K2O: 0.39 TiO2: 2.51 P2O5: 0.20 MnO: 0.17

Sample: 1355
Episode: 49.0 Collect: 11/13/91 Erupt: 11/08/91 hr Days: 3230.98
Type: SPATTER -VENT Molten: N Quench: AIR Device: NONE
Vent: 49 FISSURE Elev (ft): 2400 Coordinates: F 0.75 /10.25
Note:

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.2 FeO: 11.4 MgO: 8.91
CaO: 10.6 Na2O: 2.11 K2O: 0.42 TiO2: 2.39 P2O5: 0.25 MnO:0.18

Glass Chemistry-- SiO2: 50.74 Al2O3: 13.67 FeO: 11.09 MgO: 6.62
CaO: 11.21 Na2O: 2.46 K2O: 0.47 TiO2: 2.71 P2O5: 0.17 MnO: 0.16

Sample: 1356
Episode: 49.0 Collect: 11/13/91 Erupt: 11/08/91 hr Days: 3230.98
Type: PAHOEHOE-FLOW Molten: N Quench: AIR Device: NONE
Vent: 49 FISSURE Elev (ft): 2600 Coordinates: E 0.90 /9.85
Note:UPRIFT MOST 49 VENT, ACTIVE EARLY AM (SEE RAD LOG) ON 11/08/91

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.1 FeO: 11.4 MgO: 9.03
CaO: 10.6 Na2O: 2.10 K2O: 0.42 TiO2: 2.38 P2O5: 0.25 MnO:0.17

Glass Chemistry-- SiO2: 50.96 Al2O3: 13.67 FeO: 10.76 MgO: 6.92
CaO: 11.40 Na2O: 2.31 K2O: 0.47 TiO2: 2.54 P2O5: 0.17 MnO: 0.17

Sample: 1357
Episode: 49.0 Collect: 11/13/91 Erupt: 11/08/91 hr Days: 3230.98
Type: SPATTER -VENT Molten: N Quench: AIR Device: NONE
Vent: 49 FISSURE Elev (ft): 2400 Coordinates: F 0.70 /10.20
Note:FISSURE/VENT ABOUT 100 M UPRIFT OF PUU HALULU (1123)

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1358
Episode: 48.5 Collect: 11/14/91 Erupt: 11/14/91 11hr Days: 3237.45
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL
Vent: Kupaianaha Elev (ft): 2150 Coordinates: I 0.25 /10.20
Note:

Bulk Chemistry-- SiO2: 50.3 Al2O3: 13.0 FeO: 11.5 MgO: 8.81
CaO: 11.0 Na2O: 2.14 K2O: 0.41 TiO2: 2.47 P2O5: 0.26 MnO:0.18

Glass Chemistry-- SiO2: 51.05 Al2O3: 13.72 FeO: 11.26 MgO: 6.60
CaO: 10.95 Na2O: 2.51 K2O: 0.46 TiO2: 2.75 P2O5: 0.26 MnO: 0.18

Sample: 1359

Episode: 48.5 Collect: 10/06/91 Erupt: 10/06/91 15hr Days: 3198.60
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL
Vent: Kupaianaha Elev (ft): 2150 Coordinates: I 0.25 /10.20
Note:SKYLIGHT ON WAHAULA TUBE

Bulk Chemistry-- SiO2: 50.2 Al2O3: 13.1 FeO: 11.8 MgO: 9.03
CaO: 10.5 Na2O: 2.09 K2O: 0.42 TiO2: 2.36 P2O5: 0.24 MnO:0.17

Glass Chemistry-- SiO2: 50.61 Al2O3: 13.74 FeO: 11.14 MgO: 6.70
CaO: 11.38 Na2O: 2.49 K2O: 0.43 TiO2: 2.62 P2O5: 0.25 MnO: 0.20

Sample: 1360

Episode: 48.5 Collect: 10/20/91 Erupt: 10/20/91 15hr Days: 3212.60
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL
Vent: Kupaianaha Elev (ft): 2150 Coordinates: I 0.25 /10.20
Note:SKYLIGHT ON WAHAULA TUBE

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.2 FeO: 11.4 MgO: 8.73
CaO: 10.7 Na2O: 2.16 K2O: 0.42 TiO2: 2.41 P2O5: 0.25 MnO:0.18

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1361

Episode: 48.5 Collect: 11/25/91 Erupt: 10/13/91 hr Days: 3204.98
Type: SPATTER -VENT Molten: N Quench: AIR Device: NONE
Vent: PUA O O Elev (ft): 2800 Coordinates: E 0.60 /9.70
Note:LOCATED ON NORTH SPILLWAY WITHIN 15 METERS OF CRATER RIM. LEVEL
OF ACTIVE POND ABOUT 46 METERS BELOW RIM.

Bulk Chemistry-- SiO2: 50.4 Al2O3: 13.2 FeO: 11.3 MgO: 8.95
CaO: 10.7 Na2O: 2.13 K2O: 0.43 TiO2: 2.38 P2O5: 0.24 MnO:0.17

Glass Chemistry-- SiO2: 50.44 Al2O3: 13.72 FeO: 11.01 MgO: 7.05
CaO: 11.41 Na2O: 2.46 K2O: 0.43 TiO2: 2.60 P2O5: 0.28 MnO: 0.17

Sample: 1362

Episode: 48.5 Collect: 10/25/91 Erupt: 10/25/91 14hr Days: 3217.56
Type: POND -DIP Molten: Y Quench: AIR Device: CABLE
Vent: PUA O O Elev (ft): 2750 Coordinates: E 0.55 /9.65
Note:LEVEL OF ACTIVE POND 46 METERS BELOW RIM OF CRATER

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.2 FeO: 11.4 MgO: 8.92
CaO: 10.6 Na2O: 2.13 K2O: 0.43 TiO2: 2.40 P2O5: 0.25 MnO:0.17

Glass Chemistry-- SiO2: 50.49 Al2O3: 13.69 FeO: 11.02 MgO: 7.09
CaO: 11.31 Na2O: 2.43 K2O: 0.43 TiO2: 2.53 P2O5: 0.24 MnO: 0.19

Sample: 1363
Episode: 48.5 Collect: 11/02/91 Erupt: 10/28/91 hr Days: 3219.98
Type: TEPHRA -RETICULITE Molten: N Quench: AIR Device: NONE
Vent: PUV 'O'O Elev (ft): 2800 Coordinates: E 0.60 /9.70
Note: WITHIN 5-10 METERS OF RIM, LAVA POND 46 METERS BELOW THE RIM.

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1364
Episode: 48.5 Collect: 10/27/91 Erupt: 10/27/91 11hr Days: 3219.44
Type: POND -DIP Molten: Y Quench: AIR Device: CABLE
Vent: PUV 'O'O Elev (ft): 2800 Coordinates: E 0.55 /9.65
Note: SAMPLE FROM PUV 'O'O POND, POND APPROXIMATELY 46 METERS BELOW THE RIM

Bulk Chemistry-- SiO2: 50.1 Al2O3: 13.0 FeO: 11.5 MgO: 9.09
CaO: 10.9 Na2O: 2.13 K2O: 0.40 TiO2: 2.44 P2O5: 0.25 MnO: 0.18

Glass Chemistry-- SiO2: 50.38 Al2O3: 13.97 FeO: 10.91 MgO: 7.34
CaO: 11.36 Na2O: 2.40 K2O: 0.41 TiO2: 2.48 P2O5: 0.20 MnO: 0.16

Sample: 1365
Episode: 48.5 Collect: 11/08/91 Erupt: 11/08/91 14hr Days: 3231.58
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE
Vent: Kupaianaha Elev (ft): 2150 Coordinates: I 0.25 /10.20
Note: SKYLIGHT ON WAHAULA TUBE, LEVEL OF ACTIVE LAVA 8.63 METERS BELOW THE RIM

Bulk Chemistry-- SiO2: 50.0 Al2O3: 13.1 FeO: 11.8 MgO: 8.60
CaO: 11.0 Na2O: 2.15 K2O: 0.41 TiO2: 2.47 P2O5: 0.26 MnO: 0.17

Glass Chemistry-- SiO2: 50.96 Al2O3: 13.84 FeO: 11.02 MgO: 6.90
CaO: 11.18 Na2O: 2.43 K2O: 0.42 TiO2: 2.63 P2O5: 0.23 MnO: 0.16

Sample: 1366
Episode: 48.5 Collect: 11/09/91 Erupt: 11/09/91 10hr Days: 3232.41
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL
Vent: Kupaianaha Elev (ft): 2150 Coordinates: I 0.25 /10.20
Note: SKYLIGHT ON WAHAULA TUBE

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1367

Episode: 48.5 Collect: 11/11/91 Erupt: 11/11/91 0 hr Days: 3233.99
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SPECIAL
Vent: Kupaianaha Elev (ft): 2150 Coordinates: I 0.25 /10.20
Note: SKYLIGHT ON WAHAULA TUBE

Bulk Chemistry--	SiO2:	Al2O3:	FeO:	MgO:	
CaO:	Na2O:	K2O:	TiO2:	P2O5:	MnO:
Glass Chemistry--	SiO2:	Al2O3:	FeO:	MgO:	
CaO:	Na2O:	K2O:	TiO2:	P2O5:	MnO:

Sample: 1368

Episode: 48.5 Collect: 11/24/91 Erupt: 11/24/91 11hr Days: 3247.46
Type: PAHOEHOE-VISCOUS Molten: Y Quench: AIR Device: HAMMER
Vent: Kupaianaha Elev (ft): 1850 Coordinates: J 0.30 /9.25
Note:

Bulk Chemistry--	SiO2:	Al2O3:	FeO:	MgO:	
CaO:	Na2O:	K2O:	TiO2:	P2O5:	MnO:
Glass Chemistry--	SiO2:	Al2O3:	FeO:	MgO:	
CaO:	Na2O:	K2O:	TiO2:	P2O5:	MnO:

Sample: 1369

Episode: 48.5 Collect: 10/25/91 Erupt: 10/13/91 hr Days: 3204.98
Type: TEPHRA -RETICULITE Molten: N Quench: AIR Device: NONE
Vent: PUA O O Elev (ft): 2800 Coordinates: 0.55 /9.65
Note:

Bulk Chemistry--	SiO2:	Al2O3:	FeO:	MgO:	
CaO:	Na2O:	K2O:	TiO2:	P2O5:	MnO:
Glass Chemistry--	SiO2:	Al2O3:	FeO:	MgO:	
CaO:	Na2O:	K2O:	TiO2:	P2O5:	MnO:

