SKYLAB SHORT-LIVED EVENT ALERT PROGRAM

Contract NAS 9-13474

Final Report

Principal Investigator
Mr. Robert A. Citron

February 1974

Prepared for
National Aeronautics and Space Administration
Johnson Space Center
Houston, Texas 77058

Smithsonian Institution
Astrophysical Observatory
Cambridge, Massachusetts 02138

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SKYLAB SHORT-LIVED EVENT ALERT PROGRAM

Final Report

1. INTRODUCTION

During the three manned Skylab missions, the Center for Short-Lived Phenomena (CSLP) reported a total of 39 significant events to the Johnson Space Center (JSC) as part of the Skylab Short-Lived Event Alert Program.

Information pertaining to these events was telegraphed to JSC daily, and the data were updated as frequently as new information was received from the Center's network of correspondents.

The telegraphed daily status reports were made as comprehensive as possible and included the names and locations of the events, the track number and revolution number during which the event could be observed, the time (GMT) to within ± 2 sec when Skylab was closest to the event area, and the light condition (daylight or darkness) at that time and place. The messages sent to JSC during the Skylab 4 mission also included information pertaining to ground-truth studies and observations being conducted on the events. Photographic priorities were assigned for each event.

During the Skylab 2 and Skylab 3 missions, the daily status reports were telegraphed to JSC at 0900 Central Time 2 days in advance of the predicted sighting opportunities, in order to give personnel at JSC time to evaluate the reports and pass them to the Skylab crew if appropriate. For the Skylab 4 mission, the daily status reports were sent 3 days ahead of the predicted sighting opportunities to increase the time available for evaluation and transmission to Skylab.

Throughout all three manned missions, provisions were made so that CSLP could contact the JSC after normal working hours, or vice versa, if necessary.

1
The accuracy and thoroughness of the sighting opportunities for the short-lived events that the CSLP forwarded to JSC were contingent on the accuracy of the data in the original and updated Table 2-2 in Section 7, Field Data Pack, EREP Console Operations Handbook. Where no data were available for particular revolutions, interpolation of statistics was necessary. It is felt that the accuracy of these interpolated figures was reasonable.
2. SKYLAB 2

As part of CSLP's Short-Lived Event Alert Program, a communications test was conducted on 19 April 1973 between the Smithsonian Astrophysical Observatory's (SAO) Communications Center and JSC. During the test, the time interval between the sending of the message by Robert Citron and its receipt by John Kaltenbach was determined to be 25 min.

Mission-simulation status reports, sent on 23, 24, and 25 April, were received without problems.

Regular daily status reports were sent via teletype to JSC beginning on 4 May; the new format as agreed on by Mr. Citron and JSC was employed. Actual event reports were sent in order to familiarize CSLP with the preparation of such messages and to secure response from JSC regarding any faults in the reporting system.

With the launch of Skylab 1 on 14 May, routine daily messages were begun. However, because of problems aboard the spacecraft, messages were not sent from 15 to 24 May. After resuming on 25 May, messages continued until 20 June.

No data were available regarding times and positions of the ascending nodes for the period 13 to 22 June. This required interpolation of figures, and the accuracies of the predicted visibility opportunities of the events for the last few days of the mission were probably rather inaccurate.

The following 15 events were reported to JSC during the Skylab 2 mission:

<table>
<thead>
<tr>
<th>CSLP Event Number</th>
<th>Name of Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-73</td>
<td>Asama Volcanic Eruption</td>
<td>Honshu, Japan</td>
</tr>
<tr>
<td>34-73</td>
<td>Montevallo Sinkhole</td>
<td>Alabama, USA</td>
</tr>
<tr>
<td>42-73</td>
<td>Mississippi River Floods</td>
<td>Midwest and South USA</td>
</tr>
<tr>
<td>Event Number</td>
<td>Name of Event</td>
<td>Location</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>55-73</td>
<td>Williamsburg Natural Gas Escape</td>
<td>Michigan, USA</td>
</tr>
<tr>
<td>57-73</td>
<td>Casper Oil Pipeline Break and Bird Kill</td>
<td>Wyoming, USA</td>
</tr>
<tr>
<td>59-73</td>
<td>Kilauea Volcanic Eruption – 1973</td>
<td>Hawaii, USA</td>
</tr>
<tr>
<td>62-73</td>
<td>Murray Oil Pipeline Rupture</td>
<td>Idaho, USA</td>
</tr>
<tr>
<td>65-73</td>
<td>Windward Passage Oil Slick</td>
<td>Caribbean Sea</td>
</tr>
<tr>
<td>67-73</td>
<td>Chelsea Landslip</td>
<td>Quebec, Canada</td>
</tr>
<tr>
<td>74-74</td>
<td>Bear Glacier Surge</td>
<td>Tadzhik, USSR</td>
</tr>
<tr>
<td>77-73</td>
<td>ESSO Brussels Oil Spill</td>
<td>New York, USA</td>
</tr>
<tr>
<td>79-73</td>
<td>Santa Barbara Oil Slick</td>
<td>California, USA</td>
</tr>
<tr>
<td>156-73</td>
<td>Erta'Ale Volcano</td>
<td>Ethiopia</td>
</tr>
<tr>
<td></td>
<td>Nyiragongo Volcano</td>
<td>Republic of Zaire</td>
</tr>
<tr>
<td></td>
<td>Big Cypress Swamp Fire</td>
<td>Florida, USA</td>
</tr>
</tbody>
</table>

Thirty-two daily status reports were telegraphed to JSC during the mission, and these contained statistics for 152 sighting opportunities for the 15 events.
3. SKYLAB 3

On 31 July, David Squires of CSLP met with Mr. Kaltenbach of JSC and several team members of the Earth Resources Experiment Package to plan communications procedures to be followed during the Skylab 3 mission. It was agreed that the CSLP would increase the types and numbers of events reported and would expand descriptions of all events to make them as complete and informative as possible.

CSLP began transmitting Skylab daily status reports to JSC on 7 August. The messages were sent every day through 22 September.

The following 11 events were reported to JSC by teletype during Skylab 3:

<table>
<thead>
<tr>
<th>CSLP Event Number</th>
<th>Name of Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>84-73</td>
<td>Japanese Seaweed Introduction to England</td>
<td>Isle of Wight, England</td>
</tr>
<tr>
<td>92-73</td>
<td>Tiatia Volcanic Eruption</td>
<td>Kuril Islands, USSR</td>
</tr>
<tr>
<td>93-73</td>
<td>Nishino-shima Submarine Volcanic Eruption</td>
<td>Bonin Islands, Japan</td>
</tr>
<tr>
<td>94-73</td>
<td>Curacoa Reef Submarine Volcanic Activity</td>
<td>Northern Tonga Islands, South Pacific Ocean</td>
</tr>
<tr>
<td>96-73</td>
<td>Mount Langila Volcanic Eruption</td>
<td>New Britain, Territory of New Guinea</td>
</tr>
<tr>
<td>97-73</td>
<td>Lagoa Rodrigo de Freitas Fish Kill</td>
<td>Rio de Janeiro, Brazil</td>
</tr>
<tr>
<td>99-73</td>
<td>Hemlock Looper Infestation</td>
<td>Massachusetts, USA</td>
</tr>
<tr>
<td>106-73</td>
<td>Western USA Forest Fires</td>
<td>Western USA</td>
</tr>
<tr>
<td>109-73</td>
<td>Puebla Earthquake</td>
<td>Puebla, Mexico</td>
</tr>
<tr>
<td>112-73</td>
<td>Indus River Floods</td>
<td>Punjab, Pakistan</td>
</tr>
<tr>
<td>117-73</td>
<td>Santiaguito Volcanic Eruption</td>
<td>Guatemala, Central America</td>
</tr>
</tbody>
</table>

Forty-four daily status reports were telegraphed to JSC during the mission, containing statistics for 154 sighting opportunities for the 11 events.
4. SKYLAB 4

On 30 November 1973, cables were sent to five overseas correspondents requesting information on ground-truth data currently being obtained on six active volcanos, as follows:

Nyiargongo Volcano – Dr. A. Pouclet, Bukavu, Zaïre, and Dr. H. Tazieff, Paris, France;
Erta' Ale Volcano – Dr. Tazieff and Dr. J. Varet, Addis Ababa, Ethiopia;
Mt. Etna Volcano – Dr. Tazieff;
Nishino-shima Submarine Volcano – Dr. Y. Sawada, Tokyo, Japan;
Sakurazima Volcano – Dr. Sawada;
Kilauea Volcano – Dr. D. Peterson, Island of Hawaii, Hawaii.

Replies were received by mail from all five correspondents, and copies of the correspondence were forwarded to Mr. Kaltenbach.

