

Katmai Volcano Seismicity 01-May-1999 - 01-Jul-1999

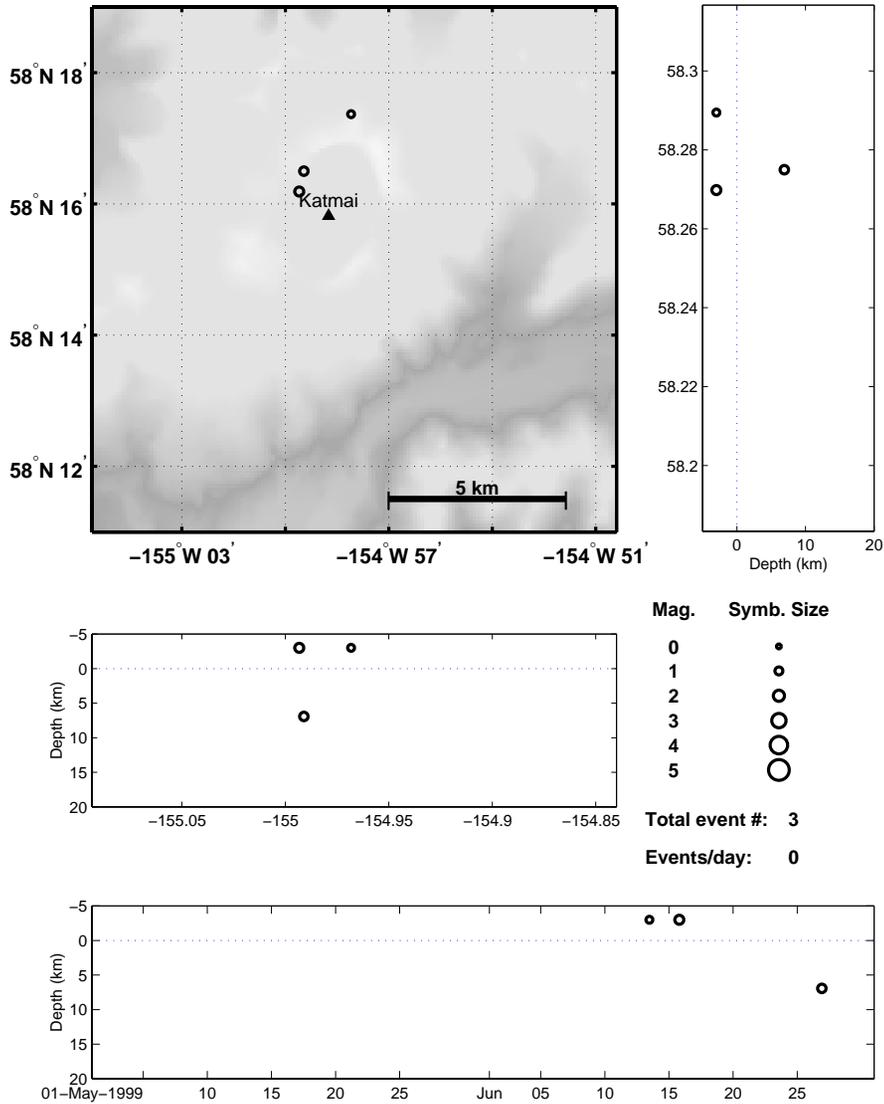


Figure 13a: Locatable Katmai seismic events in space and time for May through June.

Katmai Volcano Seismicity 01-Jul-1999 - 01-Sep-1999

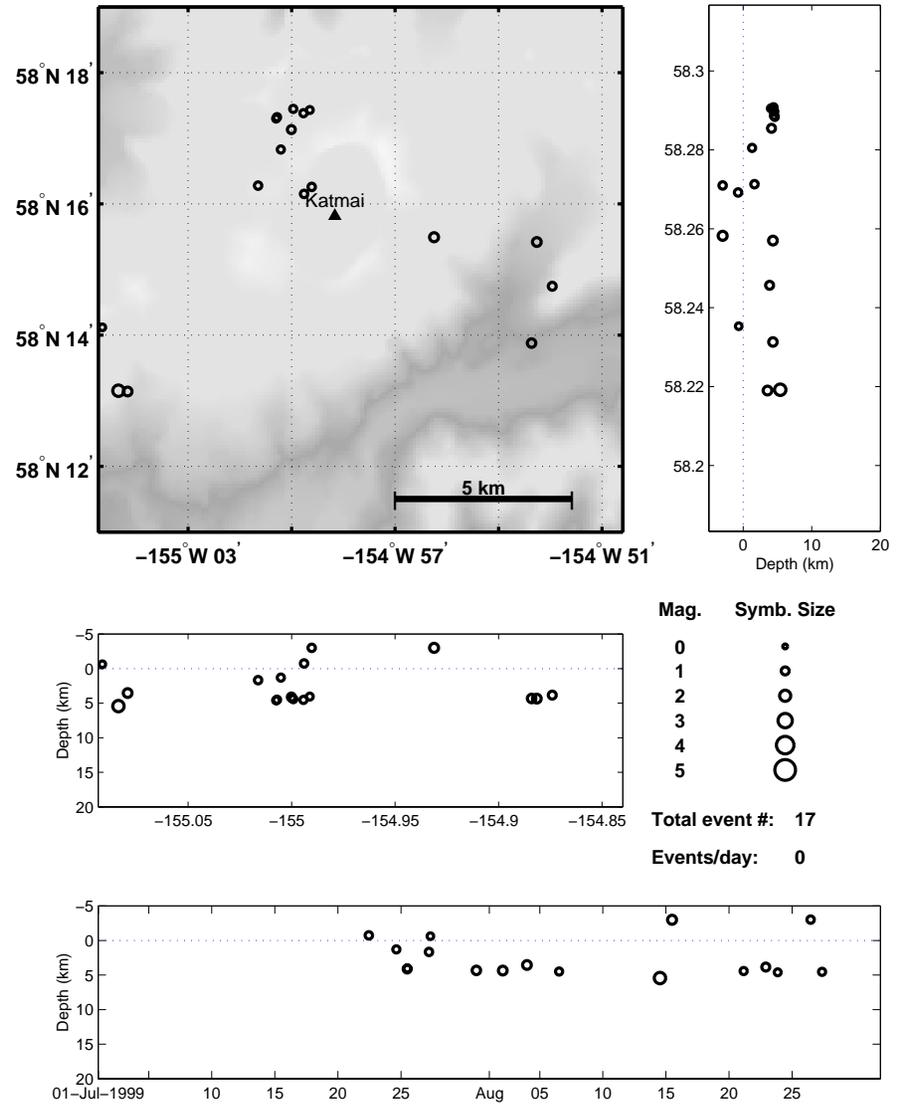


Figure 13b: Locatable Katmai seismic events in space and time for July through August.