Sample: 1370

Episode: 48.5 Collect: 12/30/91 Erupt: 12/30/91 12hr Days: 3283.50
Type: PAHOEHOE-TOE Molten: Y Quench: AIR Device: HAMMER
Vent: Kupaianaha Elev (ft): 1850 Coordinates: J 0.30 /9.25
Note:

Bulk Chemistry--	SiO2:	Al2O3:	FeO:	MgO:	
CaO:	Na2O:	K2O:	TiO2:	P2O5:	MnO:
Glass Chemistry--	SiO2:	Al2O3:	FeO:	MgO:	
CaO:	Na2O:	K2O:	TiO2:	P2O5:	MnO:

Sample: 1371

Episode: 49.0 Collect: 1/13/92 Erupt: 11/12/91 hr Days: 3234.98
Type: TEPHRA -RETICULITE Molten: N Quench: AIR Device: NONE
Vent: 49 VENT Elev (ft): 2300 Coordinates: G 0.50 /11.50
Note: APPROXIMATELY 1.25 KM FROM KUPAIANAHA SUMMIT

Bulk Chemistry-- SiO2: 50.8 Al2O3: 12.8 FeO: 11.4 MgO: 9.04
CaO: 10.6 Na2O: 2.14 K2O: 0.42 TiO2: 2.39 P2O5: 0.24 MnO: 0.17

Glass Chemistry-- SiO2: 50.94 Al2O3: 13.85 FeO: 11.20 MgO: 6.71
CaO: 10.98 Na2O: 2.39 K2O: 0.43 TiO2: 2.57 P2O5: 0.22 MnO: 0.18

Sample: 1372

Episode: 48.5 Collect: 1/14/92 Erupt: 1/14/92 12hr Days: 3298.50
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: Kupaianaha Elev (ft): 1800 Coordinates: J 0.60 /9.10
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1373

Episode: 48.5 Collect: 1/17/92 Erupt: 1/17/92 11hr Days: 3301.46
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: Kupaianaha Elev (ft): 1800 Coordinates: J 0.60 /9.10
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1374

Episode: 48.5 Collect: 1/24/92 Erupt: 1/19/92 hr Days: 3302.98
Type: TEPHRA -RETICULITE Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.75 /9.75
Note: DEPOSITED BETWEEN THE TWO SPILLWAYS ON CRATER RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1375
Episode: 48.5 Collect: 1/30/92 Erupt: 1/30/92 13hr Days: 3314.54
Type: PAHOEHOE-VISCOUS Molten: Y Quench: AIR Device: HAMMER
Vent: Kupaianaha Elev (ft): 1850 Coordinates: J 0.30 /9.25
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1376
Episode: 50.0 Collect: 2/18/92 Erupt: 2/17/92 10hr Days: 3331.98
Type: SPATTER -VENT Molten: n Quench: AIR Device: NONE
Vent: EP 50 Elev (ft): 2600 Coordinates: E 0.20 /9.40
Note: COLLECTED FROM EAST END OF EPISODE 50 FISSURE

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1377
Episode: 50.0 Collect: 2/18/92 Erupt: 2/18/92 10hr Days: 3333.42
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: CABLE
Vent: EP 50 Elev (ft): 2580 Coordinates: E 0.15 /9.40
Note: COLLECTED 69M WEST OF EASTERN TIP OF FISSURE (FROM WESTMOST FISSURE)

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1378
Episode: 50.0 Collect: 2/21/92 Erupt: 2/21/92 10hr Days: 3336.39
Type: SPATTER -VENT Molten: Y Quench: AIR Device: HAMMER
Vent: EP 50 Elev (ft): 2600 Coordinates: E 0.20 /9.40
Note:

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.0 FeO: 11.4 MgO: 9.10
CaO: 10.7 Na2O: 2.15 K2O: 0.42 TiO2: 2.39 P2O5: 0.23 MnO: 0.17

Glass Chemistry-- SiO2: 50.68 Al2O3: 13.86 FeO: 10.97 MgO: 6.91
CaO: 11.35 Na2O: 2.39 K2O: 0.43 TiO2: 2.52 P2O5: 0.22 MnO: 0.18

Sample: 1379
Episode: 50.0 Collect: 2/28/92 Erupt: 2/28/92 9 hr Days: 3343.35
Type: SPATTER -VENT Molten: Y Quench: AIR Device: HAMMER
Vent: EP 50 Elev (ft): 2580 Coordinates: E 0.20 /9.40

Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1380
Episode: 51.0 Collect: 3/09/92 Erupt: 3/08/92 9 hr Days: 3351.98
Type: SPATTER -VENT Molten: N Quench: AIR Device: NONE
Vent: EP 51 Elev (ft): 2580 Coordinates: E 0.20 /9.45

Note: UPRIFT FLANK OF PUU OO CONE

Bulk Chemistry-- SiO2: 50.6 Al2O3: 13.0 FeO: 11.4 MgO: 8.96
CaO: 10.7 Na2O: 2.13 K2O: 0.42 TiO2: 2.40 P2O5: 0.24 MnO: 0.17

Glass Chemistry-- SiO2: 51.16 Al2O3: 13.76 FeO: 11.18 MgO: 6.86
CaO: 11.35 Na2O: 2.40 K2O: 0.45 TiO2: 2.60 P2O5: 0.25 MnO: 0.18

Sample: 1381
Episode: 51.0 Collect: 3/11/92 Erupt: 3/11/92 8 hr Days: 3355.33
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: EP 51 Elev (ft): 2580 Coordinates: E 0.15 /9.70

Note: 300 M N OF 51 VENT

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1382
Episode: 51.0 Collect: 3/27/92 Erupt: 3/22/92 hr Days: 3365.98
Type: SPATTER -VENT Molten: N Quench: AIR Device: NONE
Vent: EP 51 Elev (ft): 2580 Coordinates: E 0.15 /9.40

Note: N RIM OF POND FORMED AT BASE OF 51 VENT

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1383
Episode: 51.0 Collect: 3/27/92 Erupt: 4/01/92 9 hr Days: 3375.98
Type: SPATTER -VENT Molten: N Quench: AIR Device: NONE
Vent: EP 51 Elev (ft): 2580 Coordinates: E 0.20 /9.40
Note:SPATTER CONE EP51

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1384
Episode: 51.0 Collect: 4/03/92 Erupt: 4/01/92 hr Days: 3375.98
Type: SPATTER -VENT Molten: N Quench: AIR Device: NONE
Vent: EP 51 Elev (ft): 2580 Coordinates: E 0.20 /9.45
Note:NEW CONE FORMED AT EP 51 BETWEEN 3/29 AND 4/2

Bulk Chemistry-- SiO2: 50.5 Al2O3: 12.9 FeO: 11.4 MgO: 9.23
CaO: 10.6 Na2O: 2.11 K2O: 0.42 TiO2: 2.37 P2O5: 0.25 MnO:0.18

Glass Chemistry-- SiO2: 50.71 Al2O3: 13.84 FeO: 10.92 MgO: 6.99
CaO: 11.23 Na2O: 2.31 K2O: 0.48 TiO2: 2.51 P2O5: 0.21 MnO: 0.19

Sample: 1385
Episode: 51.0 Collect: 4/24/92 Erupt: 4/22/92 hr Days: 3396.98
Type: SPATTER -VENT Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.60 /9.70
Note:MAUKA SPILLWAY OF PUU 00

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.1 FeO: 11.4 MgO: 9.05
CaO: 10.6 Na2O: 2.11 K2O: 0.42 TiO2: 2.38 P2O5: 0.25 MnO:0.17

Glass Chemistry-- SiO2: 50.81 Al2O3: 13.79 FeO: 10.99 MgO: 6.97
CaO: 11.32 Na2O: 2.40 K2O: 0.42 TiO2: 2.56 P2O5: 0.24 MnO: 0.17

Sample: 1386
Episode: 51.0 Collect: 4/24/92 Erupt: 4/24/92 12hr Days: 3399.48
Type: POND -DIP Molten: Y Quench: AIR Device: SS-PIPE
Vent: EP 51 Elev (ft): 2600 Coordinates: E 0.15 /9.45
Note:EP 51 POND

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.0 FeO: 11.5 MgO: 9.10
CaO: 10.6 Na2O: 2.10 K2O: 0.42 TiO2: 2.39 P2O5: 0.26 MnO:0.17

Glass Chemistry-- SiO2: 51.54 Al2O3: 13.79 FeO: 11.13 MgO: 6.99
CaO: 11.33 Na2O: 2.43 K2O: 0.45 TiO2: 2.54 P2O5: 0.20 MnO: 0.17

Sample: 1387

Episode: 51.0 Collect: 5/14/92 Erupt: 5/14/92 14hr Days: 3419.59
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: EP 51 Elev (ft): 2340 Coordinates: E 0.45 /8.50
Note:TUBE-FED CHANNEL SOUTH OF 51 VENT

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.0 FeO: 11.5 MgO: 9.00
CaO: 10.7 Na2O: 2.13 K2O: 0.42 TiO2: 2.39 P2O5: 0.25 MnO:0.18

Glass Chemistry-- SiO2: 50.94 Al2O3: 13.79 FeO: 10.81 MgO: 6.88
CaO: 11.32 Na2O: 2.32 K2O: 0.44 TiO2: 2.57 P2O5: 0.23 MnO: 0.17

Sample: 1388

Episode: 51.0 Collect: 6/03/92 Erupt: 6/03/92 12hr Days: 3439.50
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: EP 51 Elev (ft): 2580 Coordinates: E 0.20 /9.55
Note:NORTH OF VENT

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1389

Episode: 51.0 Collect: 6/11/92 Erupt: 6/05/92 hr Days: 3440.98
Type: SPATTER -VENT Molten: N Quench: AIR Device: NONE
Vent: EP 51 Elev (ft): 2580 Coordinates: E 0.20 /9.45
Note:FROM EASTERN SPATTER CONE

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1390

Episode: 51.0 Collect: 6/19/92 Erupt: 6/13/92 hr Days: 3448.98
Type: SPATTER -VENT Molten: N Quench: AIR Device: NONE
Vent: EP 51 Elev (ft): 2580 Coordinates: E 0.15 /9.45
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1391

Episode: 51.0 Collect: 6/19/92 Erupt: 6/13/92 hr Days: 3448.98

Type: SPATTER -VENT Molten: N Quench: AIR Device: NONE

Vent: EP 51 Elev (ft): 2580 Coordinates: E 0.20 /9.45

Note:

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.3 FeO: 11.4 MgO: 8.85
CaO: 10.7 Na2O: 2.14 K2O: 0.42 TiO2: 2.38 P2O5: 0.25 MnO: 0.17