From 21 November 1973 to 2 February 1974, CSLP telegraphed daily status reports on short-lived events to JSC. The following 17 events were reported by teletype to JSC during the Skylab 4 mission:

<table>
<thead>
<tr>
<th>CSLP Event Number</th>
<th>Name of Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>59-73</td>
<td>Kilauea Volcanic Eruption – 1973</td>
<td>Hawaii, USA</td>
</tr>
<tr>
<td>93-73</td>
<td>Nishino-shima Submarine Volcanic Eruption</td>
<td>Bonin Islands, Japan</td>
</tr>
<tr>
<td>130-73</td>
<td>Choristoneura Population Increase</td>
<td>Maine, USA</td>
</tr>
<tr>
<td>131-73</td>
<td>Douglas Fir Tussock Moth Outbreak</td>
<td>Washington, Idaho, Oregon, USA</td>
</tr>
<tr>
<td>134-73</td>
<td>Massachusetts Pine Looper Outbreak</td>
<td>Massachusetts, USA</td>
</tr>
<tr>
<td>139-73</td>
<td>Sakurazima Volcanic Activity</td>
<td>Kyusyu, Japan</td>
</tr>
<tr>
<td>145-73</td>
<td>Bodrog River Oil Slick</td>
<td>Hungary</td>
</tr>
<tr>
<td>147-73</td>
<td>Probable Volcan Wolf Eruption</td>
<td>Galapagos Islands, Ecuador</td>
</tr>
<tr>
<td>150-73</td>
<td>Galapagos Islands Eruptions</td>
<td>Galapagos Islands, Ecuador</td>
</tr>
<tr>
<td>156-73</td>
<td>Erta'Ale Volcanic Activity</td>
<td>Ethiopia</td>
</tr>
<tr>
<td>Event Number</td>
<td>Name of Event</td>
<td>Location</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>3-74</td>
<td>Chile-Bolivia Border Earthquake</td>
<td>Potosi State, Bolivia</td>
</tr>
<tr>
<td>5-74</td>
<td>Duck Island Oil Spill</td>
<td>New Jersey, USA</td>
</tr>
<tr>
<td>7-74</td>
<td>La Pampa Province Forest Fires</td>
<td>Argentina</td>
</tr>
<tr>
<td>9-74</td>
<td>Reventador Volcanic Activity</td>
<td>Ecuador</td>
</tr>
<tr>
<td>11-74</td>
<td>Pacific Submarine Volcanic Eruption</td>
<td>Volcano Islands, Mariana Islands area,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pacific Ocean</td>
</tr>
<tr>
<td></td>
<td>Nyiragongo Volcano</td>
<td>Zaïre</td>
</tr>
<tr>
<td></td>
<td>South Vietnam Forest Defoliation</td>
<td>South Vietnam</td>
</tr>
</tbody>
</table>

Seventy-four daily status reports were telegraphed to JSC during Skylab 4, in which statistics were included for 380 sighting opportunities for the 17 events.

In addition to teletyping information on current short-lived events to JSC, event notification and information cards were routinely mailed to Mr. Kaltenbach, Dr. Robin Brett, Dr. Everett Gibson, and Dr. Michael Reynolds. This mailing included 179 event cards during the contract period (23 April 1973 to 8 February 1974).

The event notification cards issued by CSLP on the 39 events reported to JSC are reproduced in Appendix A, except for Nyiragongo Volcano, Big Cypress Swamp Fire, and South Vietnam Forest Defoliation. These last three events were not issued numbers and were not sent to the Center's network of correspondents.

Sample cable message sent to JSC are included in Appendix B.
On February 1, 1973, at 10:20 a.m., the Asama volcano in Japan began to erupt. The eruption was recorded on the barograph of the meteorological observatory at Karuizawa. The maximum amplitude of vibration from the explosion was 1.8 microns. The explosion took place 7 hours after anomalously frequent earthquakes were recorded.

Asama is located in the central part of Honshu Island, 140 km northwest of Tokyo. Asama is a stratovolcano with double craters lying on an older strato-volcano.

**Event 1973**

EVENT ASAMA VOLCANIC ERUPTION

**Event Notification Report**

<table>
<thead>
<tr>
<th>Type of Event</th>
<th>Geophysical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Occurrence</td>
<td>2 February 1973</td>
</tr>
<tr>
<td>Location of Event</td>
<td>Island of Honshu, Japan</td>
</tr>
<tr>
<td>Reporting Source</td>
<td>Japan Meteorological Observatory</td>
</tr>
</tbody>
</table>

**Facts**

- **Asama Volcano:** Located in the central part of Honshu Island, Japan.
- **Eruption:** Recorded on February 1, 1973, at 10:20 a.m.
- **Maximum Vibration:** 1.8 microns.
- **Eruption Time:** 7 hours after frequent earthquakes.

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**Event 1973**

EVENT MONTREAL SINKHOLE

**Event Notification Report**

<table>
<thead>
<tr>
<th>Type of Event</th>
<th>Geophysical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Occurrence</td>
<td>2 December 1972</td>
</tr>
<tr>
<td>Location of Event</td>
<td>Montreal, Quebec, Canada</td>
</tr>
</tbody>
</table>

**Facts**

- **Montreal Sinkhole:** Measured approximately 426 ft. long, 350 ft. wide, and 150 ft. deep.
- **Formation:** Formed recently in central Alabama.
- **Activity:** Occurred in a wooded area in Shelby County, Alabama.
- **Impact:** Millions of gallons of water spilled out.

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**Event 1973**

EVENT MISSISSIPPI RIVER FLOODES

**Event Notification Report**

<table>
<thead>
<tr>
<th>Type of Event</th>
<th>Geophysical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Occurrence</td>
<td>2-10 April 1973</td>
</tr>
<tr>
<td>Location of Event</td>
<td>St. Louis, Missouri, USA</td>
</tr>
<tr>
<td>Reporting Source</td>
<td>U.S. Army Corps of Engineers</td>
</tr>
</tbody>
</table>

**Facts**

- **Mississippi River:** Flooded in 1973.
- **Flooding:** Occurred in various locations from Illinois to Louisiana.
- **Impact:** Millions of acres of land were flooded.
- **Cause:** Natural and human-induced factors.

---

**Event 1973**

EVENT MISSISSIPPI RIVER FLOODES

**Event Notification Report**

<table>
<thead>
<tr>
<th>Type of Event</th>
<th>Geophysical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Occurrence</td>
<td>10 April 1973</td>
</tr>
<tr>
<td>Location of Event</td>
<td>St. Louis, Missouri, USA</td>
</tr>
<tr>
<td>Reporting Source</td>
<td>U.S. Army Corps of Engineers</td>
</tr>
</tbody>
</table>

**Facts**

- **Mississippi River:** Flooded in 1973.
- **Flooding:** Occurred in various locations from Illinois to Louisiana.
- **Impact:** Millions of acres of land were flooded.
Virtually the entire population of Williamsburg, Michigan, and several families from Acme, Michigan have been evacuated due to the eruption of underground water and gas that has caused about 1000 petroliers and gas-boring geysers to appear on the surface. First observed on 18 April, the site is on the southern shore of Grand Traverse Bay, Lake Michigan, about ten miles east of Traverse City, Michigan (44° 41' 20.8" N, 86° 22' 39.0" W). The area affected is approximately nine square miles. The geysers that formed measure from a few inches up to 21 feet in diameter, and 15 feet deep. Some of them ejected muddy water to a height of four feet, while others appeared to bubble.

The gas that is escaping is methane, found here in a geological formation called the Niagara lift of strata, 600 feet below the surface. It is theorized that the gas may be leaking from a gas well recently drilled at a site four miles south of Williamsburg by the Amoco Production Co., a subsidiary of Standard Oil Co. of Indiana.

The eruption occurred amidst hundreds of volcanic geysers to appear on the surface. The event is being investigated by the United States Department of Natural Resources and by the Amoco Production Co. Dr. Sidney Dyer, of the U.S.R., is in charge of the geologists on the Spill.

The lake, which covers several square miles, harbors a large number of waterfowl. Many species of ducks breed there as well as many wading birds. The area, owned by the refinery, has become an important breeding area and migration stop.

The amount of oil that spilled out of the pipeline was unknown as was the site of the spill itself. It was first detected on 29 April. Between 2,000-10,000 gallons were estimated as having leaked as a result of the oil. A fire broke out in the area at the time the spill was discovered. The wind had blown the oil so that the entire lake became covered with a slick and heavy crust of oil piled up along the edge.

Some of the ducks affected by the oil included large numbers of mallard, pintail, canvasback, blue-winged teal, ring-necked duck, and redheads. Many of these ducks, as well as others, were affected by the oil.

**SMITHSONIAN INSTITUTION**

**CONTENTS OF SPILL**

- Mallard
- Canvasback
- Blue-winged teal
- Ring-necked duck
- Redhead

**EVENT 55-73**

**KILAUEA VOLCANIC ERUPTION - 1973**

**A**

**EVENT NOTIFICATION REPORT:**

**TYPE OF EVENT**

**BIOLGICAL**

**DATE OF OCCURRENCE**

**29 APRIL 1973**

**LOCATION OF EVENT**

**ISLAND OF HAWAII, U.S.A.**

**REPORTING SOURCE**

**UNIVERSITY OF HAWAII, USA**

**SOURCE CONTACT**

**DR. DONALD W. PETTINGER, HAWAII VOLCANO OBSERVATORY**

**EVENT DESCRIPTION:**

Kilauea Volcano erupted spectacularly on 5 May 1973, with lava fountains reaching a height of 300 feet. This eruption occurred amidst hundreds of volcanic eruptions, ten days after a 6.2 Richter magnitude earthquake shook the island.

By 6 May the volcano was in a deflated condition. The Chasm of Craters, the main lava flow, and the Kilauea Iki area had been devastated by the lava flow.

The eruption on 5 May was only the second time in 60 years that an eruption went up a water channel instead of down.

As of 7 May the volcano had reverted to a more normal state of activity.
### May 15, 1973

**NORTH OIL PIPELINE RUPTURE**

At about 8:30 p.m. on May 2, an estimated 176,000-200,000 gallons of No. 2 diesel fuel oil spilled from a pipeline rupture near Murray, Idaho. The pipeline, operated by the Yellow Pipeline Co. of Spokane, extends from Billings, Montana to Spokane, Washington. The fuel oil line was shut down within 5 minutes of the rupture, but oil continued to drain from the pipe until a valve 9 miles away was shut off more than 3 hours later.

Efforts were made to keep the fuel from seeping into Prichard Creek, 6,000 feet southeast of the rupture. Prichard Creek drains into the North Fork of the Coeur d'Alene River and into Coeur d'Alene Lake. Officials at the scene reported that they were building a trench lower than the water table in an attempt to catch the oil before it entered the creek. It was determined that the oil was seeping through the ground to the west, parallel to Prichard Creek, at a rate of about 1,000 feet per day. Because the creek canyon narrows to about 300 yards in width about a mile from where the leak occurred, the oil would be forced into the creek unless precautions were taken to stop it. The oil was to be skimmed off of the top of the water that flowed into the trench. A skimming device was also set up over the creek next to the trench to divert any oil feeding into it.