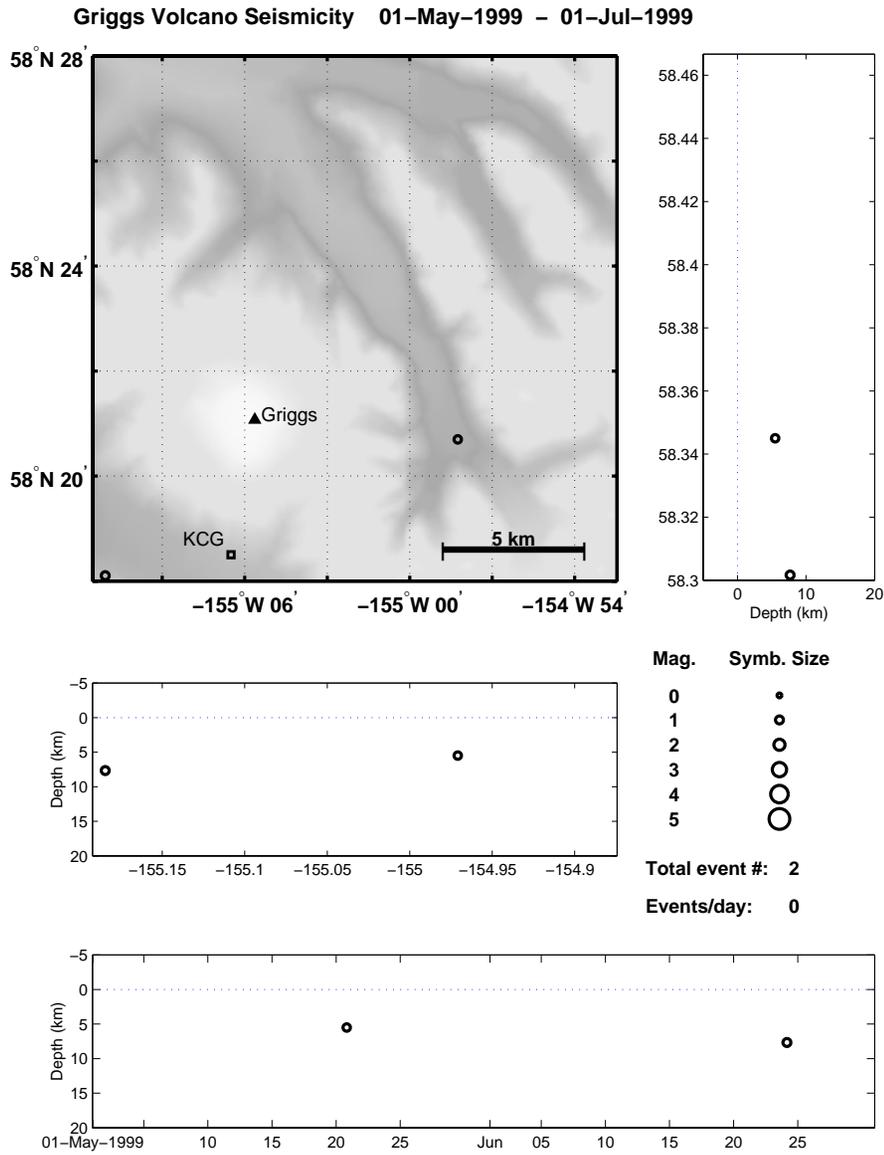


Figure 14a: Locatable Griggs seismic events in space and time for May through June.

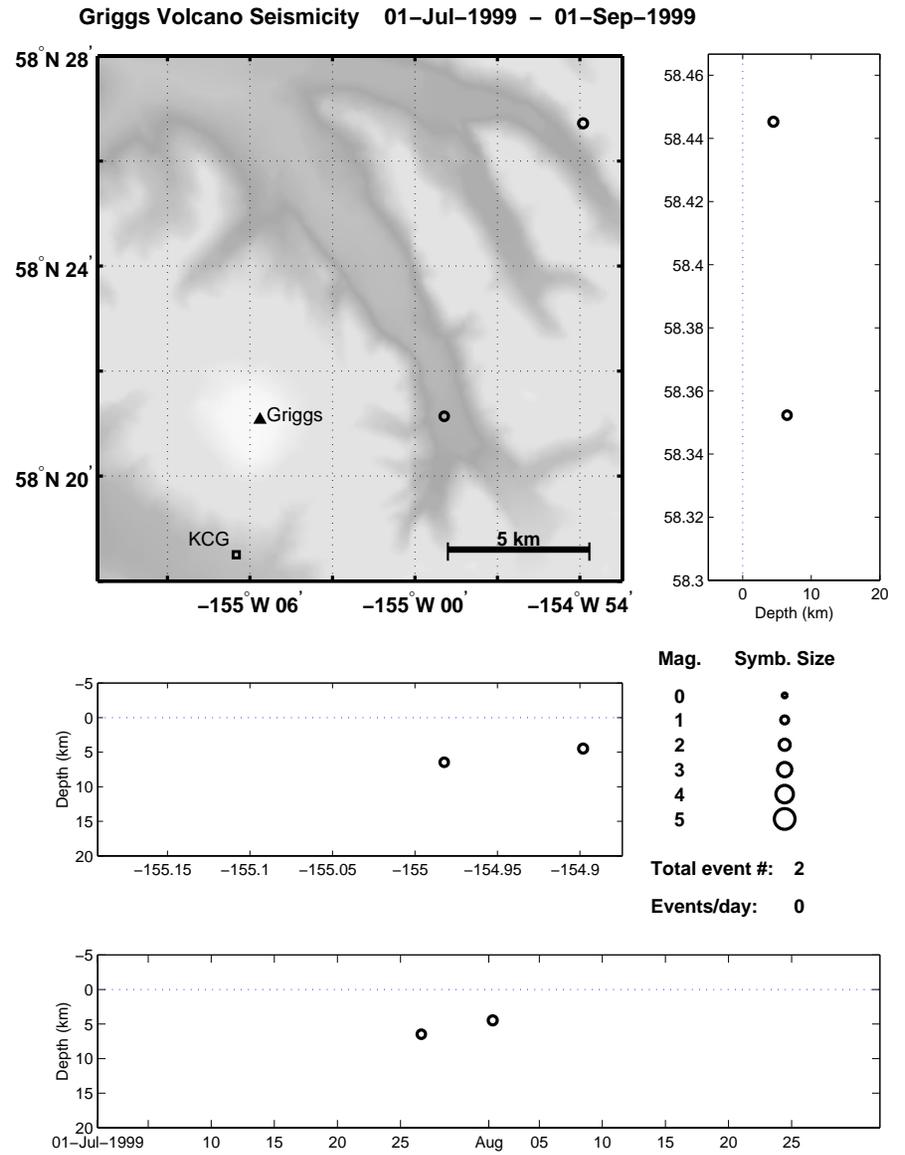


Figure 14b: Locatable Griggs seismic events in space and time for July through August.

Snowy Volcano Seismicity 01-May-1999 - 01-Jul-1999

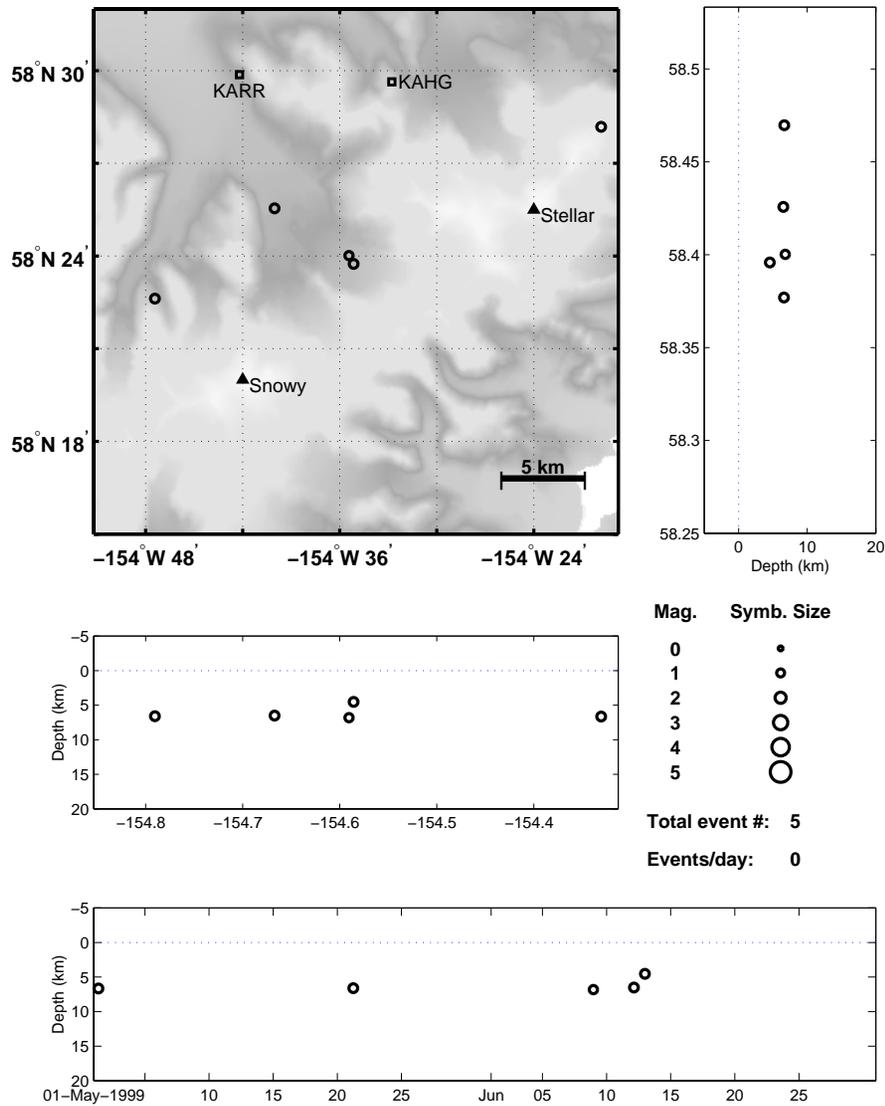


Figure 15a: Locatable Snowy seismic events in space and time for May through June.