Glass Chemistry-- SiO2: 50.94 Al2O3: 13.74 FeO: 11.05 MgO: 7.03
CaO: 11.33 Na2O: 2.47 K2O: 0.45 TiO2: 2.57 P2O5: 0.23 MnO: 0.16

Sample: 1392

Episode: 51.0 Collect: 7/02/92 Erupt: 6/24/92 hr Days: 3459.98

Type: TEPHRA -FOUNTAIN Molten: N Quench: AIR Device: NONE

Vent: EP 51 Elev (ft): 2580 Coordinates: E 0.20 /9.45

Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1393

Episode: 51.0 Collect: 7/02/92 Erupt: 6/24/92 hr Days: 3459.98

Type: SPATTER -VENT Molten: N Quench: AIR Device: NONE

Vent: EP 51 Elev (ft): 2580 Coordinates: E 0.20 /9.45

Note:

Bulk Chemistry-- SiO2: 50.6 Al2O3: 13.3 FeO: 11.4 MgO: 8.78
CaO: 10.6 Na2O: 2.11 K2O: 0.42 TiO2: 2.39 P2O5: 0.25 MnO: 0.17

Glass Chemistry-- SiO2: 50.98 Al2O3: 13.55 FeO: 10.99 MgO: 6.90
CaO: 11.25 Na2O: 2.38 K2O: 0.41 TiO2: 2.68 P2O5: 0.22 MnO: 0.18

Sample: 1394

Episode: 51.0 Collect: 7/02/92 Erupt: 7/02/92 11hr Days: 3468.45

Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER

Vent: EP 51 Elev (ft): 2350 Coordinates: E 0.50 /8.50

Note: 30 M FROM PT OF EFFUSION FROM TUBE, BASE OF 51 SHIELD

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 51.14 Al2O3: 13.71 FeO: 11.00 MgO: 6.81
CaO: 11.33 Na2O: 2.42 K2O: 0.42 TiO2: 2.57 P2O5: 0.22 MnO: 0.18

Sample: 1395
Episode: 51.0 Collect: 7/02/92 Erupt: 7/02/92 11hr Days: 3468.46
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: PIPE
Vent: EP 51 Elev (ft): 2350 Coordinates: E 0.50 /8.50
Note:30 M FROM PT OF EFFUSION FROM TUBE, BASE OF 51 SHIELD

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.2 FeO: 11.4 MgO: 8.79
CaO: 10.7 Na2O: 2.12 K2O: 0.42 TiO2: 2.40 P2O5: 0.25 MnO:0.18

Glass Chemistry-- SiO2: 51.54 Al2O3: 13.69 FeO: 11.02 MgO: 6.78
CaO: 11.25 Na2O: 2.40 K2O: 0.44 TiO2: 2.55 P2O5: 0.23 MnO: 0.18

Sample: 1396
Episode: 51.0 Collect: 7/02/92 Erupt: 7/02/92 11hr Days: 3468.46
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: EP 51 Elev (ft): 2350 Coordinates: E 0.50 /8.50
Note:15 M FROM PT OF EFFUSION FROM TUBE, BASE OF 51 SHIELD

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 50.95 Al2O3: 13.77 FeO: 11.05 MgO: 6.81
CaO: 11.35 Na2O: 2.41 K2O: 0.42 TiO2: 2.58 P2O5: 0.23 MnO: 0.18

Sample: 1397
Episode: 51.0 Collect: 7/29/92 Erupt: 7/29/92 12hr Days: 3495.49
Type: SPATTER -VENT Molten: Y Quench: AIR Device: NONE
Vent: EP 51 Elev (ft): 2580 Coordinates: E 0.20 /9.45
Note:

Bulk Chemistry-- SiO2: 50.3 Al2O3: 13.3 FeO: 11.4 MgO: 8.90
CaO: 10.7 Na2O: 2.13 K2O: 0.43 TiO2: 2.38 P2O5: 0.26 MnO:0.18

Glass Chemistry-- SiO2: 50.84 Al2O3: 13.96 FeO: 11.17 MgO: 7.01
CaO: 11.08 Na2O: 2.36 K2O: 0.42 TiO2: 2.54 P2O5: 0.20 MnO: 0.16

Sample: 1398
Episode: 51.0 Collect: 8/27/92 Erupt: 8/27/92 13hr Days: 3524.54
Type: PAHOEHOE-TOE Molten: Y Quench: AIR Device: HAMMER
Vent: EP 51 Elev (ft): 2230 Coordinates: F 0.25 /7.00
Note:

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.5 FeO: 11.3 MgO: 8.49
CaO: 10.8 Na2O: 2.14 K2O: 0.43 TiO2: 2.42 P2O5: 0.26 MnO:0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1399
Episode: 51.0 Collect: 9/08/92 Erupt: 9/03/92 hr Days: 3530.98
Type: SPATTER -VENT Molten: N Quench: AIR Device: NONE
Vent: EP 51 Elev (ft): 2580 Coordinates: E 0.20 /9.45
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1400
Episode: 51.0 Collect: 9/08/92 Erupt: 9/08/92 11hr Days: 3536.44
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SS-PIPE
Vent: EP 51 Elev (ft): 2350 Coordinates: E 0.70 /8.45
Note:

Bulk Chemistry-- SiO2: 50.2 Al2O3: 13.5 FeO: 11.4 MgO: 9.04
CaO: 10.6 Na2O: 2.09 K2O: 0.42 TiO2: 2.37 P2O5: 0.25 MnO: 0.17

Glass Chemistry-- SiO2: 50.66 Al2O3: 13.81 FeO: 11.10 MgO: 6.98
CaO: 11.25 Na2O: 2.52 K2O: 0.44 TiO2: 2.57 P2O5: 0.23 MnO: 0.17

Sample: 1401
Episode: 52.0 Collect: 10/03/92 Erupt: 10/03/92 14hr Days: 3560.98
Type: SPATTER -VENT Molten: N Quench: AIR Device: NONE
Vent: EP 52 Elev (ft): 2640 Coordinates: E 0.50 /9.25
Note:FISSURE, SW FLANK PUU OO, AT "A" VENT

Bulk Chemistry-- SiO2: 50.4 Al2O3: 13.4 FeO: 11.4 MgO: 8.68
CaO: 10.7 Na2O: 2.12 K2O: 0.43 TiO2: 2.41 P2O5: 0.26 MnO: 0.18

Glass Chemistry-- SiO2: 50.57 Al2O3: 14.02 FeO: 11.18 MgO: 6.91
CaO: 11.17 Na2O: 2.37 K2O: 0.44 TiO2: 2.51 P2O5: 0.20 MnO: 0.17

Sample: 1402
Episode: 52.0 Collect: 10/04/92 Erupt: 10/03/92 hr Days: 3560.98
Type: TEPHRA -FOUNTAIN Molten: N Quench: AIR Device: NONE
Vent: EP 52 Elev (ft): 2640 Coordinates: E 0.50 /9.25
Note:"A" VENT

Bulk Chemistry-- SiO2: 50.4 Al2O3: 13.3 FeO: 11.4 MgO: 8.75
CaO: 10.7 Na2O: 2.11 K2O: 0.42 TiO2: 2.40 P2O5: 0.25 MnO: 0.18

Glass Chemistry-- SiO2: 50.44 Al2O3: 14.09 FeO: 11.15 MgO: 6.94
CaO: 11.26 Na2O: 2.34 K2O: 0.44 TiO2: 2.51 P2O5: 0.20 MnO: 0.17

Sample: 1403
Episode: 52.0 Collect: 10/03/92 Erupt: 10/03/92 15hr Days: 3561.62
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: EP 52 Elev (ft): 2600 Coordinates: E 0.50 /9.25
Note: FLOW FROM "B" VENT

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1404
Episode: 51.0 Collect: 10/04/92 Erupt: 10/04/92 hr Days: 3561.98
Type: SPATTER -VENT Molten: N Quench: AIR Device: NONE
Vent: EP 51 Elev (ft): 2400 Coordinates: E 0.45 /8.75
Note: 1 KM FROM EP 51 VENT

Bulk Chemistry-- SiO2: 50.3 Al2O3: 13.4 FeO: 11.4 MgO: 8.81
CaO: 10.7 Na2O: 2.10 K2O: 0.43 TiO2: 2.39 P2O5: 0.25 MnO: 0.17

Glass Chemistry-- SiO2: 50.75 Al2O3: 13.77 FeO: 11.15 MgO: 6.85
CaO: 11.24 Na2O: 2.44 K2O: 0.44 TiO2: 2.62 P2O5: 0.24 MnO: 0.18

Sample: 1405
Episode: 52.0 Collect: 10/16/92 Erupt: 10/16/92 13hr Days: 3574.53
Type: PAHOEHOE-TOE Molten: Y Quench: AIR Device: HAMMER
Vent: EP 52 Elev (ft): 2600 Coordinates: E 0.60 /9.25
Note:

Bulk Chemistry-- SiO2: 50.4 Al2O3: 13.3 FeO: 11.4 MgO: 8.78
CaO: 10.7 Na2O: 2.10 K2O: 0.43 TiO2: 2.39 P2O5: 0.25 MnO: 0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1406
Episode: 51.0 Collect: 11/04/92 Erupt: 11/04/92 hr Days: 3592.98
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: EP 51 Elev (ft): 100 Coordinates: /
Note: PROBABLY FROM MAUKA OF HIGHWAY, KAMOAMOA AREA

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1407

Episode: 51.0 Collect: 11/12/92 Erupt: 11/12/92 11hr Days: 3601.44
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SS-PIPE
Vent: EP 51 Elev (ft): 2350 Coordinates: E 0.70 /8.45

Note:

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.1 FeO: 11.5 MgO: 8.80
CaO: 10.7 Na2O: 2.16 K2O: 0.43 TiO2: 2.40 P2O5: 0.25 MnO:0.18

Glass Chemistry-- SiO2: 50.52 Al2O3: 13.70 FeO: 11.23 MgO: 6.94
CaO: 11.30 Na2O: 2.51 K2O: 0.44 TiO2: 2.58 P2O5: 0.23 MnO: 0.17

Sample: 1408

Episode: 51.0 Collect: 11/20/92 Erupt: 11/19/92 hr Days: 3607.98
Type: SPATTER -LITTORAL Molten: N Quench: AIR Device: NONE
Vent: EP 51 Elev (ft): 0 Coordinates: /

Note:EAST KAMOAMOA OCEAN ENTRY

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.2 FeO: 11.4 MgO: 8.73
CaO: 10.7 Na2O: 2.26 K2O: 0.43 TiO2: 2.39 P2O5: 0.26 MnO:0.17