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### May 16, 1973

**WINNIBAD PASSAGE OIL SLICK**

The following is an Ecology Spot Report from the U.S. Navy Ecology Report Network:

**TYPE OF EVENT**

1. **BIOLOGICAL**

**DATE OF OCCURRENCE**

14 MAY 1973

**LOCATION OF EVENT**

WINNIPEG PASSAGE

**REPORTING SOURCE**

U.S. NAVY ECOLOGY REPORT NETWORK

**CONTACT**

CHIEF, NAVAL OPERATIONS, U.S.S. NEW YORK

**DESCRIPTION**

Petroleum slick trail intermittent and oriented on 200°-210° true north.

**SOURCE CONTACT**

WILLIAM NEWELL

**SANITARY ENGINEER**

U.S. ENVIRONMENTAL PROTECTION AGENCY

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### May 17, 1973

**CHELSEA LANDSLIP**

A large landslip occurred near Chelsea in the Province of Quebec, just north of Ottawa, Ontario, on May 16, 1973. The slide started at 2:30 p.m. when a 1,000-foot section of Quebec's new Highway 5 suddenly caved in, dropping nearly 30 feet.

Thousands of tons of mud and rock shifted, leaving a path of destruction nearly a mile long and temporarily closing Highway 11. (A burnout had not been poured on embankment, which runs two miles west of Highway 11, work crews were still leveling and filling the route.)

The mass of clay and mud gorged a channel 200 yards wide, eroding trees and roadsides and blocking the banks of the river to more than 30 feet. The slide stopped at the Canadian Pacific Railway embankment, east of Highway 11 and just west of the Gatineau River.

The landslip occurred in an area where terrain instability, especially after heavy rain, is well-known due to the uncertain properties of the Pleistocene Edey Clay.

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### May 31, 1973

**REAR GLACIER SURGE**

The Bear Glacier at the head of the 57-mile-long Yitk Valley, part of a huge ice field in the heart of the Arctic Highlands, is one of the glaciers that rise in the ice field in the 46-mile-long Fedchenko Glacier, longest in the Soviet Union. The Bear Glacier is rapidly advancing at the present time, and this has caused a serious flood threat to the Yitz Valley. The threat to the valley derives not from the glacier itself, but from two huge temporary mountain lakes that have been building up inside valleys as the rapidly surging stream of ice plugs up valley mouths. As temperatures rise over the next few weeks, the dammed lakes are expected to wash out the ice barriers, unleashing the expected flood into the valleys. The Bear Glacier, known as the Medved, is one of the world's pulsating glaciers, which surge forward at unusually high rates at irregular intervals, then retreat and advance suddenly again. The phenomenon has been attributed to the accumulation of ice at the lee side of the glacier, causing tremendous pressure to build up periodically and rapidly. The advancing glacier front is 4,000 feet high and 1,000 feet wide. The advance was first detected on May 9, 1973. During the surge it has reached rates of 30 feet per day. In 1973, it took two months before a jammed-up lake in a tributary valley broke through the ice barrier to breach the Yitz Valley. The flood was of such magnitude as to raise the level of the Yitz River by 12 feet at the town of Vech 15 miles downstream from the glacier. According to the latest progress report, 150 million cubic feet of water have already accumulated, compared with about 200 million in 1973.
EVENT 77-73  ESSO BRUSSELS OIL SPILL

On Saturday, 2 June at 12:41 a.m., the Sea Witch, a container ship owned by American Export Lines of New York City, collided with the tanker ESSO Brussels owned by ESSO Marine of Antwerp, Belgium. The ESSO Brussels was moored at a federal anchorage in New York harbor and had just completed loading 6000 barrels of Nigerian crude oil at the time of the accident. She carried a total of 9,215,000 gallons of oil. The Sea Witch was outbound for Aruba and carried a general cargo.

The amount of oil spilled is not known. Some of the oil was burned off in the violent explosion which followed the crash. The oil which did not spill will be recovered from the ESSO Brussels as soon as the ship's cool sufficiently. A northwest wind and outgoing tides pushed much of the oil involved in the spill out to sea. Some of the viscous, tar-like oil has come up on the beaches of Staten Island and Coney Island. Three companies, Coastal Services, Inc., of Elizabeth, New Jersey; Chase Water, Inc. of Ton's River, New Jersey; and Metropolitan Petroleum Co. of New York City, New York, were contracted to help with the clean-up, which is under the control of the Coast Guard and the Federal Environmental Protection Agency. The oil is being piled up with pickforks. The clean-up is expected to be completed by the end of this week.

EVENT 79-73  SANTA BARBARA OIL SLICK

On 4 June 1973, the oil tanker, the Sea Witch, collided with the10-foot oil stick off the Santa Barbara coast in California. Coast Guard helicopters estimated the slick to be 5 miles long and 50-75 yards wide by Tuesday, 5 June. The quantity of oil involved is not known.

Divers reported the entire undersea area to be rock-marked with holes from 6 to 37 inches in diameter out of which gas was bubbling. Schools of smelt and anchovies, several seals, and a shark were seen swimming normally in the area, apparently unaffected by the oil. No damage to birds or marine life has been reported.

The slick is now running parallel to the coast about 1.5 miles offshore and is oil has washed up on the beaches so far, and no clean-up is being attempted. The cause of the sudden increase in natural seepage is not known.

EVENT 84-73  JAPANESE SEAWEED INTRODUCTION TO ENGLAND

A species of Japanese seaweed, Sargassum muticum, has been introduced to England's South coast along the shores of Pembroke and the island of Wight. The seaweed has been growing in this region for at least two years and is threatening local seaweed species. The manner of introduction of Sargassum muticum to Great Britain is unknown.

Sargassum muticum grows to a height of about 3 meters. The rate of growth is 1 to 2 centimeters per day. It grows on rocky shores and its range extends from the beach to a mile out from shore.

The foreign seaweed is being removed by hand from the beaches. It is hoped that it will eventually be eliminated.

EVENT 85-73  TITIA VOLCANIC Eruption

The Tiatia volcano began erupting several months ago after a 161-year period of inactivity. (In August 1812 there were normal eruptions, and in the middle of the 19th century small volcanic fields and vayors.)

During the current activity a crater has formed at the northwest end of the eastern slope and is ejecting ash at one-second intervals. The eruption cloud reaches a height of 5 kilometers above the summit, and flames can be observed at night.

The eruptions are audible up to a distance of 30 kilometers from the volcano, and the depth of ash near the volcano measures up to 70 cm thick.

Tiatia is a stratovolcano of the same type, located at the northeastern extremity of Kamchatka Island. The geographical position of the central vent of this volcano is latitude 54°17'N, longitude 144°10'E. The height above sea level is 1842 meters.
EVENT 93-73 NISHINO-SHIMA SUBMARINE VOLCANIC Eruption

A small submarine volcanic eruption near Nishino-shima Island was reported to have occurred at about 11:00 a.m. on 30 May 1973. The crew of the Fishing boat Daiki-Ibis announced that they observed a column of smoke rising from the surface of the sea east of the island at intervals of a few minutes. During an aerial inspection by the Japan Maritime Safety Agency on 31 May, the point of eruption was estimated to be about 400 meters east of Nishino-shima. A hot spot was noticed around the site, and yellowish-green water with floating bush-like objects was seen about five kilometers north of the site. According to Dr. Takashi Tada, the National Science Museum, Tokyo, the crew of the Tokai Daini-Ebisu, E. of Tokai University observed two black rocks protruding 1.7-1.5 meters above the sea surface during a survey south of Nishino-shima at 1000 on 31 July 1973. A fan-shaped yellow-belt of water about 3 kilometers long was moving at a rate of 3 knots.

Nishino-shima Island is located at latitude 27°41.6'N, longitude 140°52.6'E. It is 650 m long by 200 m wide, and the highest point of land is 75 m above sea level. There is no historical record of an eruption on the island, nor of a submarine eruption around it.
There has been an infestation of hemlock looper, or geographic inch worm, in Essex County, Massachusetts. This infestation primarily attacks hemlock trees.

The infestation actually began two years ago. It was not serious the first year, but was fairly heavy in 1972. This year reports indicate that the infestation is even heavier and more widespread. Outbreaks such as this normally collapse after 2-3 years. The last hemlock looper outbreak in Essex County occurred 20 years ago. There is no record before that.

An aerial survey has not yet been conducted this year. Last year's survey showed damage in the towns of Essex, Manchester and West Gloucester. It was thought that there was damage to pine and hickory, but this did not show from the air.

After the moths mate, the eggs are laid on the twigs and needles of the hemlock. When the caterpillars hatch, they are very small and develop slowly. The feeding (1973) has just begun.

During the infestation 20 years ago, DBT was used for control. Since DBT can no longer be used, there is no totally effective means of controlling the insects. Sevin is a compound which is being used to fight the current infestation. The caterpillars are presently in their most vulnerable stage.

---

There have been numerous forest fires in the western United States of America. In the past week and a half, fires have had a major impact on the environment. As of Tuesday, 21 August there were 25 uncontrolled large fires in the western U.S.A. A total area of about 32,000 sq. km. (12,000 acres) was affected. This included fires in private, state, and federal land.

The fires that occurred in the national forests of the western U.S.A. were as follows:

- Granite Fire, Stanislaus National Forest, 6.70 sq. km. (1,700 acres), brought under control Tuesday 21 Aug.
- Fire, Boise National Forest, 10.00 sq. km. (2,500 acres). Under control.
- Fire, Lolo National Forest, 12.00 sq. km. (3,000 acres). Brought under control on 21 Aug.
- Fire, Flathead National Forest, 16.00 sq. km. (6,200 acres). Under control.
- Fire, Coeur d'Alene National Forest, 19.60 sq. km. (7,600 acres). Under control.
- Fire, Okanogan National Forest, 22.00 sq. km. (8,500 acres). Under control.
- Fire, Wallowa National Forest, 22.10 sq. km. (8,600 acres). Under control.
- Fire, Coconino National Forest, 29.60 sq. km. (11,500 acres). Under control.
- Fire, San Juan National Forest, 33.00 sq. km. (12,700 acres). Under control.
- Fire, Kootenai National Forest, 33.00 sq. km. (12,700 acres). Under control.
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Heavy rainfall on the mountains of Kashmir sent water surging through rivers such as the Indus and Jhelum two weeks ago. The waters of the Indus abruptly flooded towns in the Indus valley and brought flash floods to the area. Floodwaters, which flooded the region, reached up to 20 feet. The population of Kashmir was estimated to be 250,000 people. However, many people were missing, and more than 200,000 houses have been destroyed.
### Santiaguito Volcanic Eruption

The following report is based on information received from Dr. Samuel Bonis:

The Santiaguito Volcanic Dome erupted violently on 17 September 1973. Large volumes of ash were produced which have now spread far away as Chiquitos, Mexico. The ash cloud was apparently associated with a nude ardente which descended from the Dome to the valley of the Rio Chiquitos. No damage to populated areas was reported so far from this eruption. The ash is expected to continue for some time.