Snowy Volcano Seismicity 01-Jul-1999 - 01-Sep-1999

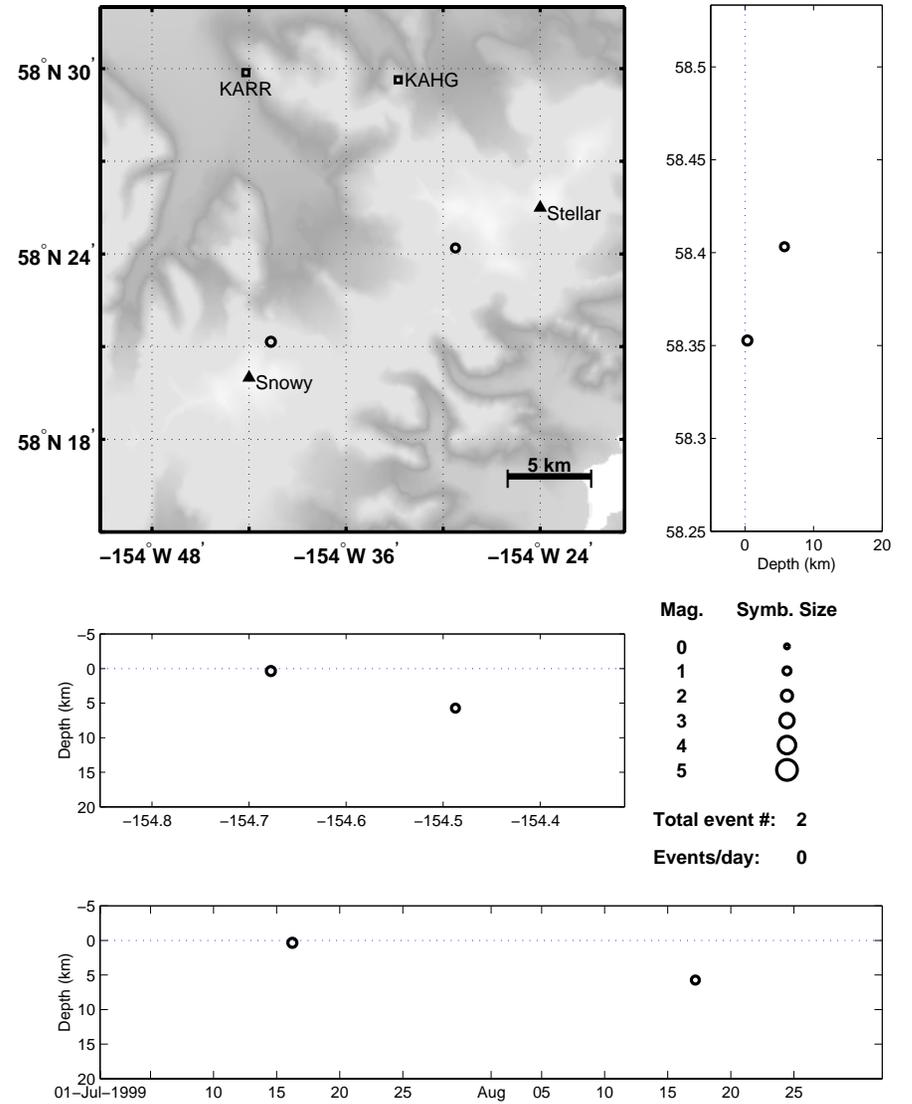


Figure 15b: Locatable Snowy seismic events in space and time for July through August.

Aniakchak Volcano Seismicity: 01-Jul-1999 – 01-Sep-1999

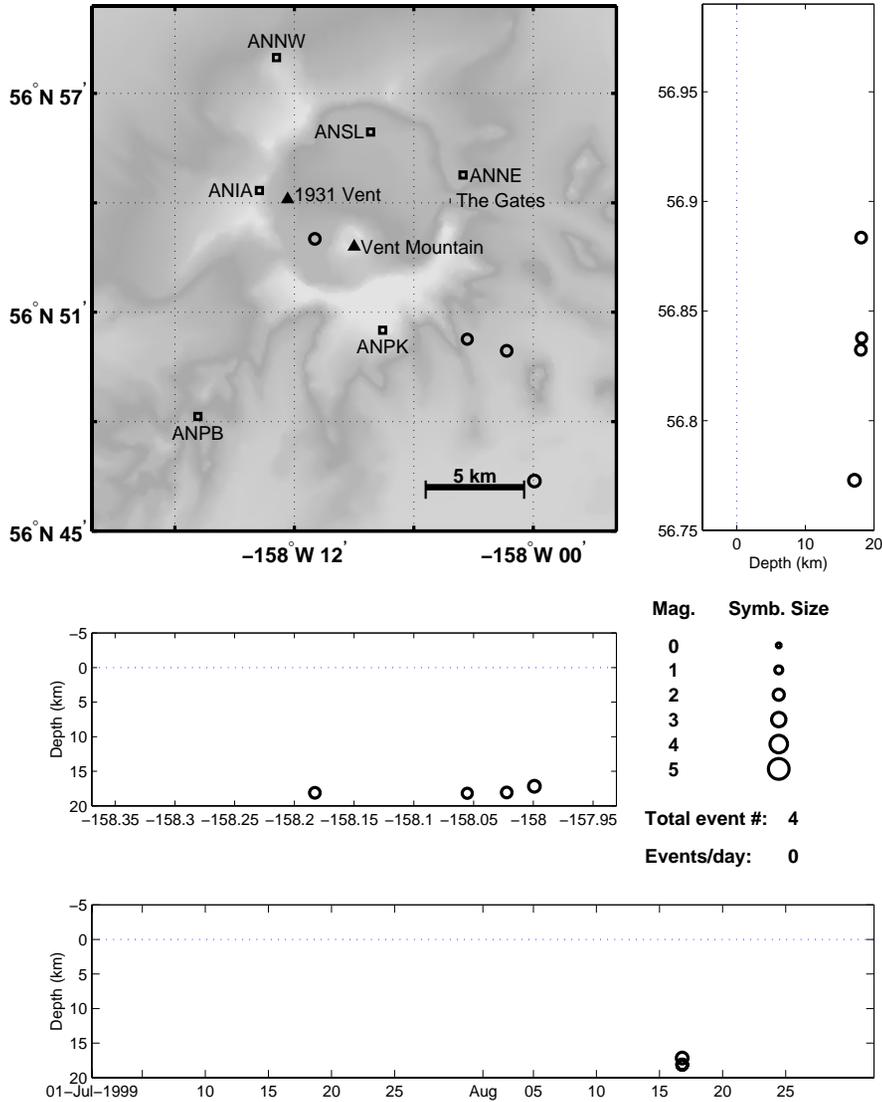


Figure 16b: Locatable Aniakchak seismic events in space and time for July through August. No events were located during May-June.