Glass Chemistry-- SiO2: 50.96 Al2O3: 13.75 FeO: 11.14 MgO: 6.78
CaO: 11.23 Na2O: 2.53 K2O: 0.47 TiO2: 2.64 P2O5: 0.23 MnO: 0.18

Sample: 1409

Episode: 51.0 Collect: 11/24/92 Erupt: 11/24/92 hr Days: 3612.98
Type: SPATTER -LITTORAL Molten: N Quench: AIR Device: NONE
Vent: EP 51 Elev (ft): 10 Coordinates: J 0.75 /1.20

Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1410

Episode: 51.0 Collect: 11/25/92 Erupt: 11/24/92 hr Days: 3612.98
Type: SPATTER -LITTORAL Molten: N Quench: AIR Device: NONE
Vent: EP 51 Elev (ft): 10 Coordinates: J 0.75 /1.20

Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1411

Episode: 51.0 Collect: 12/15/92 Erupt: 12/15/92 10hr Days: 3634.42
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SS-PIPE
Vent: EP 51 Elev (ft): 2350 Coordinates: E 0.70 /8.45
Note:2350-FT ELEV SKYLIGHT

Bulk Chemistry-- SiO2: 50.6 Al2O3: 13.1 FeO: 11.5 MgO: 8.75
CaO: 10.7 Na2O: 2.12 K2O: 0.42 TiO2: 2.40 P2O5: 0.26 MnO:0.17

Glass Chemistry-- SiO2: 51.23 Al2O3: 13.70 FeO: 11.47 MgO: 6.99
CaO: 11.38 Na2O: 2.48 K2O: 0.44 TiO2: 2.59 P2O5: 0.21 MnO: 0.18

Sample: 1412

Episode: 51.0 Collect: 12/22/92 Erupt: 12/22/92 17hr Days: 3641.72
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE
Vent: EP 51 Elev (ft): 1500 Coordinates: G 0.95 /4.80
Note:PULAMA PALI

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1413

Episode: 51.0 Collect: 12/29/92 Erupt: 12/29/92 12hr Days: 3648.48
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SS-PIPE
Vent: EP 51 Elev (ft): 2350 Coordinates: E 0.70 /8.45
Note:2350-FT ELEV SKYLIGHT

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.1 FeO: 11.5 MgO: 8.82
CaO: 10.7 Na2O: 2.08 K2O: 0.42 TiO2: 2.39 P2O5: 0.26 MnO:0.18

Glass Chemistry-- SiO2: 50.69 Al2O3: 13.62 FeO: 11.01 MgO: 7.13
CaO: 11.28 Na2O: 2.49 K2O: 0.44 TiO2: 2.50 P2O5: 0.23 MnO: 0.17

Sample: 1414

Episode: 51.0 Collect: 1/26/93 Erupt: 1/26/93 10hr Days: 3676.41
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SS-PIPE
Vent: EP 51 Elev (ft): 2350 Coordinates: E 0.70 /8.45
Note:2350-FT ELEV SKYLIGHT

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.1 FeO: 11.5 MgO: 8.88
CaO: 10.7 Na2O: 2.11 K2O: 0.42 TiO2: 2.38 P2O5: 0.26 MnO:0.18

Glass Chemistry-- SiO2: 51.44 Al2O3: 13.70 FeO: 11.08 MgO: 7.13
CaO: 11.40 Na2O: 2.46 K2O: 0.44 TiO2: 2.38 P2O5: 0.22 MnO: 0.18

Sample: 1415
Episode: 51.0 Collect: 2/04/93 Erupt: 2/04/93 10hr Days: 3685.41
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SS-PIPE
Vent: EP 51 Elev (ft): 2350 Coordinates: E 0.70 /8.45
Note: 2350-FT ELEV SKYLIGHT

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1416
Episode: 51.0 Collect: 2/09/93 Erupt: 2/08/93 hr Days: 3688.98
Type: PAHOEHOE-TUBE Molten: N Quench: AIR Device: NONE
Vent: EP 51 Elev (ft): 2400 Coordinates: E 0.50 /9.20
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1417
Episode: 52.0 Collect: 2/12/93 Erupt: hr Days: 0.00
Type: SPATTER -VENT Molten: N Quench: AIR Device: NONE
Vent: EP 52 Elev (ft): 2650 Coordinates: E 0.40 /9.25
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1418
Episode: 51.0 Collect: 2/18/93 Erupt: 2/18/93 11hr Days: 3699.45
Type: PAHOEHOE-TOE Molten: Y Quench: AIR Device: HAMMER
Vent: EP 51 Elev (ft): 2000 Coordinates: F 0.90 /5.40
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1419
Episode: 53.0 Collect: 2/20/93 Erupt: 2/20/93 18hr Days: 3701.73
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: EP 53 Elev (ft): 2600 Coordinates: E 0.60 /9.25
Note:50M FROM EP 53 VENT

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1420
Episode: 53.0 Collect: 2/21/93 Erupt: 2/21/93 12hr Days: 3702.50
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: EP 53 Elev (ft): 2450 Coordinates: E 0.75 /9.20
Note:

Bulk Chemistry-- SiO2: 50.7 Al2O3: 13.3 FeO: 11.4 MgO: 8.55
CaO: 10.8 Na2O: 2.11 K2O: 0.43 TiO2: 2.41 P2O5: 0.25 MnO:0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1421
Episode: 53.0 Collect: 2/21/93 Erupt: 2/21/93 12hr Days: 3702.48
Type: SPATTER -VENT Molten: Y Quench: AIR Device: NONE
Vent: EP 53 Elev (ft): 2600 Coordinates: E 0.50 /9.25
Note:

Bulk Chemistry-- SiO2: 50.6 Al2O3: 13.3 FeO: 11.4 MgO: 8.49
CaO: 10.8 Na2O: 2.13 K2O: 0.43 TiO2: 2.40 P2O5: 0.26 MnO:0.18

Glass Chemistry-- SiO2: 51.11 Al2O3: 13.73 FeO: 11.06 MgO: 7.12
CaO: 11.47 Na2O: 2.37 K2O: 0.43 TiO2: 2.50 P2O5: 0.23 MnO: 0.19

Sample: 1422
Episode: 53.0 Collect: 2/26/93 Erupt: 2/26/93 11hr Days: 3707.46
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: SS-PIPE
Vent: EP 53 Elev (ft): 2600 Coordinates: E 0.50 /9.25
Note:100-150M EAST OF VENT

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1423
Episode: 53.0 Collect: 3/04/93 Erupt: 3/04/93 13hr Days: 3713.53
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SS-PIPE
Vent: EP 53 Elev (ft): 2010 Coordinates: G 0.00 /5.50
Note:2010 FT ELEV SKYLIGHT

Bulk Chemistry-- SiO2: 50.7 Al2O3: 13.4 FeO: 11.4 MgO: 8.22
CaO: 10.9 Na2O: 2.15 K2O: 0.43 TiO2: 2.43 P2O5: 0.26 MnO:0.17

Glass Chemistry-- SiO2: 51.32 Al2O3: 13.83 FeO: 10.92 MgO: 6.84
CaO: 11.39 Na2O: 2.50 K2O: 0.47 TiO2: 2.55 P2O5: 0.23 MnO: 0.16

Sample: 1424
Episode: 53.0 Collect: 3/18/93 Erupt: 3/08/93 hr Days: 3716.98
Type: TEPHRA -Reticulite Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.60 /9.70
Note:EAST RIM OF PUU 00 CRATER

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.1 FeO: 11.5 MgO: 8.85
CaO: 10.8 Na2O: 2.07 K2O: 0.42 TiO2: 2.39 P2O5: 0.26 MnO:0.17

Glass Chemistry-- SiO2: 50.79 Al2O3: 13.77 FeO: 10.94 MgO: 7.05
CaO: 11.29 Na2O: 2.32 K2O: 0.47 TiO2: 2.53 P2O5: 0.22 MnO: 0.18

Sample: 1425
Episode: 53.0 Collect: 3/18/93 Erupt: 3/18/93 hr Days: 3726.98
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: REBAR
Vent: EP 53 Elev (ft): 2010 Coordinates: G 0.00 /5.50
Note:

Bulk Chemistry-- SiO2: 50.3 Al2O3: 13.1 FeO: 11.6 MgO: 9.09
CaO: 10.5 Na2O: 2.12 K2O: 0.43 TiO2: 2.36 P2O5: 0.25 MnO:0.18

Glass Chemistry-- SiO2: 51.30 Al2O3: 13.79 FeO: 11.08 MgO: 6.87
CaO: 11.39 Na2O: 2.33 K2O: 0.43 TiO2: 2.56 P2O5: 0.23 MnO: 0.18

Sample: 1426
Episode: 53.0 Collect: 3/18/93 Erupt: 3/11/93 hr Days: 3719.98
Type: SPATTER -VENT Molten: N Quench: AIR Device: NONE
Vent: EP 53 Elev (ft): 2600 Coordinates: E 0.50 /9.25
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 51.07 Al2O3: 13.54 FeO: 10.97 MgO: 7.08
CaO: 11.27 Na2O: 2.38 K2O: 0.45 TiO2: 2.45 P2O5: 0.22 MnO: 0.17

Sample: 1427
Episode: 53.0 Collect: 3/25/93 Erupt: 3/25/93 hr Days: 3733.98
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SS-PIPE
Vent: EP 53 Elev (ft): 2010 Coordinates: G 0.00 /5.50
Note:

Bulk Chemistry-- SiO2: 50.8 Al2O3: 13.3 FeO: 11.4 MgO: 8.34
CaO: 10.7 Na2O: 2.15 K2O: 0.44 TiO2: 2.40 P2O5: 0.25 MnO: 0.18

Glass Chemistry-- SiO2: 51.08 Al2O3: 13.84 FeO: 11.13 MgO: 6.83
CaO: 11.37 Na2O: 2.50 K2O: 0.44 TiO2: 2.59 P2O5: 0.22 MnO: 0.17

Sample: 1428
Episode: 53.0 Collect: 4/09/93 Erupt: 4/09/93 9 hr Days: 3748.98
Type: PAHOEHOE-FLOW Molten: N Quench: AIR Device: NONE
Vent: EP 53 Elev (ft): 0 Coordinates: I 0.90 /1.15
Note: EAST SIDE OF LAEAPUKI BENCH AND ENTRY

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1429
Episode: 53.0 Collect: 4/09/93 Erupt: 4/09/93 11hr Days: 3749.47
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SS-PIPE
Vent: EP 53 Elev (ft): 2010 Coordinates: G 0.00 /5.50
Note:

Bulk Chemistry-- SiO2: 50.6 Al2O3: 13.2 FeO: 11.5 MgO: 8.59
CaO: 10.7 Na2O: 2.15 K2O: 0.44 TiO2: 2.39 P2O5: 0.26 MnO: 0.18

Glass Chemistry-- SiO2: 50.74 Al2O3: 13.72 FeO: 10.98 MgO: 6.89
CaO: 11.36 Na2O: 2.49 K2O: 0.44 TiO2: 2.53 P2O5: 0.24 MnO: 0.17

Sample: 1430
Episode: 53.0 Collect: 4/16/93 Erupt: 4/16/93 11hr Days: 3756.44
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SS-PIPE
Vent: EP 53 Elev (ft): 2010 Coordinates: G 0.00 /5.50
Note:

Bulk Chemistry-- SiO2: 50.6 Al2O3: 13.2 FeO: 11.5 MgO: 8.56
CaO: 10.7 Na2O: 2.17 K2O: 0.44 TiO2: 2.40 P2O5: 0.26 MnO: 0.18

Glass Chemistry-- SiO2: 51.15 Al2O3: 13.82 FeO: 10.93 MgO: 6.81
CaO: 11.34 Na2O: 2.38 K2O: 0.44 TiO2: 2.51 P2O5: 0.23 MnO: 0.17

Sample: 1431

Episode: 53.0 Collect: 4/16/93 Erupt: 4/16/93 13hr Days: 3756.54

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SS-PIPE

Vent: EP 53 Elev (ft): 2360 Coordinates: E 0.65 /8.50

Note:

Bulk Chemistry-- SiO2: 50.4 Al2O3: 13.2 FeO: 11.5 MgO: 8.83
CaO: 10.7 Na2O: 2.14 K2O: 0.44 TiO2: 2.37 P2O5: 0.25 MnO:0.18

Glass Chemistry-- SiO2: 50.92 Al2O3: 13.58 FeO: 10.87 MgO: 7.06
CaO: 11.37 Na2O: 2.35 K2O: 0.42 TiO2: 2.48 P2O5: 0.24 MnO: 0.17

Sample: 1432

Episode: 53.0 Collect: 4/16/93 Erupt: 4/16/93 14hr Days: 3756.59

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SS-PIPE

Vent: EP 53 Elev (ft): 2350 Coordinates: E 0.70 /8.45

Note:

Bulk Chemistry-- SiO2: 51.0 Al2O3: 13.3 FeO: 11.6 MgO: 8.83
CaO: 10.9 Na2O: 1.15 K2O: 0.45 TiO2: 2.39 P2O5: 0.25 MnO:0.18

Glass Chemistry-- SiO2: 50.83 Al2O3: 13.58 FeO: 10.91 MgO: 7.02
CaO: 11.22 Na2O: 2.26 K2O: 0.43 TiO2: 2.54 P2O5: 0.23 MnO: 0.18

Sample: 1433

Episode: 53.0 Collect: 4/16/93 Erupt: 4/16/93 18hr Days: 3756.75

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SS-PIPE

Vent: EP 53 Elev (ft): 250 Coordinates: I 0.50 /2.75

Note:SKYLIGHT ABOVE PALIULI

Bulk Chemistry-- SiO2: 50.6 Al2O3: 13.3 FeO: 11.4 MgO: 8.34
CaO: 10.8 Na2O: 2.19 K2O: 0.44 TiO2: 2.40 P2O5: 0.26 MnO:0.18

Glass Chemistry-- SiO2: 51.01 Al2O3: 13.77 FeO: 11.01 MgO: 6.82
CaO: 11.41 Na2O: 2.37 K2O: 0.43 TiO2: 2.50 P2O5: 0.22 MnO: 0.18

Sample: 1434

Episode: 53.0 Collect: 4/27/93 Erupt: 4/27/93 13hr Days: 3767.55

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: OHIA LOG

Vent: EP 53 Elev (ft): 1980 Coordinates: G 2.00 /5.45

Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1435
Episode: 53.0 Collect: 4/27/93 Erupt: 13hr Days: 0.00
Type: PAHOEHOE-FLOW Molten: N Quench: AIR Device: NONE
Vent: EP 53 Elev (ft): 1980 Coordinates: G 2.00 /5.45
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1436
Episode: 53.0 Collect: 4/29/93 Erupt: 4/29/93 11hr Days: 3769.47
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: EP 53 Elev (ft): 20 Coordinates: J 0.50 /1.50
Note: 250 M FROM BREAKOUT POINT

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 51.04 Al2O3: 13.80 FeO: 11.09 MgO: 6.81
CaO: 11.36 Na2O: 2.40 K2O: 0.43 TiO2: 2.51 P2O5: 0.24 MnO: 0.17

Sample: 1437
Episode: 53.0 Collect: 4/29/93 Erupt: 12hr Days: 0.00
Type: PAHOEHOE-TOE Molten: N Quench: AIR Device: NONE
Vent: EP 53 Elev (ft): 20 Coordinates: J 0.50 /1.50
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1438
Episode: 53.0 Collect: 5/05/93 Erupt: 4/26/93 hr Days: 3765.98
Type: SPATTER -LITTORAL Molten: N Quench: AIR Device: NONE
Vent: EP 53 Elev (ft): 0 Coordinates: J 0.15 /1.00
Note: WEST KAMOAMO A ENTRY

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1439
Episode: 53.0 Collect: 5/06/93 Erupt: 5/06/93 12hr Days: 3776.48
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SS-PIPE
Vent: EP 53 Elev (ft): 2010 Coordinates: G 0.00 /5.50
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1440
Episode: 53.0 Collect: 5/06/93 Erupt: 5/06/93 13hr Days: 3776.55
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SS-PIPE
Vent: EP 53 Elev (ft): 2350 Coordinates: E 0.70 /8.45
Note:

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.2 FeO: 11.6 MgO: 8.71
CaO: 10.7 Na2O: 2.12 K2O: 0.43 TiO2: 2.38 P2O5: 0.25 MnO: 0.18

Glass Chemistry-- SiO2: 50.94 Al2O3: 13.71 FeO: 10.95 MgO: 7.08
CaO: 11.31 Na2O: 2.48 K2O: 0.42 TiO2: 2.49 P2O5: 0.23 MnO: 0.17

Sample: 1441
Episode: 53.0 Collect: 5/20/93 Erupt: 5/12/93 hr Days: 3781.98
Type: TEPHRA -TEARS Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.60 /9.70
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 51.34 Al2O3: 13.70 FeO: 10.97 MgO: 7.11
CaO: 11.31 Na2O: 2.31 K2O: 0.42 TiO2: 2.56 P2O5: 0.22 MnO: 0.18

Sample: 1442
Episode: 53.0 Collect: 5/27/93 Erupt: 5/27/93 11hr Days: 3797.46
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: REBAR
Vent: EP 53 Elev (ft): 2010 Coordinates: G 0.00 /5.50
Note:

Bulk Chemistry-- SiO2: 50.5 Al2O3: 12.9 FeO: 11.6 MgO: 9.15
CaO: 10.5 Na2O: 2.11 K2O: 0.42 TiO2: 2.35 P2O5: 0.25 MnO: 0.18

Glass Chemistry-- SiO2: 50.90 Al2O3: 13.65 FeO: 11.08 MgO: 6.68
CaO: 11.37 Na2O: 2.22 K2O: 0.44 TiO2: 2.52 P2O5: 0.23 MnO: 0.16

Sample: 1443
Episode: 53.0 Collect: 6/09/93 Erupt: 6/09/93 9 hr Days: 3809.98
Type: PAHOEHOE-FLOW Molten: N Quench: H2O Device: NONE
Vent: EP 53 Elev (ft): 0 Coordinates: K 0.30 /1.20
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1444
Episode: 53.0 Collect: 6/10/93 Erupt: 6/10/93 11hr Days: 3811.44
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SS-PIPE
Vent: EP 53 Elev (ft): 2010 Coordinates: G 0.00 /5.50
Note:

Bulk Chemistry-- SiO2: 50.9 Al2O3: 13.0 FeO: 11.5 MgO: 8.55
CaO: 10.6 Na2O: 2.15 K2O: 0.43 TiO2: 2.38 P2O5: 0.25 MnO: 0.18

Glass Chemistry-- SiO2: 50.93 Al2O3: 13.58 FeO: 10.23 MgO: 6.85
CaO: 11.30 Na2O: 2.25 K2O: 0.43 TiO2: 2.49 P2O5: 0.23 MnO: 0.18

Sample: 1445
Episode: 53.0 Collect: 6/24/93 Erupt: 6/17/93 hr Days: 3817.98
Type: TEPHRA -TEARS Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.75
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 50.81 Al2O3: 13.65 FeO: 10.96 MgO: 7.23
CaO: 11.33 Na2O: 2.40 K2O: 0.41 TiO2: 2.48 P2O5: 0.23 MnO: 0.18

Sample: 1446
Episode: 53.0 Collect: 6/29/93 Erupt: 6/29/93 12hr Days: 3830.49
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: EP 53 Elev (ft): 20 Coordinates: J 0.90 /1.25
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1447
Episode: 53.0 Collect: 6/24/93 Erupt: 6/24/93 11hr Days: 3825.45
Type: SPATTER -LITTORAL Molten: Y Quench: AIR Device: NONE
Vent: EP 53 Elev (ft): 10 Coordinates: K 0.40 /1.25
Note:

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.2 FeO: 11.5 MgO: 8.72
CaO: 10.7 Na2O: 2.14 K2O: 0.43 TiO2: 2.38 P2O5: 0.25 MnO: 0.18

Glass Chemistry-- SiO2: 50.80 Al2O3: 13.67 FeO: 10.94 MgO: 6.79
CaO: 11.39 Na2O: 2.48 K2O: 0.41 TiO2: 2.52 P2O5: 0.23 MnO: 0.18

Sample: 1448
Episode: 53.0 Collect: 6/24/93 Erupt: 6/24/93 10hr Days: 3825.41
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SS-PIPE
Vent: EP 53 Elev (ft): 2010 Coordinates: G 0.00 /5.50
Note:

Bulk Chemistry-- SiO2: 50.7 Al2O3: 13.2 FeO: 11.4 MgO: 8.42
CaO: 10.8 Na2O: 2.14 K2O: 0.44 TiO2: 2.40 P2O5: 0.26 MnO: 0.18

Glass Chemistry-- SiO2: 51.66 Al2O3: 13.62 FeO: 11.12 MgO: 6.98
CaO: 11.43 Na2O: 2.46 K2O: 0.44 TiO2: 2.54 P2O5: 0.23 MnO: 0.18