Significant change. Previously blocky lava flows continuously active since it first appeared in 1922. The eruption went on and on until about 200,000 acres of forest have been affected last year for the next fiscal year.

#### Event Details

**Date of Occurrence:** 17 September 1973

**Location of Event:** Guatemala

**Source:** Dr. Samuel Bonis

**Event Notification Report:**

**Type of Event:** Volcanic

---

### Tussock Moth Outbreak

**Type of Event:** Biological

**Date of Occurrence:** 1972-1973

**Location of Event:** United States of America

**Source:** USDA Forest Service, Staff Researcher

**Event Notification Report:**

**Type of Event:** Biological

---

### Pine Looper Outbreak

**Type of Event:** Biological

**Date of Occurrence:** 1973

**Location of Event:** Massachusetts

**Source:** USDA Forest Service, Staff Researcher

**Event Notification Report:**

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### Event Table

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<tr>
<th>Event</th>
<th>Date of Occurrence</th>
<th>Location</th>
<th>Source</th>
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<td>Santiaguito Volcanic Eruption</td>
<td>17 September 1973</td>
<td>Guatemala</td>
<td>Dr. Samuel Bonis</td>
</tr>
<tr>
<td>Tussock Moth Outbreak</td>
<td>1972-1973</td>
<td>United States of America</td>
<td>USDA Forest Service, Staff Researcher</td>
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<tr>
<td>Pine Looper Outbreak</td>
<td>1973</td>
<td>Massachusetts</td>
<td>USDA Forest Service, Staff Researcher</td>
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</table>
EVENT 139-73
SAKURAZIMA VOLCANIC ACTIVITY

The Minamidake summit crater of the Sakurazima volcano has been quite active throughout most of 1973.

In June, four explosions occurred on the first of the month, with the last reaching an altitude of 5,000 meters, and large quantities of ash, dust, and gas being emitted. In July, explosive eruptions took place on the 20th and the 22nd. In August there were a total of 17 explosions. Of the 19 explosions taken as a total, the smoke reached an elevation of 4,000 meters, and on 24 August 3,000 m. Activity increased significantly in September and October, with 14 explosions recorded. In November, maximum height of smoke 3,000 m, and 68 explosions during the first 18 days of November. The explosion on 18 October was the 7th of this year. The maximum height of the volcanic smoke was 3,000 m, and 68 explosion earthquakes were frequently recorded at the Kagoshima Local Meteorological Observatory.

EVENT 145-73
BOLOGNA OIL SLICK

On 9 November, 1973, a large quantity (tons) of heavy oil was observed on the Bologna River. In the vicinity of the village of Fossobonetto in northeastern Hungary. The original oil slick was about 8 km in length. A later date, however, some smaller oil slicks were also observed. The oil appeared to be passing down the Bologna River. In order to prevent further advance of the slick towards the Fluss River, the second largest river in Hungary. A large quantity of oil was brought to the scene for use as a floating medium for the oil.

EVENT 146-73
PROBABLE VOLCAN WOLF Eruption

A "Galapagos National Park wardens on west flank of Volcan Wolf two weks ago heard strong and constant rumbling from caldera. The rumble could be heard at the coast 6 km from the caldera rim and continued through the night. No reports of overflow clouds, but clouds frequently observed and volcano cannot be seen from inhabited parts of archipelago. Darwin Station personnel report no unusual seismicity but earthquake swarm early this year. (See Event Card 1558) apparently centered on the southeast flank of Wolf, the site of the last eruption (1969), and best-located on March 19, 1973. Darwin Station party is now en route to investigate and SKYLAB II photographs. The last recorded explosion of this, the northernmost shield volcano on the larger Galapagos Is., was on the southeast flank in 1968 and 1963. The equator crosses the south end of the caldera at 1.3 km, and the rim is 6 km in diameter. 270 meters above the sea, and 670 meters above the caldera floor. Reports of Galapagos volcano in early August of this year appeared to have been influenced by NASA press release on successful SKYLAB photography of "Galapagos Eruptive Centers. No telengas eruption was sighted by SKYLAB II but shortly after the press release emerged from Iquitos rivers and lights were reported from the volcano at Cape Berkeley, N.W. Isabella. These reports have been investigated on the volcano by Darwin Station personnel and no evidence of an eruption has been found. The only other Galapagos eruption known since the 1969 Fernandina caldera collapse is the 1972 Fernandina eruption reported in June of this year (Event Card 1559). We now have a more accurate date for this eruption and one that occurred April 25. During telephonic notification of the Wolf activity to Dr. Bert Lordwulfe, we have learned that the eruptive activity prior to this time in mid-July of 1973. It but was not reported to the Darwin Station or other Galapagos workers.

EVENT 150-73
GALAPAGOS ISLANDS ERUPTIONS

On 13 December, 1973, a large quantity of heavy oil was observed on the Bologna River. In the vicinity of the village of Fossobonetto in northeastern Hungary. The original oil slick was about 8 km in length. A later date, however, more smaller oil slicks were also observed. The oil appeared to be passing down the Bologna River. In order to prevent further advance of the slick towards the Fluss River, the second largest river in Hungary. A large quantity of oil was brought to the scene for use as a floating medium for the oil.

EVENT 152-73
SKYLAB REPORTING SOURCE

"Observations from space show eruption on Volcan Farnandina, support previous indication of eruption on Volcan Wolf (Card 1749), and suggest strong thermal activity on Volcan Darwin. WNO-2 satellite recorded seismicity on Wolf, showing new area with seismic activity. Also observed were: 1. Seismic activity on Wolf, most of it at 1334 December 11 and described the flare of the Wolf, the second largest river in Hungary. A large quantity of oil was brought to the scene for use as a floating medium for the oil.

EVENT 154-73
GALAPAGOS ISLANDS ERUPTIONS

"Only known Galapagos eruptions in last month are 1452 December 11 (Mi 3.9), 1552 December 10 (M 4.2), and 1012 December 11 (Mb 3.9). Exact locations not yet available. No reports yet from Darwin Station party investigating event on ground."

EVENT 155-73
SYNTHETIC INSTITUTION

"Galapagos National Park wardens on west flank of Volcan Wolf two weeks ago heard strong and constant rumbling from caldera. The rumble could be heard at the coast 6 km from the caldera rim and continued through the night. No reports of overflow clouds, but clouds frequently observed and volcano cannot be seen from inhabited parts of archipelago. Darwin Station personnel report no unusual seismicity but earthquake swarm early this year (See Event Card 1558) apparently centered on the southeast flank of Wolf, the site of the last eruption (1969), and best-located on March 19, 1973. Darwin Station party is now en route to investigate and SKYLAB II photographs. The last recorded explosion of this, the northernmost shield volcano on the larger Galapagos Is., was on the southeast flank in 1968 and 1963. The equator crosses the south end of the caldera at 1.3 km, and the rim is 6 km in diameter. 270 meters above the sea, and 670 meters above the caldera floor. Reports of Galapagos volcano in early August of this year appear to have been influenced by NASA press release on successful SKYLAB photography of "Galapagos Eruptive Centers. No telengas eruption was sighted by SKYLAB II but shortly after the press release emerged from Iquitos rivers and lights were reported from the volcano at Cape Berkeley, N.W. Isabella. These reports have been investigated on the volcano by Darwin Station personnel and no evidence of an eruption has been found. The only other Galapagos eruption known since the 1969 Fernandina caldera collapse is the 1972 Fernandina eruption reported in June of this year (Event Card 1559). We now have a more accurate date for this eruption and one that occurred April 25. During telephonic notification of the Wolf activity to Dr. Bert Lordwulfe, we have learned that the eruptive activity prior to this time in mid-July of 1973. It but was not reported to the Darwin Station or other Galapagos workers."
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<tr>
<th>EVENT</th>
<th>DATE</th>
<th>BIOLOGICAL VOLCANO ACTIVITY</th>
<th>REPORTING SOURCE</th>
<th>LOCATION</th>
<th>SOURCE CONTACT</th>
</tr>
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<tbody>
<tr>
<td>20 DECEMBER 1973</td>
<td>1779.</td>
<td>STRA'S VOLCANO ACTIVITY</td>
<td>SHEPPARD</td>
<td>NEW YORK CITY</td>
<td>NEW YORK</td>
</tr>
</tbody>
</table>

We are presently observing Ersa'dale from both air and land. A new track has been built by M.H. Nanenggale Sengon, Governor Tigre Province, reaching the crater. I was personally at the crater for the last two nights; and both craters are still active with permanent lava-lake activity and fountaining.

Eruptions are frequently observed from both craters, filling the main elliptic sink and even overflowing the sink towards the south.

An eruption also recently occurred on the northern flank, some 100 m. long, in a northerly direction. The center of eruption of this flow is located on the northern edge of the crater and is still active (lava lakes).