Pavlof Volcano Seismicity 01-Jul-1999 – 01-Sep-1999

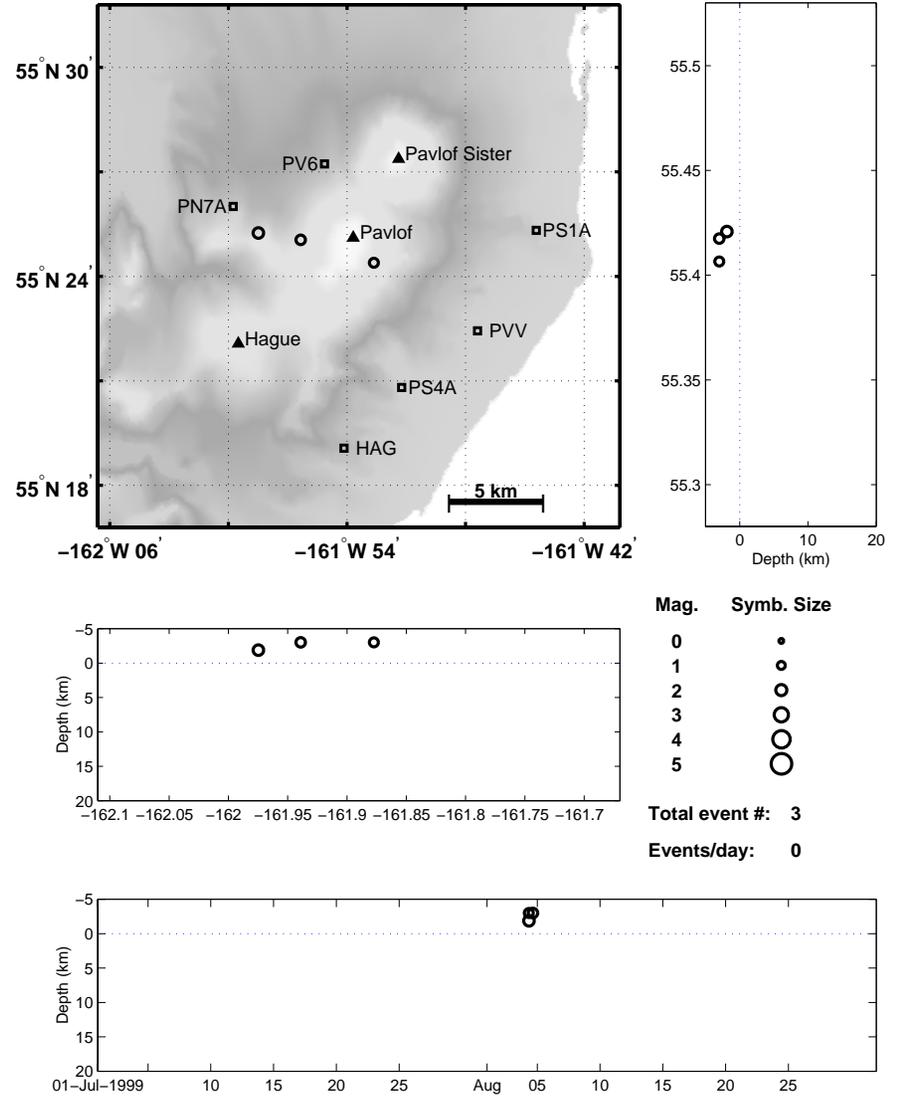


Figure 17b: Locatable Pavlof seismic events in space and time for July through August. No events were located during May-June.

shallow hypocentral depth. This earthquake, as well as 39 other events shown in figure 13A, appear to have been part of the aftershock sequence following the March 4, 1999 $M_L=5.0$ earthquake (see previous Bimonthly Report). The number of aftershocks located during this two-month period was considerably lower than that for March-April; 860 aftershocks were located during March-April as opposed to the 40 such events located during May-June. This is in agreement, however, with the empirical power law decay observed for most aftershock sequences. In addition to the aftershocks there was also a magnitude $M_L=1.7$ earthquake located off the coast of Unimak Island, about 10 km east-southeast of Cape Lazaref. The remaining three earthquakes were located relatively close to Shishaldin and Westdahl and thus are shown in greater detail in figures 19a and 20a.

Shishaldin

Twenty-two earthquakes were plotted on the more detailed Shishaldin map (figs. 19a, 23a and 24a). The 20 most westerly of these events were part of the aftershock sequence. The remaining two earthquakes do not appear to be part of this sequence. These events differed from the main cluster of aftershocks in that they had much greater hypocentral depths than was the case with the aftershocks. These two earthquakes had hypocentral depths of 17 and 27 km and were located 4 km and 8 km southwest of Shishaldin respectively. The aftershocks generally did not have hypocentral depths of more than 3.0 km and tended to be located a bit farther west of Shishaldin. The deeper, more distal of these two events had a magnitude of $M_L=1.6$. The remaining event had a magnitude of $M_L=1.7$. Both of these earthquakes were classified as being b-type events because of the relatively low frequency content of their waveforms. The low frequencies dominating the waveforms of these two earthquakes were probably due to their relatively large hypocentral depths.

Westdahl

May-June 1999:

One earthquake was located in the Westdahl region during May-June 1999 (figs. 20a, 23a and 24a). This earthquake had a magnitude of $M_L=1.1$ and was located 3 km south-southwest of Westdahl at a hypocentral depth of 2 km. Thus far, the level of seismic activity in the Westdahl area appears to be fairly low. This event was only the fourth on to be located in this area since the Westdahl network came on-line in October 1998.

July-August 1999:

A total of 12 earthquakes were located in the Unimak Island region during July-August 1999 (figs. 20b, 23b and 24b). The largest of these events had a magnitude of $M_L=2.0$ and was located 15 km west of Shishaldin and had a shallow hypocentral depth. This event was located in the aftershock zone of the March 4, 1999 $M_L=5.0$ earthquake (see previous Bimonthly Report). A total of 11 earthquakes were located in this area during July-August. These events were, therefore, probably part of the ongoing aftershock sequence. The final event was not located in the aftershock zone but rather was located offshore of Unimak Island about 6 km east-southeast of Cape Lazaref. The continued occurrence of aftershocks resulted in the number of events located in the Shishaldin area being much greater than that predicted from the mean seismicity rate. The number of located events for July-August was about half that of the previous two-month period; this was probably a reflection of the normal decrease in aftershock numbers with time.

Akutan

May-June 1999:

During May-June 1999 there were a total of three earthquakes located in the Akutan region (figs. 23a). The largest of these events had a magnitude of $M_L=1.3$ which was located 5 km north-northwest of the summit of Akutan (~2 km north-northeast of LVA) at a hypocentral depth of 7 km. The other two events were located 4 km and 7 km northwest of the summit and also had hypocentral depths of ~7 km. The number of earthquakes located during this two-month period was greater than the single such event located in this area during March-April 1999. This value was, however, less than half the located earthquakes predicted from the 2-year mean seismicity rate.

July-August 1999:

Two earthquakes were located in the Akutan region during July-August 1999 (figs. 21b, 23b and 24b). The largest of these events had a magnitude of $M_L=1.4$ and was located 2 km north-northeast of the summit of Akutan at a hypocentral depth of 3 km. The second earthquake was located 2 km east-northeast of the summit and also had a hypocentral depth of 3 km. The number of earthquakes located in the Akutan region during this two-month period was lower than the three such events located there during May-June. The number of located events was, however, considerably lower than the seven located events predicted from the mean seismicity rate.

Makushin

May-June 1999:

A total of six earthquakes were located in the Makushin region during May-June 1999 (figs. 22a, 23a and 24a). The largest Makushin earthquake located during this time had a magnitude of $M_L=1.7$ and was located 12 km east-southeast of the summit of Makushin at a hypocentral depth of 8 km. Two events were located ~1-2 km east of the summit and had hypocentral depths of 3-4 km. Another Makushin event was located 4 km east-southeast of the summit at a shallow hypocentral depth. One event was located 11 km south of the summit at a hypocentral depth of 3 km. The final Makushin earthquake was located 14 km southwest of the summit and had a hypocentral depth of 5 km. The number of earthquakes located in the Makushin region during May-June was slightly greater than the five such events located during the previous two-month period. However, nearly twice as many located earthquakes were predicted from the 2-year mean seismicity rate.

July-August 1999:

During July-August 1999 there were seven earthquakes located in the Makushin region (figs. 22b, 23b and 24b). The largest of these events had a magnitude of $M_L=2.5$ and was located 28 km east-southeast of the summit of Makushin (~10 km south of Dutch Harbor) and had a hypocentral depth of 10 km. Two other events were located in this general area and had hypocentral depths of 11 km and 14 km. A relatively deep event was located a bit farther north of this cluster of three events. This earthquake was located 26 km east of Makushin (~5 km south of Dutch Harbor) and had a hypocentral depth of ~22 km. Another event was located 13 km east of the summit and had a hypocentral depth of 7 km. The final two earthquakes were both located 3 km from the summit. One of these events was located east-southeast of the summit at depth of 1 km while the other event was located west-southwest of the summit and had a hypocentral depth of 7 km. The number of earthquakes located in the Makushin region during this two-month period was a little greater than that of May-June but was lower than the 11 such events predicted from the mean seismicity rate.