Sample: 1449
Episode: 53.0 Collect: 7/07/93 Erupt: 7/07/93 0 hr Days: 3838.00
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SS-PIPE
Vent: EP 53 Elev (ft): 200 Coordinates: I 0.75 /2.50
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1450
Episode: 53.0 Collect: 7/08/93 Erupt: 7/08/93 13hr Days: 3839.54
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SS-PIPE
Vent: EP 53 Elev (ft): 2350 Coordinates: E 0.70 /8.45
Note:

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.1 FeO: 11.5 MgO: 8.77
CaO: 10.7 Na2O: 2.14 K2O: 0.43 TiO2: 2.37 P2O5: 0.25 MnO: 0.18

Glass Chemistry-- SiO2: 50.94 Al2O3: 13.60 FeO: 11.06 MgO: 6.89
CaO: 11.27 Na2O: 2.20 K2O: 0.42 TiO2: 2.52 P2O5: 0.22 MnO: 0.18

Sample: 1451
Episode: 53.0 Collect: 7/14/93 Erupt: 7/14/93 hr Days: 3844.98
Type: TEPHRA -TEARS Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2350 Coordinates: E 0.70 /9.75
Note: EAST RIM OF CRATER

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 50.67 Al2O3: 13.58 FeO: 11.01 MgO: 7.17
CaO: 11.38 Na2O: 2.51 K2O: 0.42 TiO2: 2.51 P2O5: 0.22 MnO: 0.18

Sample: 1452
Episode: 53.0 Collect: 7/26/93 Erupt: 7/26/93 13hr Days: 3857.53
Type: PAHOEHOE-SLABBY Molten: Y Quench: AIR Device: HAMMER
Vent: EP 53 Elev (ft): 30 Coordinates: K 0.00 /1.95
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1453
Episode: 53.0 Collect: 7/29/93 Erupt: hr Days: 0.00
Type: SPATTER -VENT Molten: N Quench: AIR Device: NONE
Vent: EP 51 Elev (ft): 2840 Coordinates: E 0.25 /9.50
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1454
Episode: 53.0 Collect: 8/06/93 Erupt: 8/06/93 10hr Days: 3868.40
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SS-PIPE
Vent: EP 53 Elev (ft): 200 Coordinates: I 0.75 /2.50
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1455
Episode: 53.0 Collect: 8/20/93 Erupt: 8/17/93 hr Days: 3878.98
Type: TEPHRA -TEARS Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note:TEAR CATCHER ON S. SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 50.98 Al2O3: 13.40 FeO: 10.95 MgO: 7.11
CaO: 11.38 Na2O: 2.35 K2O: 0.44 TiO2: 2.58 P2O5: 0.22 MnO: 0.18

Sample: 1456
Episode: 53.0 Collect: 8/24/93 Erupt: 8/23/93 8 hr Days: 3884.98
Type: SPATTER -LITTORAL Molten: N Quench: AIR Device: NONE
Vent: EP 53 Elev (ft): 20 Coordinates: J 0.20 /1.00
Note:WEST KAMOAMOA ENTRY

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.1 FeO: 11.5 MgO: 8.63
CaO: 10.9 Na2O: 2.08 K2O: 0.42 TiO2: 2.42 P2O5: 0.24 MnO:0.18

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1457
Episode: 53.0 Collect: 8/24/93 Erupt: 8/23/93 8 hr Days: 3884.98
Type: SPATTER -LITTORAL Molten: N Quench: AIR Device: NONE
Vent: EP 53 Elev (ft): 20 Coordinates: J 0.20 /1.00
Note:WEST KAMOAMOA ENTRY

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1458
Episode: 53.0 Collect: 8/27/93 Erupt: 8/24/93 hr Days: 3885.98
Type: TEPHRA -TEARS Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note:FROM SOUTH SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1459
Episode: 53.0 Collect: 9/02/93 Erupt: 8/31/93 hr Days: 3892.98
Type: TEPHRA -TEARS Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note: S. SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 50.57 Al2O3: 13.46 FeO: 10.99 MgO: 7.19
CaO: 11.23 Na2O: 2.53 K2O: 0.42 TiO2: 2.46 P2O5: 0.21 MnO: 0.18

Sample: 1460
Episode: 53.0 Collect: 9/03/93 Erupt: 9/03/93 10hr Days: 3896.43
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: REBAR
Vent: EP 53 Elev (ft): 2350 Coordinates: J 0.00 /2.75
Note: 190-FT ELEV SKYLIGHT

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1461
Episode: 53.0 Collect: 9/09/93 Erupt: 9/09/93 11hr Days: 3902.47
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SS-PIPE
Vent: EP 53 Elev (ft): 1100 Coordinates: H 0.25 /4.45
Note: 1100-FT (MAGGIES) SKYLIGHT

Bulk Chemistry-- SiO2: 50.6 Al2O3: 13.0 FeO: 11.4 MgO: 8.67
CaO: 10.9 Na2O: 2.10 K2O: 0.42 TiO2: 2.40 P2O5: 0.25 MnO: 0.18

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1462
Episode: 53.0 Collect: 9/10/93 Erupt: 8/18/93 hr Days: 3879.98
Type: SPATTER -VENT Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note:

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1463
Episode: 53.0 Collect: 9/10/93 Erupt: 9/07/93 hr Days: 3899.98
Type: TEPHRA -TEARS Molten: N Quench: AIR Device: NONE
Vent: PUU OO Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note:TEAR CATCHER ON S. SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 50.82 Al2O3: 13.51 FeO: 10.95 MgO: 7.18
CaO: 11.25 Na2O: 2.44 K2O: 0.42 TiO2: 2.47 P2O5: 0.22 MnO: 0.17

Sample: 1464
Episode: 53.0 Collect: 9/21/93 Erupt: 9/15/93 hr Days: 3907.98
Type: TEPHRA -TEARS Molten: N Quench: AIR Device: NONE
Vent: PUU OO Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note:TEAR CATCHER ON S. SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 50.42 Al2O3: 13.46 FeO: 10.75 MgO: 7.14
CaO: 11.09 Na2O: 2.42 K2O: 0.40 TiO2: 2.44 P2O5: 0.21 MnO: 0.17

Sample: 1465
Episode: 53.0 Collect: 9/28/93 Erupt: 9/28/93 12hr Days: 3921.50
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: SS-PIPE
Vent: EP 53 Elev (ft): 1150 Coordinates: /
Note:1150-FT ELEV (TARI'S) SKYLIGHT

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1466
Episode: 53.0 Collect: 9/29/93 Erupt: 9/29/93 10hr Days: 3922.43
Type: PAHOEHOE-TOE Molten: Y Quench: AIR Device: HAMMER
Vent: EP 53 Elev (ft): 10 Coordinates: I 0.80 /1.10
Note:NEW ENTRY ON W. EDGE OF KAMOAMOA DELTA

Bulk Chemistry-- SiO2: 51.0 Al2O3: 13.6 FeO: 11.1 MgO: 7.37
CaO: 11.4 Na2O: 2.13 K2O: 0.45 TiO2: 2.52 P2O5: 0.25 MnO:0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1467
Episode: 53.0 Collect: 10/07/93 Erupt: 10/07/93 10hr Days: 3930.43
Type: PAHOEHOE-TOE Molten: Y Quench: AIR Device: HAMMER
Vent: EP 53 Elev (ft): 20 Coordinates: J 0.30 /1.30
Note:300 METERS FROM COAST

Bulk Chemistry-- SiO2: 50.7 Al2O3: 13.2 FeO: 11.5 MgO: 8.37
CaO: 10.9 Na2O: 2.10 K2O: 0.42 TiO2: 2.44 P2O5: 0.25 MnO:0.18

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1468
Episode: 53.0 Collect: 10/07/93 Erupt: 10/04/93 hr Days: 3926.98
Type: TEPHRA -TEARS Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note:TEAR CATCHER ON S. SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 50.98 Al2O3: 13.59 FeO: 10.94 MgO: 7.15
CaO: 11.28 Na2O: 2.44 K2O: 0.42 TiO2: 2.46 P2O5: 0.23 MnO: 0.17

Sample: 1469
Episode: 53.0 Collect: 10/14/93 Erupt: 10/11/93 hr Days: 3933.98
Type: TEPHRA -TEARS Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note:TEAR CATCHER ON S. SPILLWAY

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 50.69 Al2O3: 13.52 FeO: 10.92 MgO: 7.10
CaO: 11.32 Na2O: 2.54 K2O: 0.40 TiO2: 2.46 P2O5: 0.22 MnO: 0.17

Sample: 1470
Episode: 53.0 Collect: 10/22/93 Erupt: 10/22/93 9 hr Days: 3945.35
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: REBAR
Vent: EP 53 Elev (ft): 190 Coordinates: J 0.00 /2.75
Note:190-FT ELEV (BABY) SKYLIGHT

Bulk Chemistry-- SiO2: 50.7 Al2O3: 13.1 FeO: 11.5 MgO: 8.37
CaO: 10.9 Na2O: 2.09 K2O: 0.42 TiO2: 2.43 P2O5: 0.25 MnO:0.18

Glass Chemistry-- SiO2: 50.64 Al2O3: 13.53 FeO: 10.95 MgO: 7.11
CaO: 11.34 Na2O: 2.49 K2O: 0.42 TiO2: 2.45 P2O5: 0.23 MnO: 0.17

Sample: 1471

Episode: 53.0 Collect: 10/22/93 Erupt: 10/22/93 hr Days: 3944.98

Type: SPATTER -LITTORAL Molten: N Quench: AIR Device: NONE

Vent: EP 53 Elev (ft): 10 Coordinates: J 0.25 /0.95

Note:W (ONLY) KAMOAMOA ENTRY

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1472

Episode: 53.0 Collect: 10/29/93 Erupt: 10/29/93 9 hr Days: 3952.35

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: REBAR

Vent: EP 53 Elev (ft): 190 Coordinates: J 0.00 /2.75

Note:190-FT ELEV. (BABY) SKYLIGHT

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1473

Episode: 53.0 Collect: 10/29/93 Erupt: 10/22/93 hr Days: 3944.98

Type: TEPHRA -TEARS Molten: N Quench: AIR Device: NONE

Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.65

Note:TEAR CATCHER FROM S. SPILLWAY

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1474

Episode: 53.0 Collect: 11/04/93 Erupt: 11/04/93 8 hr Days: 3958.33

Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: REBAR

Vent: EP 53 Elev (ft): 190 Coordinates: J 0.00 /2.75

Note:190-FT ELEV (BABY) SKYLIGHT

Bulk Chemistry-- SiO2: 50.7 Al2O3: 13.1 FeO: 11.5 MgO: 8.31
CaO: 10.9 Na2O: 2.11 K2O: 0.42 TiO2: 2.43 P2O5: 0.25 MnO:0.18