"I intend to return to Ersa'dale within a few days and also during the first days of January;"

<table>
<thead>
<tr>
<th>EVENT</th>
<th>DATE</th>
<th>BIOLOGICAL OIL SPILL</th>
<th>REPORTING SOURCE</th>
<th>LOCATION</th>
<th>SOURCE CONTACT</th>
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<tbody>
<tr>
<td>4 JANUARY 1974</td>
<td>1768.</td>
<td>DUCK ISLAND OIL SPILL</td>
<td>L. J. EISEN</td>
<td>NEW YORK CITY</td>
<td>NEW YORK</td>
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</table>

On 3 January 1974 an oil tank at the Mobil Oil facility on Duck Island just south of Trenton, New Jersey ruptured and 600,000 gallons of No. 2 fuel oil spilled out. 370,000 gallons were contained within the dike system surrounding the tank, 10,000 gallons were trapped in a swamp and about 20,000 gallons entered the Delaware River. Approximately five miles of the river were affected (the river is a mile wide in the area of the spill).

The oil trapped by the dikes is being returned to the tank through a separator system. Oil is being removed from the swamp and the Alco Clean-up Company has been contracted to clean up the water.

The extent of the damage to the flora and fauna of the river and swamp is unknown at present.

<table>
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<tr>
<th>EVENT</th>
<th>DATE</th>
<th>BIOLOGICAL FOREST FIRES</th>
<th>REPORTING SOURCE</th>
<th>LOCATION</th>
<th>SOURCE CONTACT</th>
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<tbody>
<tr>
<td>10 JANUARY 1974</td>
<td>1771.</td>
<td>LA PAMPA PROVINCE FOREST FIRES</td>
<td>N. M. B. EISEN</td>
<td>B ENF. AIRES</td>
<td>ARGENTINA</td>
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</table>

Fires in the woodlands of La Pampa Province are reported to have been the worst in Argentina history and to have consumed over 505,000 hectares (1.2 million acres). The fires were reported at several locations in La Pampa Province near General Acha, La Commana, El Palmar, Falchich, and Guachilloque. A fire was also reported just across the border near San Juan de Garay, Rio Negro Province.

The first fire started on 16 December and the initial fires lasted ten days. However, other fires started from time to time. All fires were reported out on 6 January. Thus the fires burned the woodlands over a period of about 11 days.

During the period of the fires, weather conditions were reported to have been very hot (the report indicated 110°F) and generally windy, with frequent changes of wind direction. There were some thunder storms. However, while rain from such storms had some attenuating effect, it is also apparent that some of the fires were started by the lightning.

It is estimated that some 500 persons were involved in fighting the fires. Methods tried included clearing trees with bulldozers and shovels and counter-fires. Agencies involved in investigating and controlling the fires were as follows: Direction Provincial de Vialidad, Direction de Defensa Civil de la Pampa, Comision Nacional de Emergencia Agropecuaria, Direction Nacional de Bosques de la Pampa. All of these agencies are affiliated with the Provincial government in the capital, Santa Rosa.
### EVENT 11-74

**PACIFIC SUBMARINE VOLCANIC ERUPTION**

- **DATE OF OCCURRENCE**: 21 January 1974
- **LOCATION**: Between Volcanic Islands and Mariana Islands, Pacific Ocean
- **REPORTING SOURCE**: Hawaii Institute of Geophysics, Honolulu, Hawaii
- **SOURCE**: Rockne Johnson, Escuela Politecnica Nacional, Quito, Ecuador
- **SOURCE CONTACT**: Dr. Minard L. Hall

Dr. Johnson reported the following to the Center:

"Sofar hydrophone records from Wake and Midway Islands indicate a sustained submarine volcanic eruption near 23°N latitude, 144°W longitude. Eruption began the day the report was first detectable about 1800 GMT, 25 September 1973 and was continuing unabated as of 14 January 1974.

"The activity was explosive. The indicated location is about 40 km north of a similarly detected submarine eruption site of 6-7 July 1972."

The subject area is approximately 250 miles (400km) southeast of Iwo Jima, and 580 miles (930km) north of Guam.

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### EVENT 9-74

**REVENTADOR VOLCANIC ACTIVITY**

- **DATE OF OCCURRENCE**: December 1973
- **LOCATION**: Area between Volcanic Islands and Mariana Islands, Pacific Ocean

Dr. Hall reported the following by cable:

"Visited Reventador on 15 Dec 1973 for one hour. Cone (1,000 feet high) in SW corner of caldera in eruption. Vapor plume, 1 km long, heads SW. Considerable noise from crater, no explosions, no material being ejected. Small lava lake in crater. Narrow lava flow 1.5 km long leaves cone, flows due E down cone and out onto plain. Flow began Nov. 1973 and is in motion. It is a blocky flow of olivine-rich basaltic andesite. The flow is dark black in color, but grey on sides due to fresh exposure of new material by avalanching. Flow slowly heads E for main road, oil pipe line, and Rio Coca. To N, extensive mud flow (some long, 1 km wide), grey in color, flowed NE. Black basalt flow of July 1972 lies immediately W of labor. Flowed NE from cone. N side of cone: grey and black blocky flows up to 5km long. W side: grey flows one-half as long about against caldera wall. S side: same as W side. SE side: overgrown flows, green in color. Flow extends outward, dense green jungle. Area of recent activity, and not overgrown by jungle, approximately 4km in diameter. Plan expedition for longer stay in Feb. 1974.

Report on Sangay Volcano (Lat 00°02'S., Long 78°20'W). Continual quiet eruption. Much explosive activity. Smoke plume leaves crater every 20-30 minutes. No data about flows or ejecta."

(Reports on these volcanoes are quite rare because of their inaccessibility.)

---

### EVENT 11 January 1974

**EVENT NOTIFICATION REPORT**

- **TYPE OF EVENT**: Geophysical
- **DATE OF OCCURRENCE**: December 1973
- **LOCATION OF EVENT**: Self-contained

**REPORTING SOURCE**: U. S. National Aeronautics & Space Administration

**SOURCE CONTACT**: Dr. Minard L. Hall

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### EVENT 17 January 1974

**EVENT NOTIFICATION REPORT**

- **TYPE OF EVENT**: Geophysical
- **DATE OF OCCURRENCE**: September 1973 and continuing
- **LOCATION OF EVENT**: Area between Volcanic Islands and Mariana Islands, Pacific Ocean

**REPORTING SOURCE**: Hawaii Institute of Geophysics, Honolulu, Hawaii

**SOURCE**: Rockne Johnson, Escuela Politecnica Nacional, Quito, Ecuador

**SOURCE CONTACT**: Dr. Minard L. Hall

---

### EVENT 25 September 1973

**EVENT NOTIFICATION REPORT**

- **TYPE OF EVENT**: Geophysical
- **DATE OF OCCURRENCE**: September 1973
- **LOCATION OF EVENT**: Area between Volcanic Islands and Mariana Islands, Pacific Ocean

**REPORTING SOURCE**: Hawaii Institute of Geophysics, Honolulu, Hawaii

**SOURCE**: Rockne Johnson, Escuela Politecnica Nacional, Quito, Ecuador

**SOURCE CONTACT**: Dr. Minard L. Hall

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APPENDIX B

SAMPLE CABLE MESSAGES
"SKYLAB - SHORT-LIVED EVENT ALERT PROGRAM DAILY STATUS REPORT."


EVENT: NISHINO-SHIMA SUBMARINE VOLCANIC ERUPTION

STATE/COUNTRY: BONIN ISLANDS, JAPAN

LOCATION: LAT: 27 DEG 15 MINS N. LONG: 140 DEG 54 MINS E.

DESCRIPTION: NISHINO-SHIMA ERUPTION HAS FORMED CHAIN OF CINDER CONES ABOVE SEA SURFACE. NEW INSULAR VOLCANO APPEARED ABOVE SEA 600 METERS SOUTHEAST NISHINO-SHIMA ON 14 SEPT. ISLAND WAS 120 METERS DIAMETER WITH 70 METER DIAMETER CRATER. SMOKE EJECTED TO 1500 METERS HEIGHT. CHAIN OF CINDER CONES RUNS SOUTHWEST TO NORTHEAST AND IS 600 METERS IN LENGTH. ERUPTIONS NOW OCCURRING AT INTERVALS OF 1 TO 10 MINUTES WITH WATER PLUMES, VOLCANIC BLOCKS AND ASHES. CINDER COLUMN NOW REACHES MAXIMUM HEIGHT OF 300 METERS.

GROUND TRUTH: THE SEISMOLOGICAL DIVISION OF THE JAPAN METEOROLOGICAL AGENCY, TOKYO, JAPAN, IS CLOSELY MONITORING THIS VOLCANO AND HAS BEEN EVER SINCE IT BEGAN ERUPTING IN MAY 1973. PHOTOS HAVE BEEN TAKEN OF THE ERUPTION, BUT TEAMS OF INVESTIGATORS HAVE BEEN UNABLE TO LAND THEIR BOATS ON THE ISLANDS BECAUSE OF ROUGH SEAS.

PRIORITY: FIRST PHOTOGRAPHY: HIGHEST - TO ESTABLISH BASELINE DATA. SUBSEQUENT PHOTOGRAPHY: HIGHEST - VOLCANIC ACTIVITY HAS SLOWED DOWN CONSIDERABLY AND SOME OF THE CINDER CONES ARE BEING ERODED BY WAVE ACTION. ALL CINDER-CONE ISLANDS MAY BE COMPLETELY ERODED BY WAVE ACTION BY END OF DECEMBER.

TRACK: 13 REV: 3664 GMT: 23/085046 LIGHT CONDITION: DARKNESS

EVENT: REVENTADOR VOLCANIC ACTIVITY

STATE/COUNTRY: NAPO, ECUADOR

LOCATION: LAT: 00 DEG 05 MINS S. LONG: 77 DEG 40 MINS W.

DESCRIPTION: REVENTADOR, A STRATO VOLCANO, IS ONE OF THE MOST ACTIVE VOLCANOES IN ECUADOR, AND RISES 3485 METERS ABOVE SEA LEVEL.