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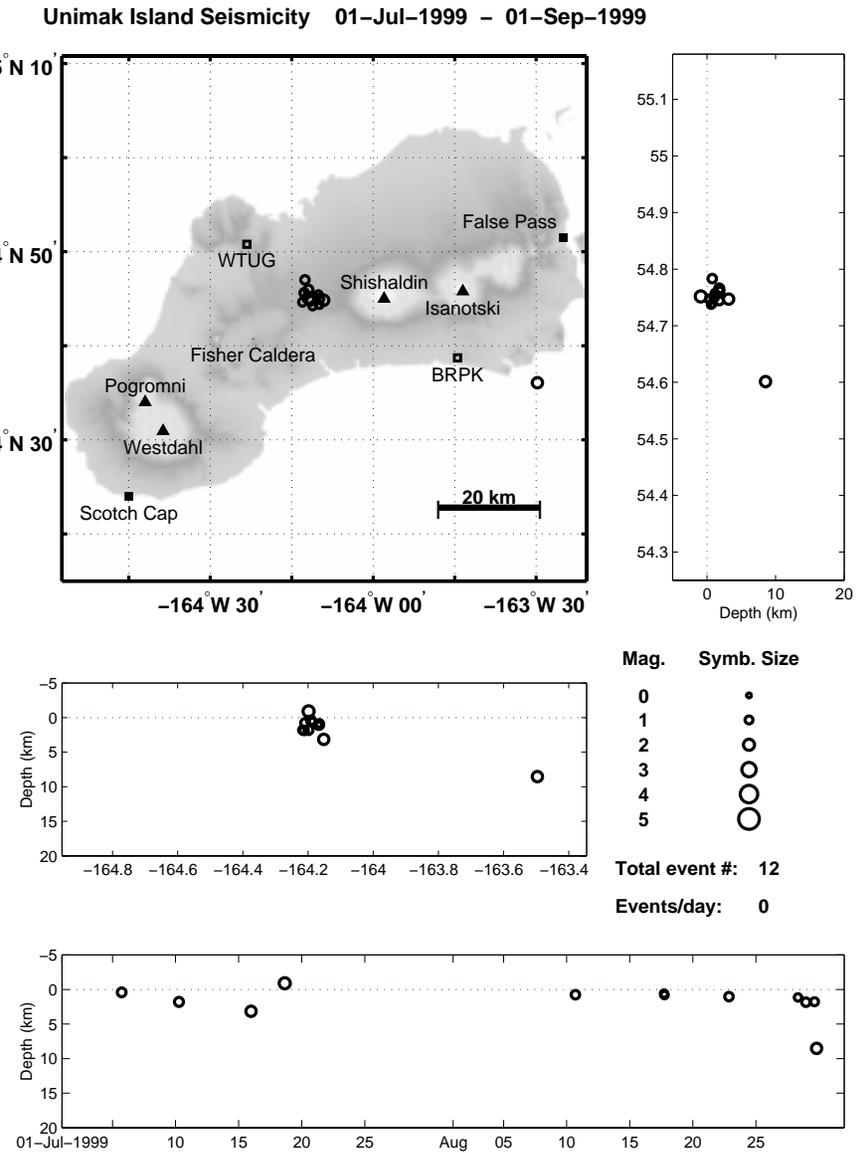
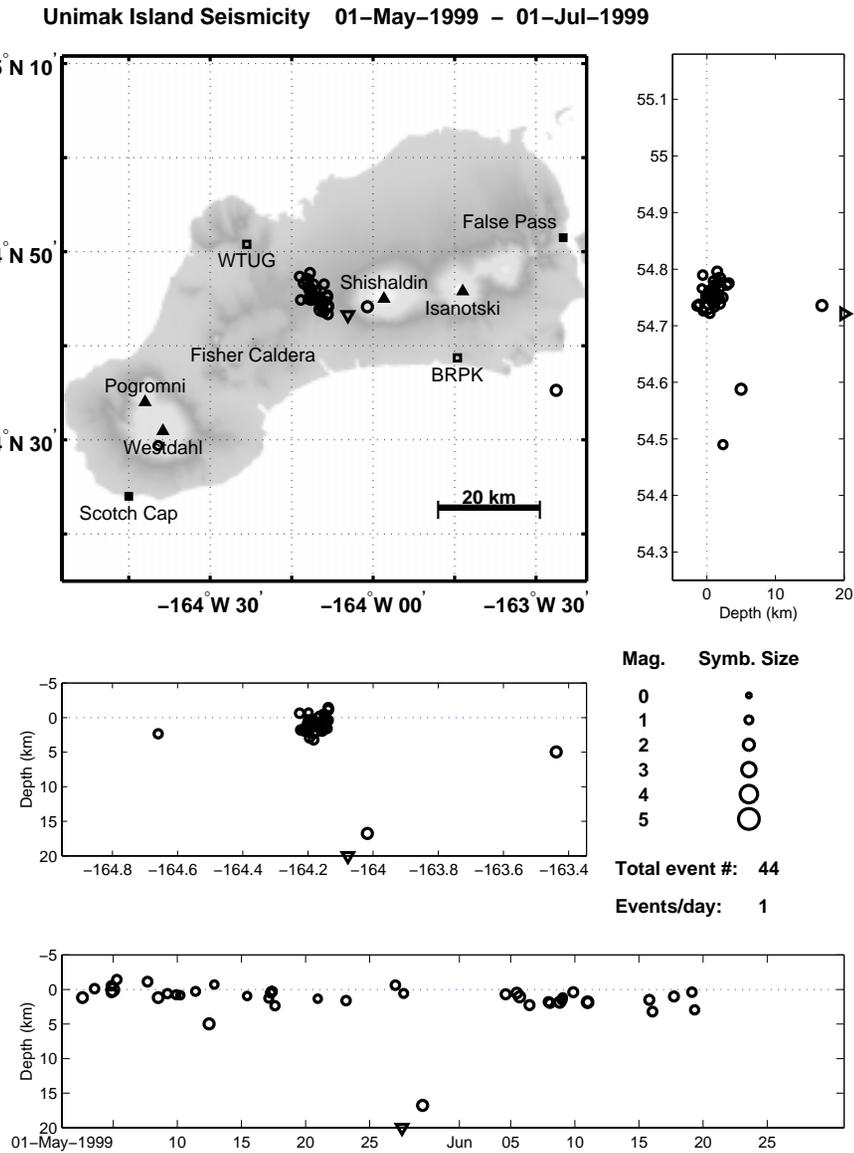
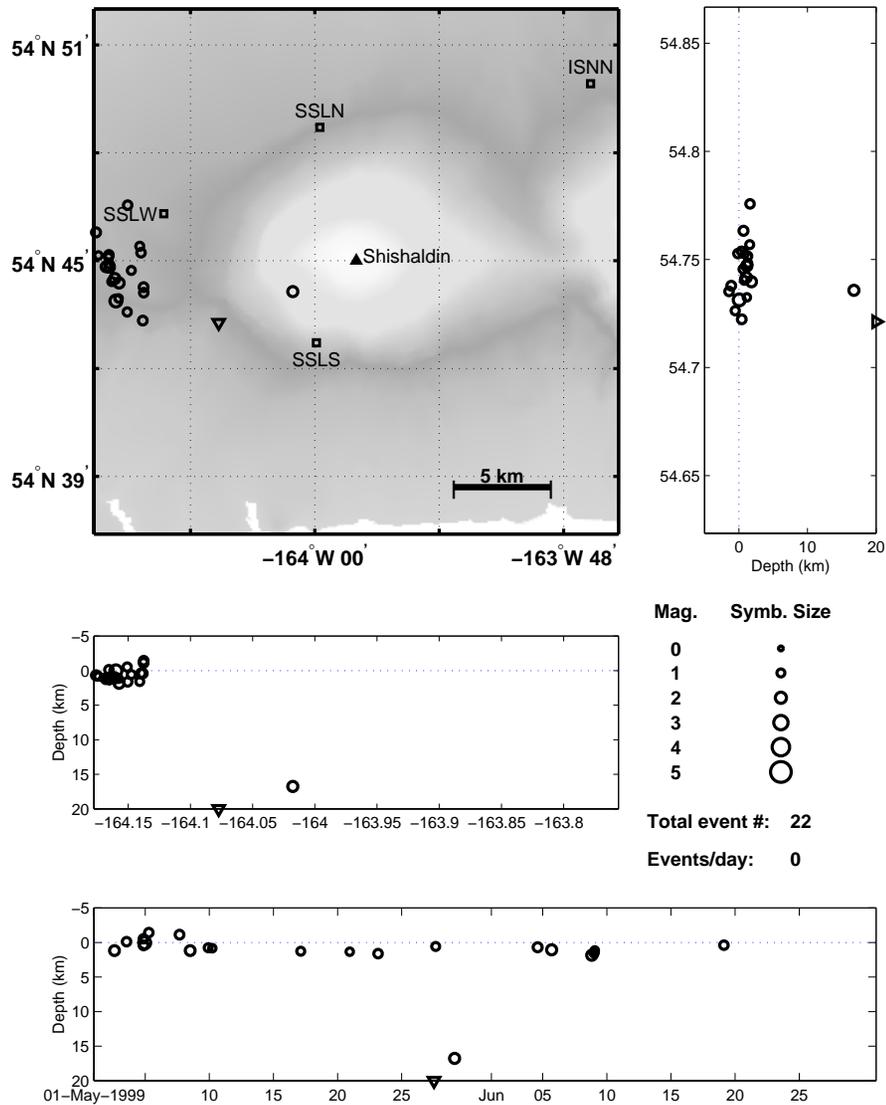


Figure 18a: Locatable Unimak Island seismic events in space and time for May through June.