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1475
Episode: 53.0 Collect: 11/09/93 Erupt: 11/07/93 hr Days: 3960.98
Type: SPATTER -LITTORAL Molten: N Quench: AIR Device: NONE
Vent: EP 53 Elev (ft): 10 Coordinates: J 0.25 /1.00
Note:KMM OCEAN ENTRY

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1476
Episode: 53.0 Collect: 11/09/93 Erupt: 11/09/93 11hr Days: 3963.45
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: REBAR
Vent: EP 53 Elev (ft): 190 Coordinates: J 0.00 /2.75
Note:190-FT ELEV SKYLIGHT

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1477
Episode: 53.0 Collect: 11/16/93 Erupt: 11/10/93 hr Days: 3963.98
Type: TEPHRA -TEARS Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note:TEAR CATCHER ON S. SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 50.65 Al2O3: 13.57 FeO: 10.98 MgO: 7.06
CaO: 11.36 Na2O: 2.47 K2O: 0.42 TiO2: 2.40 P2O5: 0.23 MnO: 0.17

Sample: 1478
Episode: 53.0 Collect: 11/16/93 Erupt: 11/16/93 9 hr Days: 3970.35
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: REBAR
Vent: EP 53 Elev (ft): 190 Coordinates: J 0.00 /2.75
Note:190-FT ELEV (BABY) SKYLIGHT

Bulk Chemistry-- SiO2: 50.6 Al2O3: 13.2 FeO: 11.5 MgO: 8.36
CaO: 11.0 Na2O: 2.10 K2O: 0.42 TiO2: 2.44 P2O5: 0.24 MnO:0.18

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1479
Episode: 53.0 Collect: 11/30/93 Erupt: 11/26/93 hr Days: 3979.98
Type: SPATTER -LITTORAL Molten: N Quench: AIR Device: NONE
Vent: EP 53 Elev (ft): 10 Coordinates: J 0.25 /1.00
Note:KMM OCEAN ENTRY

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1480
Episode: 53.0 Collect: 12/09/93 Erupt: 11/28/93 11hr Days: 3981.98
Type: TEPHRA -HAIR Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note:TEAR CATCHER ON S. SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 50.74 Al2O3: 13.73 FeO: 10.96 MgO: 6.99
CaO: 11.31 Na2O: 2.49 K2O: 0.42 TiO2: 2.48 P2O5: 0.22 MnO: 0.17

Sample: 1481
Episode: 53.0 Collect: 12/09/93 Erupt: 12/08/93 hr Days: 3991.98
Type: SPATTER -LITTORAL Molten: N Quench: AIR Device: NONE
Vent: EP 53 Elev (ft): 10 Coordinates: J 0.25 /0.90
Note:KMM OCEAN ENTRY

Bulk Chemistry-- SiO2: 50.7 Al2O3: 13.2 FeO: 11.5 MgO: 8.11
CaO: 11.0 Na2O: 2.12 K2O: 0.43 TiO2: 2.46 P2O5: 0.25 MnO:0.18

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1482
Episode: 53.0 Collect: 12/27/93 Erupt: 12/18/93 hr Days: 4001.98
Type: TEPHRA -TEARS Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note:TEAR CATCHER ON S. SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 50.73 Al2O3: 13.79 FeO: 11.04 MgO: 6.91
CaO: 11.35 Na2O: 2.51 K2O: 0.42 TiO2: 2.55 P2O5: 0.21 MnO: 0.17

Sample: 1483
Episode: 53.0 Collect: 1/06/94 Erupt: 1/06/94 10hr Days: 4021.39
Type: PAHOEHOE-FLOW Molten: Y Quench: AIR Device: HAMMER
Vent: EP 53 Elev (ft): 400 Coordinates: I 0.45 /3.05
Note:PHH BREAKOUT

Bulk Chemistry-- SiO2: 50.8 Al2O3: 13.2 FeO: 11.4 MgO: 8.26
CaO: 10.9 Na2O: 2.11 K2O: 0.43 TiO2: 2.44 P2O5: 0.25 MnO:0.18

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1484
Episode: 53.0 Collect: 1/25/94 Erupt: 1/15/94 12hr Days: 4029.98
Type: TEPHRA -HAIR Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note:TEAR CATCHER ON S. SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 50.91 Al2O3: 13.71 FeO: 10.99 MgO: 6.95
CaO: 11.23 Na2O: 2.48 K2O: 0.43 TiO2: 2.56 P2O5: 0.22 MnO: 0.17

Sample: 1485
Episode: 53.0 Collect: 1/27/94 Erupt: 1/27/94 12hr Days: 4042.48
Type: PAHOEHOE-TUBE Molten: Y Quench: H2O Device: CABLE
Vent: EP 53 Elev (ft): 220 Coordinates: I 0.75 /2.75
Note:220' SKYLIGHT

Bulk Chemistry-- SiO2: 50.6 Al2O3: 13.2 FeO: 11.5 MgO: 8.32
CaO: 10.9 Na2O: 2.13 K2O: 0.43 TiO2: 2.43 P2O5: 0.25 MnO:0.18

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1486
Episode: 53.0 Collect: 2/03/94 Erupt: 2/03/94 12hr Days: 4049.51
Type: PAHOEHOE-TUBE Molten: Y Quench: H2O Device: CABLE
Vent: EP 53 Elev (ft): 220 Coordinates: I 0.75 /2.75
Note:220' SKYLIGHT

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1487
Episode: 53.0 Collect: 2/08/94 Erupt: 2/01/94 hr Days: 4046.98
Type: TEPHRA -HAIR Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note: TEAR CATCHER ON S. SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 50.60 Al2O3: 13.48 FeO: 11.00 MgO: 6.91
CaO: 11.33 Na2O: 2.48 K2O: 0.42 TiO2: 2.48 P2O5: 0.23 MnO: 0.18

Sample: 1488
Episode: 53.0 Collect: 2/23/94 Erupt: 2/16/94 11hr Days: 4061.98
Type: TEPHRA -HAIR Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note: TEAR CATCHER ON S. SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1489
Episode: 53.0 Collect: 2/23/94 Erupt: 2/22/94 hr Days: 4067.98
Type: SPATTER -LITTORAL Molten: N Quench: AIR Device: NONE
Vent: EP 53 Elev (ft): 10 Coordinates: J 0.25 /0.90
Note: KMM OCEAN ENTRY

Bulk Chemistry-- SiO2: 50.5 Al2O3: 13.3 FeO: 11.4 MgO: 8.37
CaO: 10.9 Na2O: 2.24 K2O: 0.43 TiO2: 2.43 P2O5: 0.25 MnO: 0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1490
Episode: 53.0 Collect: 3/03/94 Erupt: 3/02/94 10hr Days: 4075.98
Type: SPATTER -LITTORAL Molten: N Quench: AIR Device: NONE
Vent: EP 53 Elev (ft): 10 Coordinates: J 0.25 /0.90
Note: KMM OCEAN ENTRY

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1491
Episode: 53.0 Collect: 3/03/94 Erupt: 3/03/94 11hr Days: 4077.46
Type: PAHOEHOE-SLABBY Molten: Y Quench: AIR Device: HAMMER
Vent: EP 53 Elev (ft): 40 Coordinates: J 0.40 /2.10
Note:~100M FROM BREAKOUT PT AT BASE OF PALIULI

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1492
Episode: 53.0 Collect: 3/04/94 Erupt: 2/28/94 hr Days: 4073.98
Type: TEPHRA -TEARS Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note:TEAR CATCHER ON S SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 51.09 Al2O3: 13.60 FeO: 11.06 MgO: 7.16
CaO: 11.38 Na2O: 2.54 K2O: 0.42 TiO2: 2.51 P2O5: 0.24 MnO: 0.18

Sample: 1493
Episode: 53.0 Collect: 3/03/94 Erupt: 3/09/94 hr Days: 4082.98
Type: SPATTER -LITTORAL Molten: N Quench: AIR Device: NONE
Vent: EP 53 Elev (ft): 10 Coordinates: J 0.25 /0.90
Note:KMM OCEAN ENTRY

Bulk Chemistry-- SiO2: 50.7 Al2O3: 13.2 FeO: 11.5 MgO: 8.35
CaO: 10.9 Na2O: 2.14 K2O: 0.43 TiO2: 2.43 P2O5: 0.24 MnO:0.18

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1494
Episode: 53.0 Collect: 4/19/94 Erupt: 3/14/94 hr Days: 4087.98
Type: PAHOEHOE-FLOW Molten: N Quench: AIR Device: NONE
Vent: EP 53 Elev (ft): 2000 Coordinates: G 0.25 /5.50
Note:~10M FROM PT OF EFFUSION OF FLUID CHANNELIZED BREAKOUT

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1495
Episode: 53.0 Collect: 3/15/94 Erupt: 3/15/94 13hr Days: 4089.53
Type: PAHOEHOE-VISCOUS Molten: Y Quench: AIR Device: HAMMER
Vent: EP 53 Elev (ft): 440 Coordinates: I 0.15 /3.45
Note: BREAKOUT AT BASE OF PULAMA PALI

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1496
Episode: 53.0 Collect: 3/21/94 Erupt: 3/21/94 14hr Days: 4095.60
Type: PAHOEHOE-TOE Molten: Y Quench: AIR Device: HAMMER
Vent: EP 53 Elev (ft): 30 Coordinates: I 0.85 /1.20
Note: BREAKOUT FROM W KMM FLOW WHICH BROKE OUT 3/16

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1497
Episode: 53.0 Collect: 3/29/94 Erupt: 3/16/94 hr Days: 4089.38
Type: TEPHRA -TEARS Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note: TEAR CATCHER ON S SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 50.61 Al2O3: 13.48 FeO: 10.96 MgO: 6.92
CaO: 11.35 Na2O: 2.54 K2O: 0.43 TiO2: 2.52 P2O5: 0.23 MnO: 0.19

Sample: 1498
Episode: 53.0 Collect: 4/05/94 Erupt: 4/05/94 11hr Days: 4110.45
Type: PAHOEHOE-TOE Molten: Y Quench: AIR Device: HAMMER
Vent: EP 53 Elev (ft): 20 Coordinates: K 0.10 /1.45
Note: NEW EAST FLOW ON KMM FLOW FIELD