REVENTADOR ON 15 DEC 1973: CONE (1,000 FEET HIGH) IN SW CORNER OF CALDERA IN ERUPTION. VAPOR PLUME, 1 KM LONG, HEADS SW. CONSIDERABLE NOISE FROM CRATER, NO EXPLOSIONS, NO MATERIAL BEING EJECTED. SMALL LAVA LAKE IN CRATER. NARROW LAVA FLOW 1.5 KM LONG LEAVES LAKE, FLOWS DUE E DOWN CONE AND OUT ONTO PLAIN. FLOW BEGAN NOV. 1973 AND IS IN MOTION. IT IS A BLOCKY FLOW OF OLIVINE-RICH BASALTIC ANDESITE, THE FLOW IS DARK BLACK IN COLOR, BUT GREY ON SIDES DUE TO FRESH EXPOSURE OF NEW MATERIAL BY AVALANCHING. FLOW SLOWLY HEADING E FOR MAIN ROAD, OIL PIPE LINE, AND RIO COCA. TO N, EXTENSIVE MUD FLOW (3KM LONG, 1 KM WIDE), GREY IN COLOR, FLOWED NE. BLACK BASALT FLOW OF JULY 1972 LIES IMMEDIATELY N OF LAHAR, FLOWED NE FROM CONE. AREA OF RECENT ACTIVITY, AND NOT OVERGROWN BY JUNGLE, APPROXIMATELY 4KM IN DIAMETER.


PRIORITY: HIGH. THIS VOLCANO VERY INACCESSIBLE AND IMAGERY FROM SKYLAB WOULD BE MOST USEFUL TO COMPARE WITH DECEMBER AND FEBRUARY GROUND TRUTH OBSERVATIONS.
TRACK: 13
REV: 3664
GMT: 23/094404
LIGHT CONDITION: DAYLIGHT
EVENT: SOUTH VIETNAM FOREST DEFOILIATION
STATE/COUNTRY: SOUTH VIETNAM
LOCATION: LAT: 11 DEG 00 MINS N. LONG: 106 DEG 40 MINS E.
TO TO
11 DEG 45 MINS N. 107 DEG 20 MINS E.

DESCRIPTION: ERTS IMAGERY OBTAINED 20 JAN 1973 (PHOTO 1181-02443) SHOWS MANY NORTH-SOUTH SWATHS OF DEFOILIATION WITH HIGH REFLECTIVITY SCATTERED IN PREVIOUSLY DENSELY FORESTED AREA APPROXIMATELY 60 KM BY 60 KM. SWATHS ARE ABOUT 10 KM LONG AND 200 METERS WIDE, AND ARE PARTICULARLY CONCENTRATED IN TWO AREAS: AT LONGITUDE 106 DEG 58 MIN EAST FROM 11 DEG 18 MIN NORTH TO 11 DEG 27 MIN NORTH, AND AT LONGITUDE 107 DEG 07 MIN EAST FROM 11 DEG 10 MIN NORTH TO 11 DEG 15 MIN NORTH. GEOGRAPHICAL CENTER OF SWATH AREA IS 107 DEG 00 MIN EAST, 11 DEG 20 MIN NORTH. DR MATTHEW MESELSON, BIOLOGICAL LABORATORIES, HARVARD UNIVERSITY, CAMBRIDGE, MASS., BELIEVES LONG-TERM EFFECTS OF DEFOILIATION WILL PROBABLY RESULT IN AFFECTED AREAS TURNING INTO SAVANNAS.

PRIORITY: HIGH. COMPARISON OF IMAGERY FROM SKYLAB WITH ERTS PHOTO VERY DESIRABLE IN ORDER TO DETERMINE CHANGES OVER ONE YEAR PERIOD, AND TO SEE WHAT CURRENT STATUS IS. WEATHER THIS TIME OF YEAR FAVORABLE FOR PHOTOGRAPHY. HIGH RESOLUTION PHOTOGRAPHY REQUESTED.

TRACK: 15
REV: 3665
GMT: 23/121504
LIGHT CONDITION: DAYLIGHT
EVENT: CHORISTONEURA POPULATION INCREASE
STATE/COUNTRY: NORTHERN MAINE, U.S.A.
LOCATION: LAT: 46 DEG 30 MINS N. LONG: 68 DEG 00 MINS W.
TO TO
47 DEG 30 MINS N. 70 DEG 00 MINS W.

DESCRIPTION: THERE HAS BEEN MASSIVE OUTBREAK OF SPRUCE BUD WORM (CHORISTONEURA FUMIFERANA) IN NORTHERN MAINE. ABOUT 3 TO 4 MILLION ACRES OF FOREST HAVE BEEN AFFECTED IN REGION. POPULATION INCREASE BEGAN 2-3 YEARS AGO BUT NUMBERS OF THESE MOTHS ESPECIALLY HIGH THIS YEAR.

MORE

20/1405Z JAN GSAO

PAGE TWO
DESCRIPTION: LAVA LAKE IN MAUNA ULU CRATER FILLED TO BRIM AND OVERFLOWED 4 NOV. FOUNTAINS WITH HEIGHTS OF 40 METERS AND OVERFLOWS CONTINUED FOR 4 DAYS. ON 10 NOV. LAVA FOUNTAINS BEGAN AS FISSURE OPENED IN PAUAHI CRATER, 6 KM SOUTHEAST KILAUEA CALDERA AND 2 KM WEST OF MAUNA ULU. ADDITIONAL FISSURES OPENED EAST AND WEST OF PAUAHI IN BELT 2 KM LONG. FOUNTAINS REACHED HEIGHTS OF 75 METERS. SLUGGISH OUTFLOW WAS CONTINUING 16 NOV. AND SUMMIT INFLATION HAS RESUMED. APPROX 100 HECTARES OF LAND COVERED BY NEW LAVA DURING PAUAHI EPISODE. APPROX 3 MILLION CUBIC METERS LAVA ERUPTED DURING THE 8 HOURS OF STRONGEST ACTIVITY.

GROUND TRUTH: DR. DONALD PETERSON, U.S. GEOLOGICAL SURVEY AND TEAM OF SEISMOLOGISTS, GEOPHYSICISTS, GEOCHEMISTS, AND VOLCANOLOGISTS CONDUCT LONG-TERM, CONTINUOUS MONITORING OF VOLCANO SEISMICITY, LAVA VOLUME, LEVELS, FLOW RATES, COMPOSITION, TEMPERATURE, ETC. CONTINUOUS RESEARCH PROGRAM INCLUDING DEVELOPMENT OF ERUPTION PREDICTION TECHNIQUES IS BEING UNDERTAKEN USING DATA FROM U.S. GEOLOGICAL SURVEY'S HAWAIIAN VOLCANO OBSERVATORY LOCATED IN HAWAII VOLCANOES NATIONAL PARK, ISLAND OF HAWAII, HAWAII.

PRIORITY: FIRST PHOTOGRAPHY: HIGHEST - TO ESTABLISH BASELINE DATA. SUBSEQUENT PHOTOGRAPHY: HIGH - TO OBTAIN SYSTEMATIC OBSERVATIONS AND TIME HISTORY OF ERUPTION PHENOMENA. MAJOR ACTIVITY USUALLY LASTS ONLY A FEW DAYS OR WEEKS. EXPECT CURRENT ACTIVITY TO STOP BY MID-DECEMBER.

DESCRIPTION: DOUGLAS FIR TUSSOCK MOTH HAS BEEN IN OUTBREAK PROPORTIONS FOR PAST TWO YEARS AND IS PRESENTLY INFESTING 700,000 ACRES OF TREES IN SUBJECT AREA. TUSSOCK MOTH IS NATIVE TO WESTERN HALF NORTH AMERICA. POPULATION EXPLOSION. RESULTS WHEN WEATHER CONDITIONS AND OTHER FACTORS ARE FAVORABLE. RESULT OF INFESTATION IS DEATH OF TREES.

DESCRIPTION: PINE LOOPER (LAMBDINIA ATASARIA PELLUCIDARIA) IS IN OUTBREAK PROPORTIONS IN SUBJECT AREA. IT IS CAUSING CONSIDERABLE DAMAGE TO PITCH PINES (PINUS RIGIDA), A MAJOR SPECIES OF PINE IN AREA. POPULATION NUMBERS HAVE BEEN BUILDING SINCE 1971 WHEN 711,000 ACRES WERE DEfolIATED. IN 1972 42,000 ACRES WERE DEfolIATED.
TRACK: 21 REV: 3671 GMT: 23/221530 TO 221605 LIGHT CONDITION: DAYLIGHT

EVENT: LA PAMPA GRASSLAND FIRES

STATE/COUNTRY: LA PAMPA PROVINCE, ARGENTINA

LOCATION: LAT: 36 DEG 00 MINS S. LONG: 64 DEG 00 MINS W.

DESCRIPTION: FIRES WERE REPORTED TO BE WORST IN RECORDED HISTORY OF ARGENTINA. BEGAN 16 DECEMBER 1973, FINALLY ENDED 6 JANUARY 1974. 1.2 MILLION ACRES WERE AFFECTED. AREA IS Densely FORESTED IN GENERAL, SEVERAL TYPES OF TREES ARE NATIVE, SOME 300-400 YEARS OLD. VAST FOREST ACREAGE DESTROYED, BUT FIRE DID NOT INVOLVE AREA OF MAJOR AGRICULTURAL IMPORTANCE, EITHER FOR CATTLE OR CROPS. HUMAN POPULATION DENSITY VERY LOW.

GROUND TRUTH: SEVERAL AGENCIES AFFILIATED WITH THE PROVINCIAL GOVERNMENT, LOCATED IN THE CAPITAL, SANTA ROSA, WERE INVOLVED IN INVESTIGATING AND CONTROLLING THE FIRES.

PRIORITY: MEDIUM. HIGH RESOLUTION PHOTOS SHOWING DEVASTATED AREAS WOULD BE USEFUL IN FOREST FIRE STUDIES.

20/1405Z JAN 6SAO

SAO905A
PP HMSC GSTS
DE 6SAO 065
23/4106Z
FM SMITHSONIAN OBSERVATORY CAMBRIDGE MASS
TO HMSC/JOHN KALLENBACH CODE TF6 PHONE 4017
JOHNSON SPACE CENTER HOUSTON TEXAS
INFO HMSC/DR WILLIAM LENOIR JOHNSON SPACE CENTER CODE CB PHONE 2222
GTS/PAUL LOWMAN CODE 644

"SKYLAB = SHORT-LIVED EVENT ALERT PROGRAM DAILY STATUS REPORT."