Figure 18b: Locatable Unimak Island seismic events in space and time for July through August.

Shishaldin Volcano Seismicity 01-May-1999 - 01-Jul-1999



Westdahl Volcano Seismicity 01-May-1999 - 01-Jul-1999

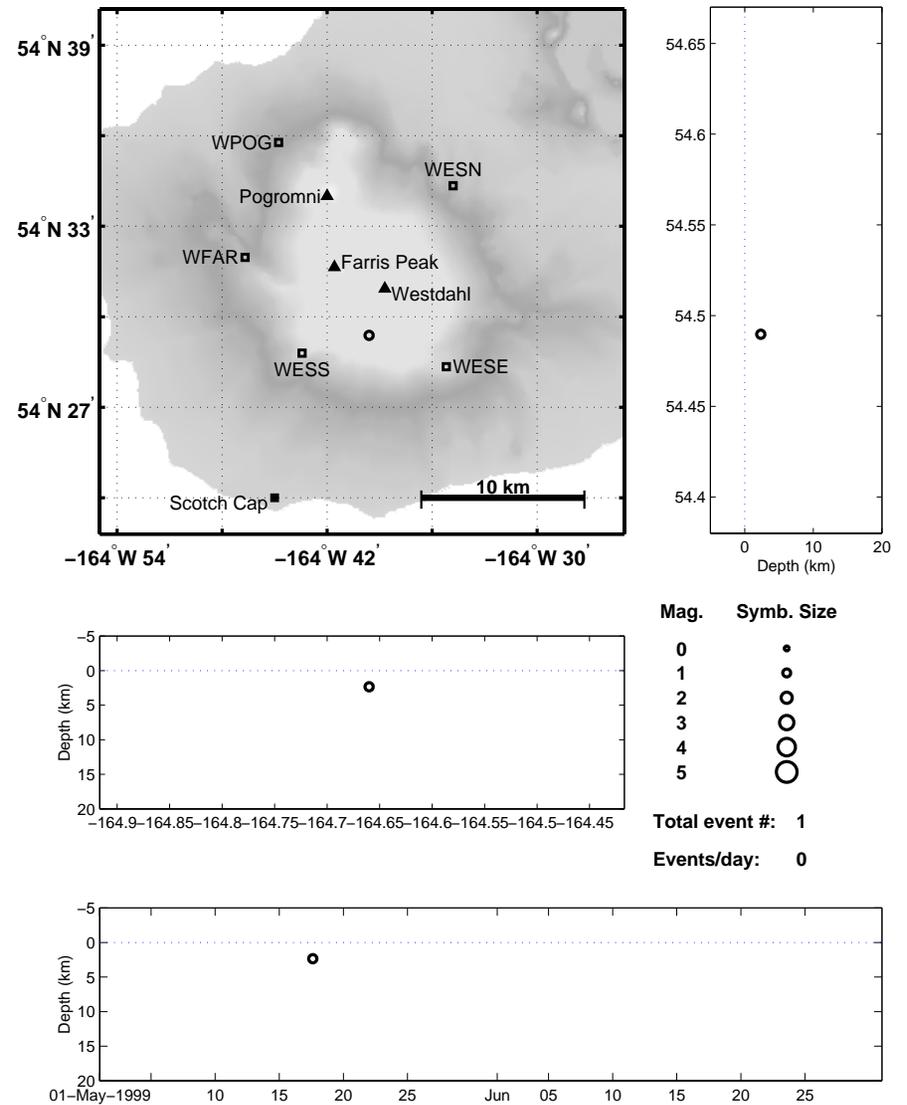


Figure 19a: Locatable Shishaldin seismic events in space and time for May through June. The only earthquake detected at Shishaldin in July and August were part of the aftershock sequence on Shishaldin's western flank.

Figure 20a: Locatable Westdahl seismic events in space and time for May through June. No events were observed during July-August.

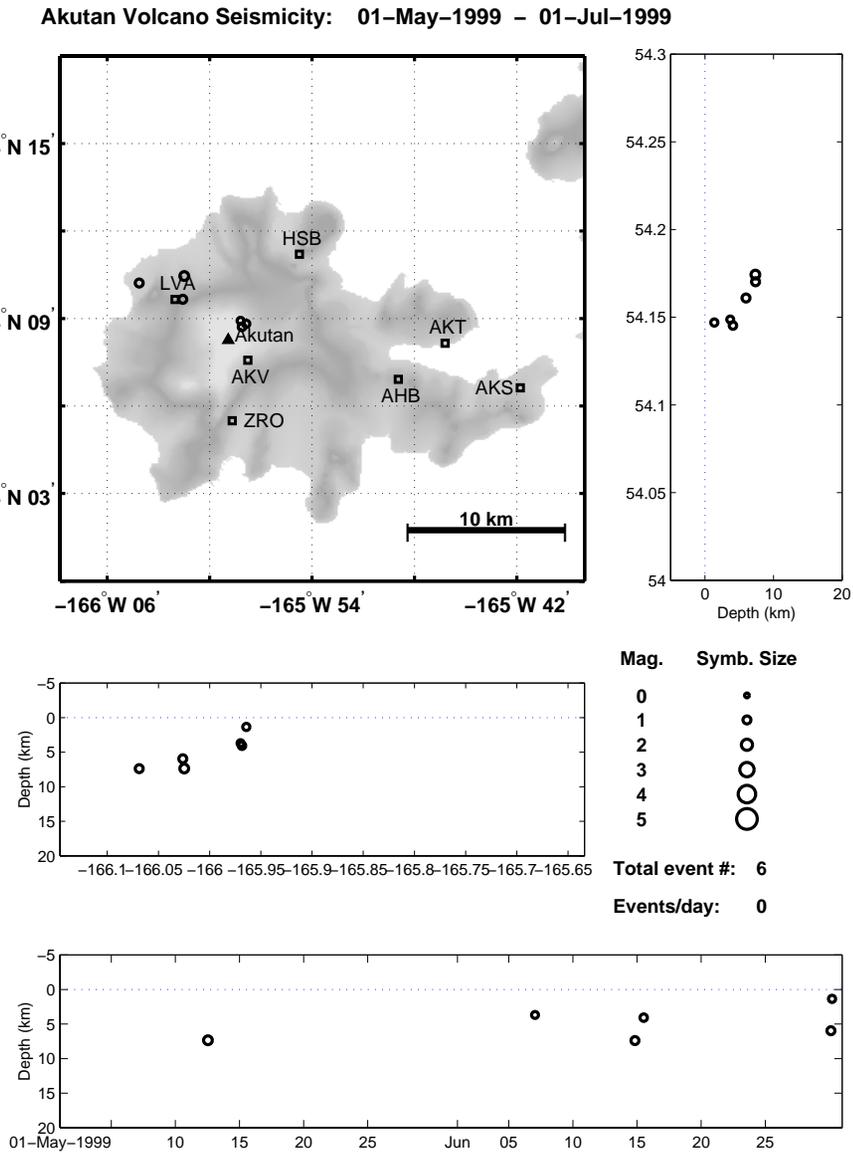


Figure 21a: Locatable Akutan seismic events in space and time for May through June.