Bulk Chemistry-- SiO2: 50.6 Al2O3: 13.2 FeO: 11.6 MgO: 8.31
CaO: 10.9 Na2O: 2.16 K2O: 0.43 TiO2: 2.43 P2O5: 0.25 MnO: 0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1499
Episode: 53.0 Collect: 4/07/94 Erupt: 12hr Days: 0.00
Type: TEPHRA -HAIR Molten: N Quench: AIR Device: NONE
Vent: PUU OO Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note: TEAR CATCHER ON S SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1500
Episode: 53.0 Collect: 4/12/94 Erupt: 4/12/94 11hr Days: 4117.45
Type: PAHOEHOE-TOE Molten: Y Quench: AIR Device: HAMMER
Vent: EP 53 Elev (ft): 20 Coordinates: /
Note: 200M INLAND OF SHORE ON E FLOW

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1501
Episode: 53.0 Collect: 4/18/94 Erupt: 4/18/94 12hr Days: 4123.51
Type: PAHOEHOE-TOE Molten: Y Quench: AIR Device: HAMMER
Vent: EP 53 Elev (ft): 300 Coordinates: I 0.25 /2.75
Note: MIDWAY BETWEEN PALIULI AND PULAMA PALI

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1502
Episode: 53.0 Collect: 4/28/94 Erupt: 4/17/94 hr Days: 4121.98
Type: TEPHRA -TEARS Molten: N Quench: AIR Device: NONE
Vent: EP 53 Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note: TEAR CATCHER ON S SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 51.13 Al2O3: 13.74 FeO: 11.04 MgO: 6.96
CaO: 11.40 Na2O: 2.51 K2O: 0.43 TiO2: 2.50 P2O5: 0.23 MnO: 0.17

Sample: 1503
Episode: 53.0 Collect: 4/28/94 Erupt: 4/28/94 10hr Days: 4133.40
Type: PAHOEHOE-FLOW Molten: Y Quench: H2O Device: HAMMER
Vent: EP 53 Elev (ft): 50 Coordinates: K 0.25 /2.00
Note: E HALF KMM DELTA

Bulk Chemistry-- SiO2: 50.8 Al2O3: 13.4 FeO: 11.4 MgO: 7.82
CaO: 11.0 Na2O: 2.17 K2O: 0.44 TiO2: 2.48 P2O5: 0.26 MnO: 0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1504
Episode: 53.0 Collect: 5/04/94 Erupt: 5/04/94 8 hr Days: 4139.34
Type: PAHOEHOE-TOE Molten: Y Quench: AIR Device: HAMMER
Vent: EP 53 Elev (ft): 40 Coordinates: I 0.25 /1.25
Note: 75 M FROM OCEAN AT LAE APUKI

Bulk Chemistry-- SiO2: 50.7 Al2O3: 13.5 FeO: 11.4 MgO: 7.85
CaO: 11.0 Na2O: 2.19 K2O: 0.44 TiO2: 2.48 P2O5: 0.26 MnO: 0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1505
Episode: 53.0 Collect: 5/11/94 Erupt: hr Days: 0.00
Type: TEPHRA -TEARS Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note: TEAR CATCHER ON S SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1506
Episode: 53.0 Collect: 5/11/94 Erupt: 5/04/94 hr Days: 4138.98
Type: TEPHRA -TEARS Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note: TEAR CATCHER ON S SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 50.61 Al2O3: 13.56 FeO: 10.97 MgO: 6.80
CaO: 11.21 Na2O: 2.48 K2O: 0.43 TiO2: 2.49 P2O5: 0.23 MnO: 0.17

Sample: 1507
Episode: 53.0 Collect: 5/06/94 Erupt: 5/06/94 11hr Days: 4141.47
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE
Vent: EP 53 Elev (ft): 550 Coordinates: H 0.80 /3.75
Note:550' SKYLIGHT

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1508
Episode: 53.0 Collect: 5/18/94 Erupt: 5/18/94 11hr Days: 4153.44
Type: PAHOEHOE-TOE Molten: Y Quench: AIR Device: HAMMER
Vent: EP 53 Elev (ft): 60 Coordinates: J 0.00 /1.50
Note:9.5 KM FROM PUU 00

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1509
Episode: 53.0 Collect: 6/02/94 Erupt: 5/25/94 hr Days: 4159.98
Type: TEPHRA -TEARS Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note:TEAR CATCHER ON S SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1510
Episode: 53.0 Collect: 5/27/94 Erupt: 5/27/94 10hr Days: 4162.41
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE
Vent: EP 53 Elev (ft): 450 Coordinates: I 0.10 /3.45
Note:450' SKYLIGHT

Bulk Chemistry-- SiO2: 50.7 Al2O3: 13.3 FeO: 11.4 MgO: 8.30
CaO: 11.0 Na2O: 2.08 K2O: 0.43 TiO2: 2.44 P2O5: 0.26 MnO:0.17

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1511
Episode: 53.0 Collect: 6/03/94 Erupt: 6/03/94 13hr Days: 4169.53
Type: PAHOEHOE-SLABBY Molten: Y Quench: AIR Device: HAMMER
Vent: EP 53 Elev (ft): 380 Coordinates: I 0.05 /3.05
Note:BASE OF PULAMA PALI

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1512
Episode: 53.0 Collect: 6/08/94 Erupt: 6/08/94 10hr Days: 4174.43
Type: PAHOEHOE-TOE Molten: Y Quench: AIR Device: HAMMER
Vent: EP 53 Elev (ft): 60 Coordinates: I 0.80 /1.40
Note:200 M FROM OCEAN

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1513
Episode: 53.0 Collect: 6/16/94 Erupt: 6/09/94 hr Days: 4174.98
Type: TEPHRA -TEARS Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /6.65
Note:TEAR CATCHER ON S SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 50.69 Al2O3: 13.69 FeO: 11.00 MgO: 6.73
CaO: 11.21 Na2O: 2.49 K2O: 0.45 TiO2: 2.54 P2O5: 0.24 MnO: 0.18

Sample: 1514
Episode: 53.0 Collect: 6/22/94 Erupt: 6/19/94 hr Days: 4184.98
Type: TEPHRA -TEARS Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note:TEAR CATCHER ON S SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1515
Episode: 53.0 Collect: 6/30/94 Erupt: 6/26/94 hr Days: 4191.98
Type: TEPHRA -TEARS Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note:TEAR CATCHER ON S SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1516
Episode: 53.0 Collect: 6/30/94 Erupt: 6/30/94 hr Days: 4195.98
Type: PAHOEHOE-TUBE Molten: Y Quench: AIR Device: CABLE
Vent: EP 53 Elev (ft): 430 Coordinates: I 0.10 /3.45
Note:430' SKYLIGHT

Bulk Chemistry-- SiO2: 50.8 Al2O3: 13.5 FeO: 11.3 MgO: 7.93
CaO: 11.0 Na2O: 2.13 K2O: 0.44 TiO2: 2.47 P2O5: 0.27 MnO:0.17

Glass Chemistry-- SiO2: 50.94 Al2O3: 13.75 FeO: 11.08 MgO: 6.76
CaO: 11.25 Na2O: 2.50 K2O: 0.45 TiO2: 2.60 P2O5: 0.25 MnO: 0.17

Sample: 1517
Episode: 53.0 Collect: 7/08/94 Erupt: 7/04/94 hr Days: 4199.98
Type: TEPHRA -TEARS Molten: N Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note:TEAR CATCHER ON S SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: 50.84 Al2O3: 13.73 FeO: 11.00 MgO: 6.84
CaO: 11.27 Na2O: 2.43 K2O: 0.43 TiO2: 2.53 P2O5: 0.43 MnO: 0.18

Sample: 1518
Episode: 53.0 Collect: 7/08/94 Erupt: 7/08/94 9 hr Days: 0.00
Type: SPATTER -LITTORAL Molten: N Quench: AIR Device: NONE
Vent: EP 53 Elev (ft): 0 Coordinates: I 0.25 /1.00
Note:KMM OCEAN ENTRY

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1519
Episode: 53.0 Collect: 7/11/94 Erupt: 7/11/94 17hr Days: 4207.69
Type: PAHOEHOE-TOE Molten: Y Quench: AIR Device: HAMMER
Vent: EP 53 Elev (ft): 60 Coordinates: I 0.75 /2.10
Note:BELOW PALI ULI

Bulk Chemistry-- SiO2: 50.7 Al2O3: 13.3 FeO: 11.4 MgO: 8.30
CaO: 11.0 Na2O: 2.10 K2O: 0.43 TiO2: 2.44 P2O5: 0.26 MnO:0.17

Glass Chemistry-- SiO2: 51.10 Al2O3: 13.60 FeO: 11.21 MgO: 6.70
CaO: 11.30 Na2O: 2.46 K2O: 0.45 TiO2: 2.63 P2O5: 0.25 MnO: 0.19

Sample: 1520
Episode: 53.0 Collect: 7/19/94 Erupt: 7/14/94 hr Days: 4209.98
Type: TEPHRA -TEARS Molten: Y Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note:TEAR CATCHER ON S SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1521
Episode: 53.0 Collect: 7/26/94 Erupt: 7/22/94 hr Days: 4217.98
Type: TEPHRA -TEARS Molten: Y Quench: AIR Device: NONE
Vent: PUU 00 Elev (ft): 2750 Coordinates: E 0.70 /9.65
Note:TEAR CATCHER ON S SPILLWAY RIM

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1522
Episode: 53.0 Collect: 8/02/94 Erupt: 8/02/94 hr Days: 4228.98
Type: PAHOEHOE-TOE Molten: Y Quench: AIR Device: HAMMER
Vent: EP 53 Elev (ft): 0 Coordinates: I 0.80 /1.10
Note:AT OCEAN ENTRY

Bulk Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Glass Chemistry-- SiO2: Al2O3: FeO: MgO:
CaO: Na2O: K2O: TiO2: P2O5: MnO:

Sample: 1523

Episode: 53.0 Collect: 8/03/94 Erupt: 8/03/94 10hr Days: 4230.41

Type: PAHOEHOE-TOE Molten: Y Quench: H2O Device: HAMMER

Vent: EP 53 Elev (ft): 0 Coordinates: I 0.70 /1.10

Note: FLOW BUILDING NEW WEST BENCH

Bulk Chemistry-- SiO2: 50.8 Al2O3: 13.5 FeO: 11.4 MgO: 7.82
CaO: 11.0 Na2O: 2.15 K2O: 0.44 TiO2: 2.48 P2O5: 0.27 MnO: 0.17

Glass Chemistry-- SiO2: 50.62 Al2O3: 13.40 FeO: 10.94 MgO: 6.62
CaO: 10.96 Na2O: 2.54 K2O: 0.44 TiO2: 2.68 P2O5: 0.25 MnO: 0.18