TRACK: 52 REV: 3782 GMT: 26/002055 LIGHT CONDITION: DARKNESS

EVENT: NYIRAGONGO VOLCANO

STATE/COUNTRY: REPUBLIC OF ZAIRE

LOCATION: LAT: 01 DEG 29 MINS S. LONG: 29 DEG 14 MINS E.

DESCRIPTION: NYIRAGONGO IS A STRATO VOLCANO WITH A 1200 METER SUMMIT CALDERA AND 400 METER CENTRAL PIT. HEIGHT ABOVE SEA LEVEL 3470 METERS, HEIGHT ABOVE LAKE KIVU 2010 METERS. LAVA LAKE 100 BY 300 METERS FREQUENTLY OVERFLOWS AND INTERCRIATIAL LAVAL FLOWS TAKE PLACE. TRUNCATED CONE OF NYIRAGONGO (FLANKED NORTH AND SOUTH BY LESSER CONES BARUTA AND SHANERU) IS SECOND MOST ACTIVE VOLCANO NORTH OF LAKE KIVU. ITS EXTERNAL SLOPES HAVE GRADIENT SOUTH OF 40 DEGREES, EAST AND WEST OF 55 TO 60 DEGREES. FROM THE RIM OF VOLCANO TO A PLATFORM 200 METERS OVER, THE SLOPES HAVE AN INTERNAL GRADIENT OF 60 TO 50 DEGREES. IN THIS PLATFORM IS SUNK THE PIT CRATER, CYLINDRICAL IN SHAPE.


PRIORITY: FIRST PHOTOGRAPHY: HIGH - TO ESTABLISH BASELINE INFORMATION. SUBSEQUENT PHOTOGRAPHY: LOW - PERMANENTLY ACTIVE LAVA LAKE CHARACTERIZES VOLCANO.
TRACK: 52 REV: 3702 GMT: 26/003459 LIGHT CONDITION: DARKNESS
STATE/COUNTRY: ETHIOPIA
LOCATION: LAT: 13 DEG 57 MINS N. LONG: 46 DEG 36 MINS E.

DESCRIPTION: ERTA'ALE IS A STRATO VOLCANO 500 METERS A.S.L. TOP OF VOLCANO ALWAYS SHOWS FUMAROLIC ACTIVITY. BASE OF VOLCANO IS IN THE DANAKIL DEPRESSION 75 METERS BELOW SEA LEVEL. ACTUAL CONE CONTAINING SUMMIT CRATER BEGINS AT HEIGHT OF 450 METERS. LAVA FLOWS AND EJECTA CONSTITUTE THE FLANKS AND FOOT OF VOLCANO. HOTTES RISE FROM FISSURES IN THE LAVA AT CRATER BOTTOM AND THE WALLS. OVERALL AREA 1600 BY 700 METERS.


PRIORITY: FIRST PHOTOGRAPHY: HIGH - TO ESTABLISH BASELINE INFORMATION. SUBSEQUENT PHOTOGRAPHY: LOW - PERMANENTLY ACTIVE LAVA LAKE CHARACTERIZES VOLCANO.

TRACK: 60 REV: 3710 GMT: 26/144053 TO 144915 LIGHT CONDITION: DAYTIME
62 3712 GMT: 26/180348 TO 180413 DAYLIGHT
EVENT: DOUGLAS FIR TUSSOCK MOTH OUTBREAK
STATE/COUNTRY: WASHINGTON, IDAHO, OREGON, U.S.A.
LOCATION: LAT: 45 DEG 00 MINS N. LONG: 116 DEG 00 MINS W.
TO TO
49 DEG 00 MINS N. 118 DEG 00 MINS W.

DESCRIPTION: DOUGLAS FIR TUSSOCK MOTH HAS BEEN IN OUTBREAK PROPORTIONS FOR TWO YEARS AND IS PRESENTLY INFESTING 780,000 ACRES OF TREES IN SUBJECT AREA. TUSSOCK MOTH IS NATIVE TO WESTERN HALF NORTH AMERICA. POPULATION EXPLOSION RESULTS WHEN WEATHER CONDITIONS AND OTHER FACTORS ARE FAVORABLE. RESULT OF INFESTATION IS DEATH OF TREES.

TRACK: 69 REV: 3710 GMT: 26/145735 TO 145745 LIGHT CONDITION: DAYTIME
EVENT: CHORISTONEURA POPULATION INCREASE
STATE/COUNTRY: NORTHERN MAINE, U.S.A.
LOCATION: LAT: 46 DEG 30 MINS N. LONG: 68 DEG 00 MINS W.
TO TO
47 DEG 30 MINS N. 70 DEG 00 MINS W.

DESCRIPTION: THERE HAS BEEN MASSIVE OUTBREAK OF SPRUCE BUDD WORM (CHORISTONEURA FUMIFERANA) IN NORTHERN MAINE. ABOUT 3 TO 4 MILLION ACRES OF FOREST HAVE BEEN AFFECTED IN REGION. POPULATION INCREASE BEGAN 2-3 YEARS AGO BUT NUMBERS OF THESE MOTHS ESPECIALLY HIGH THIS YEAR.

TRACK: 63 REV: 3713 GMT: 26/200241 LIGHT CONDITION: DAYTIME
EVENT: CHILE-BOLIVIA BORDER EARTHQUAKE
STATE/COUNTRY: POTOSI STATE, BOLIVIA
LOCATION: LAT: 22 DEG 16 MINS S. LONG: 68 DEG 00 MINS W.

DESCRIPTION: RICHTER MAGNITUDE 6.9 EARTHQUAKE OCCURRED 1842 GMT, 2 JANUARY 1973. MAXIMUM INTENSITY REPORTEDLY FELT IN CALAMA, ANTOFAGASTA PROVINCE, CHILE. MANY BUILDINGS CRACKED, REPORTS OF SCATTERED LOCAL LANDSLIDES.

GROUND TRUTH: RESEARCHERS ON SCENE ASSESSING EFFECTS OF TREMOR ON ENVIRONMENT.

PRIORITY: HIGH. EFFECTS OF EARTHQUAKE ON PHYSICAL ENVIRONMENT MAY ONLY BE VISIBLE FROM SATELLITES OR AIRCRAFT.

23/1460 Z JAN 63A0
"SKYLAB - SHORT-LIVED EVENT ALERT PROGRAM DAILY STATUS REPORT."

TRACK: 11 REV: 3503 GMT: 02/005016 LIGHT CONDITION: DAYLIGHT

EVENT: NISHINO-SHIMA SUBMARINE VOLCANIC ERUPTION
STATE/COUNTRY: BONIN ISLANDS, JAPAN
LOCATION: LAT: 27 DEG 15 MINS N. LONG: 140 DEG 54 MINS E.

DESCRIPTION: NISHINO-SHIMA ERUPTION HAS FORMED CHAIN OF CINDER CONES ABOVE SEA SURFACE. NEW INSULAR VOLCANO APPEARED ABOVE SEA 600 METERS SOUTHEAST NISHINO-SHIMA ON 14 SEPT. ISLAND WAS 120 METERS DIAMETER WITH 70 METER DIAMETER CRATER. SMOKE EJECTED TO 1500 METERS HEIGHT. CHAIN OF CINDER CONES RUNS SOUTHWEST TO NORTHEAST AND IS 600 METERS IN LENGTH. ERUPTIONS NOW OCCURRING AT INTERVALS OF 1 TO 10 MINUTES WITH WATER PLUMES, VOLCANIC BLOCKS AND ASHES. CINDER COLUMN NOW REACHES MAXIMUM HEIGHT OF 300 METERS.

GROUND TRUTH: THE SEISMOLOGICAL DIVISION OF THE JAPAN METEROLOGICAL AGENCY, TOKYO, JAPAN, IS CLOSELY MONITORING THIS VOLCANO AND HAS BEEN EVER SINCE IT BEGAN ERUPTING IN MAY 1973. PHOTOS HAVE BEEN TAKEN OF THE ERUPTION, BUT TEAMS OF INVESTIGATORS HAVE BEEN UNABLE TO LAND THEIR BOATS ON THE ISLANDS BECAUSE OF ROUGH SEAS.

PRIORITY: FIRST PHOTOGRAPHY: HIGHEST - TO ESTABLISH BASELINE DATA. SUBSEQUENT PHOTOGRAPHY: HIGHEST - VOLCANIC ACTIVITY HAS SLOWED DOWN CONSIDERABLY AND SOME OF THE CINDER CONES ARE BEING ERODED BY WAVE ACTION. ALL CINDER-CONE ISLANDS MAY BE COMPLETELY ERODED BY WAVE ACTION BY END OF DECEMBER.

TRACK: 13 REV: 3806 GMT: 02/040201 LIGHT CONDITION: DAYLIGHT

EVENT: SOUTH VIETNAM FOREST DEFOLIMATION
STATE/COUNTRY: SOUTH VIETNAM
LOCATION: LAT: 11 DEG 00 MINS N. LONG: 106 DEG 40 MINS E. TO 11 DEG 45 MINS N. 107 DEG 20 MINS E.

DESCRIPTION: ERTS IMAGERY OBTAINED 20 JAN 1973 (PHOTO 1181-02443) SHOWS MANY NORTH-SOUTH SWATHS OF DEFOLITATION WITH HIGH REFLECTIVITY SCATTERED IN PREVIOUSLY DENSLEY FORESTED AREA APPROXIMATELY 60 KM BY 60 KM. SWATHS ARE ABOUT 10 KM LONG AND 200 METERS WIDE, AND ARE PARTICULARLY CONCENTRATED IN TWO AREAS: AT LONGITUDE 106 DEG 58 MIN EAST FROM 11 DEG 18 MIN NORTH TO 11 DEG 27 MIN NORTH, AND AT LONGITUDE 107 DEG 07 MIN EAST FROM 11 DEG 10 MIN NORTH TO 11 DEG 15 MIN NORTH. GEOGRAPHICAL CENTER OF SWATH AREA IS 107 DEG 00 MIN EAST, 11 DEG 20 MIN NORTH. DR MATTHEW MESELSON, BIOLOGICAL LABORATORIES, HARVARD UNIVERSITY, CAMBRIDGE, MASS., BELIEVES LONG-TERM EFFECTS OF DEFOLITATION WILL PROBABLY RESULT IN AFFECTED AREAS TURNING INTO SAVANNAS.