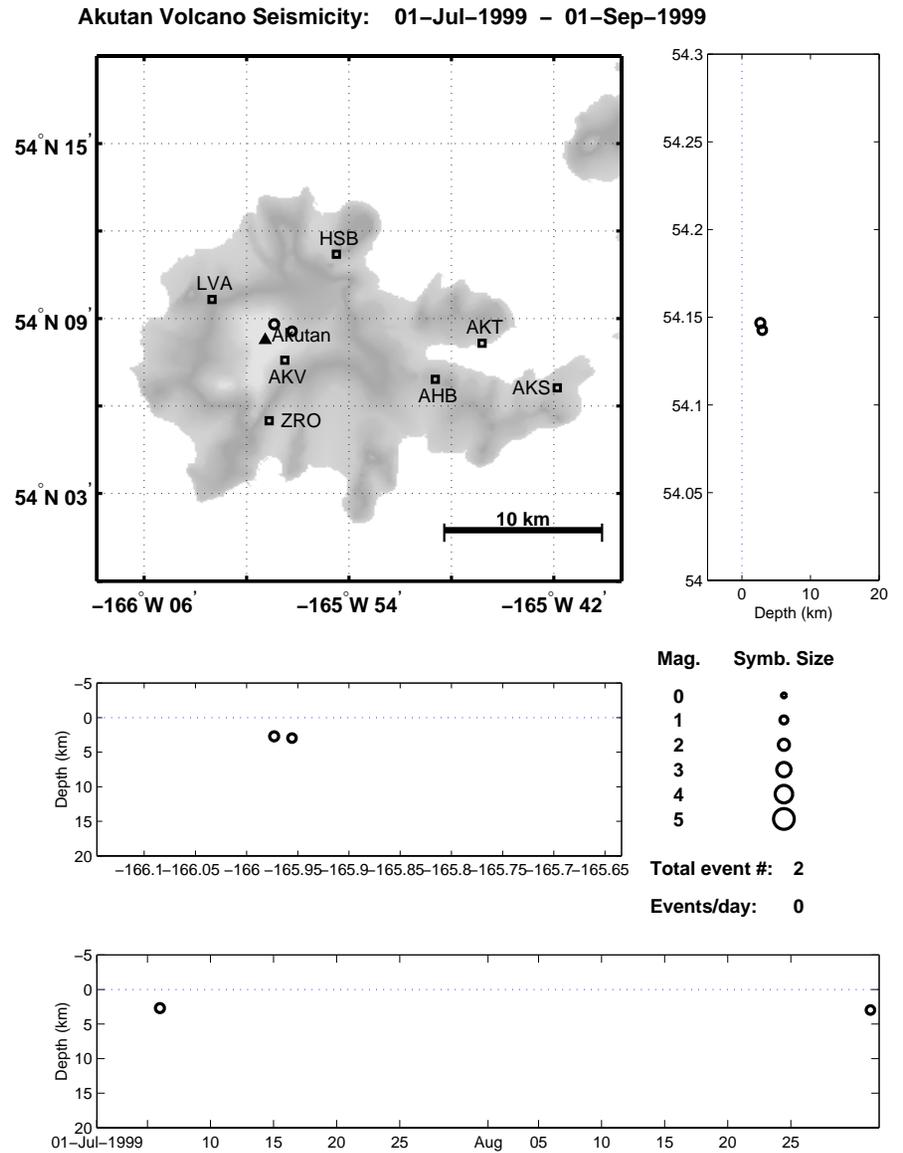
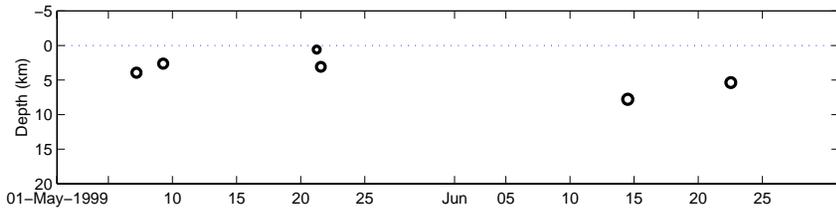
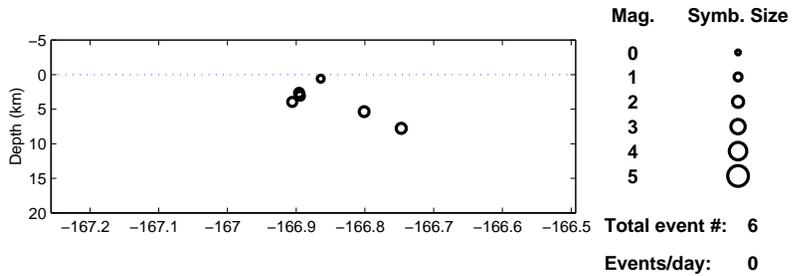
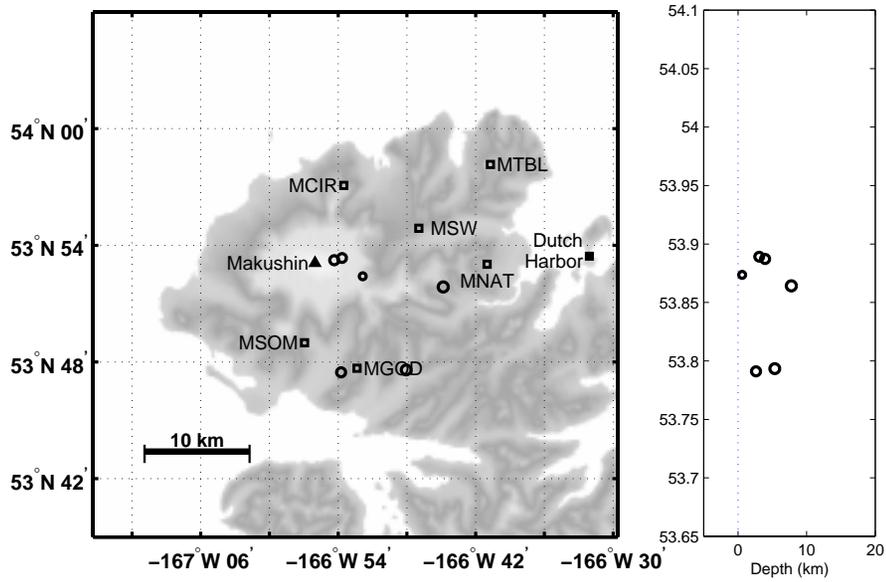


Figure 21b: Locatable Akutan seismic events in space and time for July through August.

Makushin Volcano Seismicity 01-May-1999 - 01-Jul-1999



Makushin Volcano Seismicity 01-Jul-1999 - 01-Sep-1999

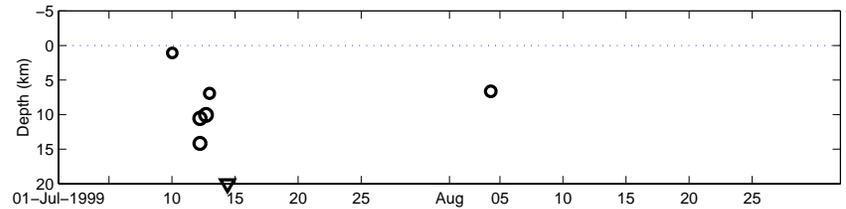
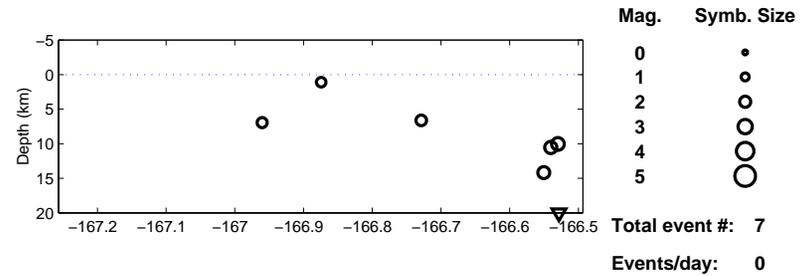
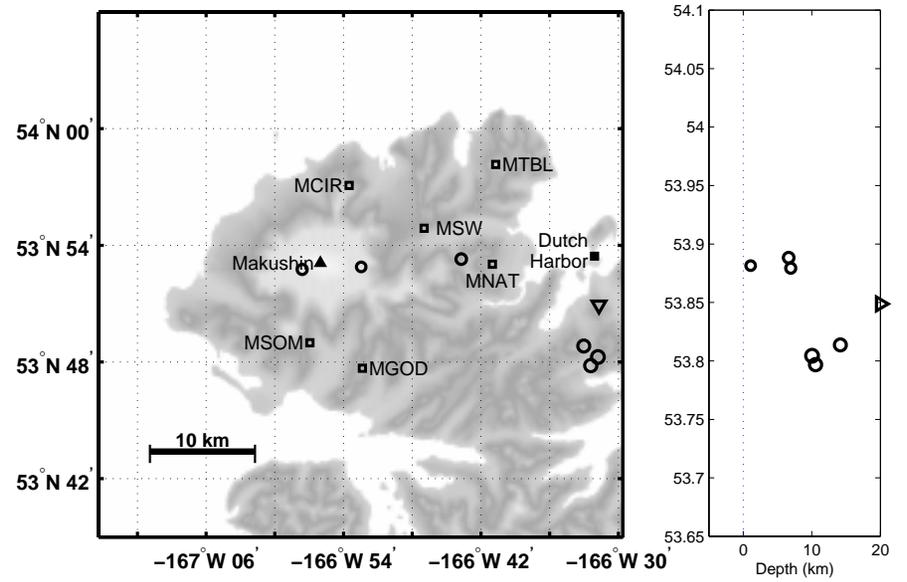


Figure 22a: Locatable Makushin seismic events in space and time for May through June.

Figure 22b: Locatable Makushin seismic events in space and time for July through August.

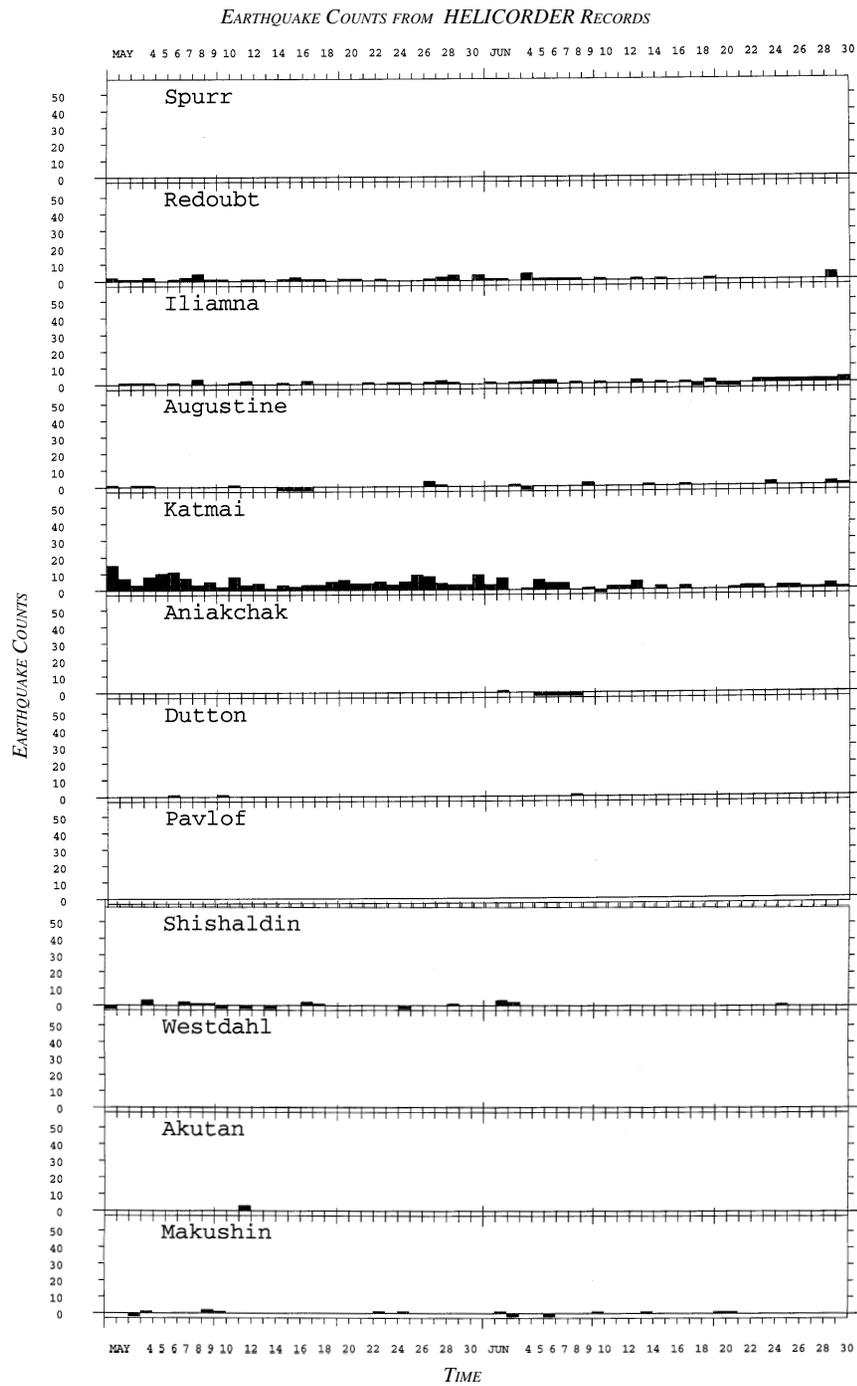


Figure 23a: Histogram of seismic events counted from HELICORDER records during May through June.

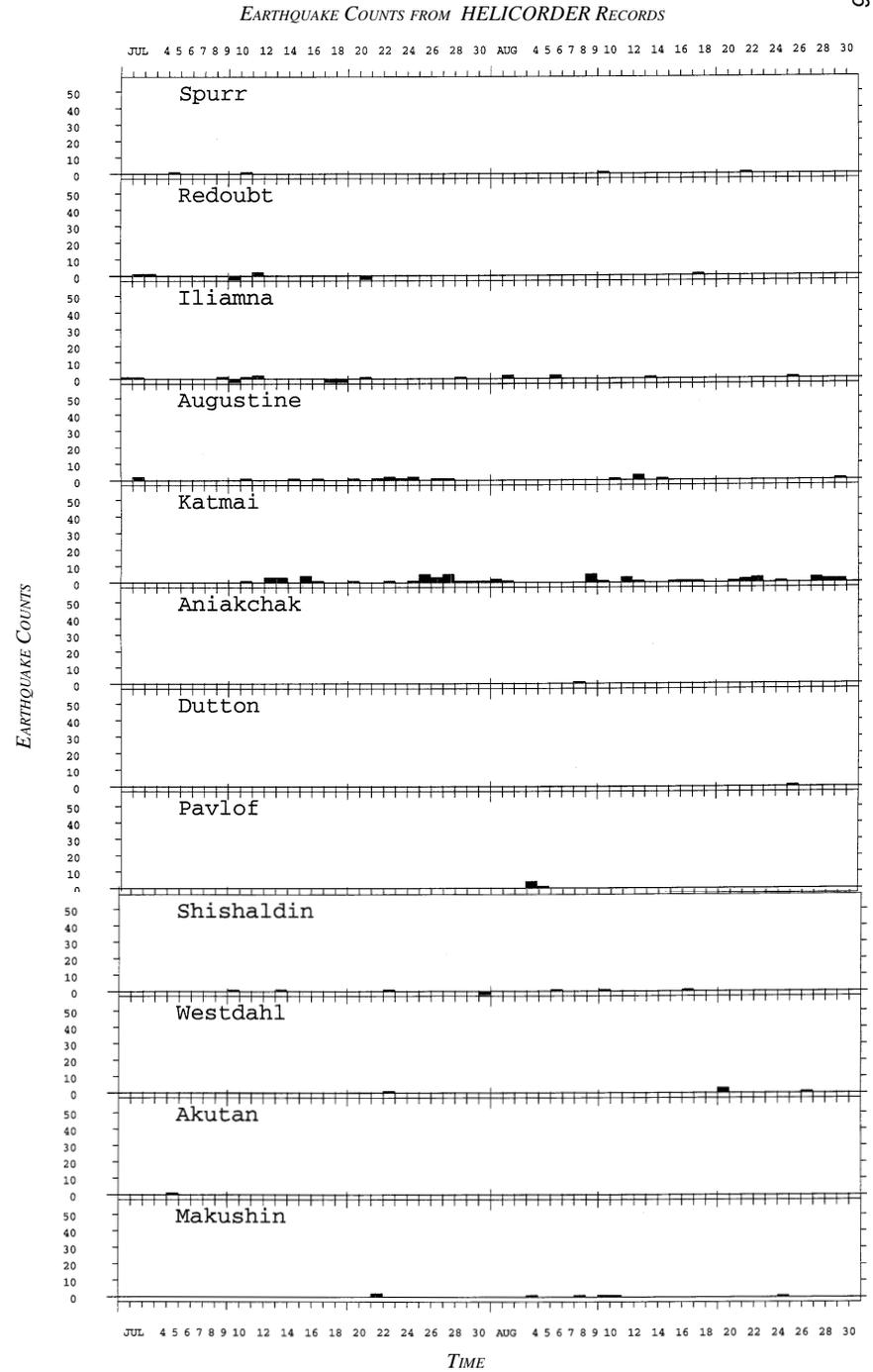


Figure 23b: Histogram of seismic events counted from HELICORDER records during July through August.