PRIORITY: HIGH. COMPARISON OF IMAGERY FROM SKYLAB WITH ERTS PHOTO VERY DESIREABLE IN ORDER TO DETERMINE CHANGES OVER ONE YEAR PERIOD, AND TO SEE WHAT CURRENT STATUS IS. WEATHER THIS TIME OF YEAR FAVORABLE FOR PHOTOGRAPHY. HIGH RESOLUTION PHOTOGRAPHY REQUESTED.
EVENT: PACIFIC SUBMARINE VOLCANIC ERUPTION
STATE/COUNTRY: AREA BETWEEN BONIN ISLANDS AND MARIANA ISLANDS, PACIFIC OCEAN
LOCATION: LAT: 22 DEG 00 MINS N. LONG: 144 DEG 00 MINS E.


GROUND TRUTH: DR. ROCKNE JOHNSON, HAWAII INSTITUTE OF GEOPHYSICS, HONOLULU, SENT REPORT OF THIS ACTIVITY.

PRIORITY: HIGH. DESIRED TO COMPARE SKYLAB IMAGERY WITH HYDROPHONE REPORTS.

MORE

EVENT: REVENTADOR VOLCANIC ACTIVITY
STATE/COUNTRY: NAPO, ECUADOR
LOCATION: LAT: 00 DEG 05 MINS S. LONG: 77 DEG 40 MINS W.

DESCRIPTION: REVENTADOR, A STRATO VOLCANO, IS ONE OF THE MOST ACTIVE VOLCANOES IN ECUADOR, AND RISES 3485 METERS ABOVE SEA LEVEL.

REVENTADOR ON 15 DEC 1973: CONE (1,000 FEET HIGH) IN SW CORNER OF CALDERA IN ERUPTION. VAPOR PLUME, 1 KM LONG, HEADS SW. CONSIDERABLE NOISE FROM CRATER, NO EXPLOSIONS, N. MATERIAL BEING EJECTED. SMALL LAVA LAKE IN CRATER. NARROW LAVA FLOW 1.5 KM LONG LEAVES LAKE, FLOWS DUE E DOWN CONE AND OUT ONTO PLAIN. FLOW BEGAN NOV. 1973 AND IS IN MOTION. IT IS A BLOCKY FLOW OF OLIVINE-RICH BASALTIC ANDESITE. THE FLOW IS DARK BLACK IN COLOR, BUT GREY ON SIDES DUE TO FRESH EXPOSURE OF NEW MATERIAL BY AVALANCHE. FLOW SLOWLY HEADING E FOR MAIN ROAD, OIL PIPE LINE, AND RIO COCA. N. EXTENSIVE MUD FLOW (3 KM LONG, 1 KM WIDE), GREY IN COLOR, FLOWED NE. BLACK BASALT FLOW OF JULY 1972 LIES IMMEDIATELY N OF LAHAR, FLOWED NE FROM CONE. AREA OF RECENT ACTIVITY, AND NOT OVERGROWN BY JUNGLE, APPROXIMATELY 4 KM IN DIAMETER.


PRIORITY: HIGH. THIS VOLCANO VERY INACCESSIBLE AND IMAGERY FROM SKYLAB WOULD BE MOST USEFUL TO COMPARE WITH DECEMBER AND FEBRUARY GROUND TRUTH OBSERVATIONS.
EVENT: KILAUEA VOLCANIC ERUPTION
STATE/COUNTRY: ISLAND OF HAWAII, U.S.A.
LOCATION: LAT: 19 DEG 24 MINS N. LONG: 155 DEG 16 MINS W.

DESCRIPTION: LAVA LAKE IN MAUNA ULU CRATER FILLED TO BRIM AND OVERFLOWS 4 NOV. FOUNTAINS WITH HEIGHTS OF 40 METERS AND OVERFLOWS CONTINUED FOR 4 DAYS. ON 10 NOV. LAVA FOUNTAINS BEGAN AS FISSURE OPENED IN PAUAHI CRATER, 6 KM SOUTHEAST KILAUEA CALDERA AND 2 KM WEST OF MAUNA ULU. ADDITIONAL FISSURES OPENED EAST AND WEST OF PAUAHI IN BELT 2 KM LONG. FOUNTAINS REACHED HEIGHTS OF 75 METERS. SLUGGISH OUTFLOW WAS CONTINUING 16 NOV. AND SUMMIT INFLATION HAS RESUMED APPROX 100 HECTARES OF LAND COVERED BY NEW LAVA DURING PAUAHI EPISODE. APPROX 3 MILLION CUBIC METERS LAVA ERUPTED DURING THE 3 HOURS OF STRONGEST ACTIVITY.

GROUND TRUTH: DR. DONALD PETERSON, U.S. GEOLOGICAL SURVEY AND TEAM OF SEISMOLOGISTS, GEOPHYSICISTS, GEOCHEMISTS, AND VOLCANOLOGISTS CONDUCT LONG-TERM, CONTINUOUS MONITORING OF VOLCANO SEISMICITY, LAVA VOLUME, LEVELS, FLOW RATES, COMPOSITION, TEMPERATURE, ETC. CONTINUOUS RESEARCH PROGRAM INCLUDING DEVELOPMENT OF ERUPTION PREDICTION TECHNIQUES IS BEING UNDERTAKEN USING DATA FROM U.S. GEOLOGICAL SURVEY'S HAWAIIAN VOLCANO OBSERVATORY LOCATED IN HAWAII VOLCANOES NATIONAL PARK, ISLAND OF HAWAII, HAWAII.

PRIORITY: FIRST PHOTOGRAPHY: HIGHEST - TO ESTABLISH BASELINE DATA. SUBSEQUENT PHOTOGRAPHY: HIGH - TO OBTAIN SYSTEMATIC OBSERVATIONS AND TIME HISTORY OF ERUPTION PHENOMENA. MAJOR ACTIVITY USUALLY LASTS ONLY A FEW DAYS OR WEEKS. EXPECT CURRENT ACTIVITY TO STOP BY MID-DECEMBER.

EVENT: MASSACHUSETTS PINE LOOPER OUTBREAK
STATE/COUNTRY: PLYMOUTH COUNTY & CAPE COD, MASS. U.S.A.
LOCATION: LAT: 41 DEG 30 MINS N. LONG: 70 DEG 00 MINS W. TO TO 42 DEG 30 MINS N. 71 DEG 00 MINS W.

DESCRIPTION: PINE LOOPER (CAMEBIDIA ATHASARIA PELLUCIDARIA) IS IN OUTBREAK PROPORTIONS IN SUBJECT AREA. IT IS CAUSING CONSIDERABLE DAMAGE TO PITCH PINES (PINUS RIGIDA), A MAJOR SPECIES OF PINE IN AREA. POPULATION NUMBERS HAVE BEEN BUILDING SINCE 1971 WHEN 11,000 ACRES WERE DEFOLIATED. IN 1972 42,000 ACRES WERE DEFOLIATED.
TRACK: 19  REV: 3811  GMT: 02/143758  LIGHT CONDITION: DAWN
EVENT: DOUGLAS FIR TUSSOCK MOTH OUTBREAK
STATE/COUNTRY: WASHINGTON, IDAHO, OREGON, U.S.A.
LOCATION: LAT: 45 DEG 00 MINS N.  LONG 116 DEG 00 MINS W.
TO  49 DEG 00 MINS N.  118 DEG 00 MINS W.
DESCRIPTION: DOUGLAS FIR TUSSOCK MOTH HAS BEEN IN OUTBREAK PROPORTIONS FOR PAST TWO YEARS AND IS PRESENTLY INFESTING 750,000 ACRES OF TREES IN SUBJECT AREA. TUSSOCK MOTH IS NATIVE TO WESTERN HALF NORTH AMERICA. POPULATION EXPLOSION RESULTS WHEN WEATHER CONDITIONS AND OTHER FACTORS ARE FAVORABLE. RESULT OF INFESTATION IS DEATH OF TREES.

TRACK: 21  REV: 3813  GMT: 02/181659  LIGHT CONDITION: DAYLIGHT
EVENT: LA PAMPA GRASSLAND FIRES
STATE/COUNTRY: LA PAMPA PROVINCE, ARGENTINA
LOCATION: LAT: 36 DEG 00 MINS S.  LONG: 64 DEG 00 MINS W.
TO  38 DEG 30 MINS S.  68 DEG 00 MINS W.
DESCRIPTION: FIRES WERE REPORTED TO BE WORST IN RECORDED HISTORY OF ARGENTINA. BEGAN 16 DECEMBER 1973, FINALLY ENDED 6 JANUARY 1974. 1.2 MILLION ACRES WERE AFFECTED. AREA IS DENSLEY FORESTED IN GENERAL, SEVERAL TYPES OF TREES ARE NATIVE, SOME 300-400 YEARS OLD. VAST FOREST ACREAGE DESTROYED, BUT FIRE DID NOT INVOLVE AREA OF MAJOR AGRICULTURAL IMPORTANCE, EITHER FOR CATTLE OR CROPS. HUMAN POPULATION DENSITY VERY LOW.
GROUND TRUTH: SEVERAL AGENCIES AFFILIATED WITH THE PROVINCIAL GOVERNMENT, LOCATED IN THE CAPITAL, SANTA ROSA, WERE INVOLVED IN INVESTIGATING AND CONTROLLING THE FIRES.
PRIORITY: MEDIUM. HIGH RESOLUTION PHOTOS SHOWING DEVASTATED AREAS WOULD BE USEFUL IN FOREST FIRE STUDIES.

30/1410Z JAN GSAO