

geophysical notes

Gathered at the annual meeting of the American Geophysical Union in Washington, D.C.

NAVIGATION

Research plane flies by Omega

The Navy's Omega navigation system has been used, reportedly for the first time, by a research aircraft carrying out oceanographic measurements.

Omega, first developed in 1958, is designed to provide global navigation for ships and aircraft with only eight fixed ground stations. So far, there are stations in Trinidad, Hawaii, Norway and New York. By contrast, the commonly used Loran-A system has 83 ground stations and covers only a fraction of the globe.

The research flight served both to test the system for research use and to chart magnetic anomalies on the sea floor near Antigua in the Caribbean. Jess H. Stanbrough Jr. of Woods Hole Oceanographic Institution, Woods Hole, Mass., reports that the system proved accurate to within one-half to one nautical mile, including a 480-foot error due to electrical noise. The results, he said, were "far better than I ever anticipated."

SEISMOLOGY

Astronomy to predict quakes

Watching the heavens may be the latest way to predict earthquakes, according to Anatol James Shneiderov of the Arctic Institute of North America, Washington, D.C.

In an investigation of possible correlations between the release of seismic and volcanic energy on earth and certain astronomical events, a number of interesting relationships were observed, Shneiderov reports.

One is that in 27 passages of the moon through its point of greatest apparent latitude, 33 earthquakes occurred within a day of the event. If there were no relationship between the two events, he said, a random distribution should have produced only 23 quakes in that period.

Using this and similar observations, several earthquakes of magnitude 5.9 or greater were predicted days or weeks in advance from 1965 to 1967. Research is now being done to correlate astronomical and geologic factors, along with length-of-day and ionospheric data, from 1920 through 1970.

METEOROLOGY

Hurricanes go their own ways

A hurricane storming across the ocean apparently travels its own way, with little or no influence from the temperature of the water beneath, according to James D. McFadden of the ESSA Sea Air Interaction Lab, Miami, Fla.

It has been suggested in the past that hurricanes tend to follow warm water tongues in the ocean.

An ESSA research plane made a flight on Oct. 6, 1966, to check this theory by gathering temperature data ahead of and behind Hurricane Inez as it crossed the

Gulf of Mexico. Surface temperature was found to have little if any influence on the storm's path; at one point, Inez traveled through an area where surface temperatures were two to three degrees lower than those in a nearby region.

GEOLOGY

More evidence for continental drift

By tracking fossil trails of uranium in ancient rock samples, scientists have added more evidence to indicate that the ocean floor is expanding outward from the center of the Atlantic Ocean, gradually moving North and South America farther away from Europe and Africa.

The mid-Atlantic Ridge, from which the spreading is believed to originate, is actually two ridges with a valley down the middle. Three researchers from General Electric's research and development center in Schenectady, N.Y., and one from the Geologic Survey of Canada in Ottawa, found that the farther from the valley the samples originated, the older they turned out to be.

One sample from the center of the valley was 13,000 years old. Another, taken four miles out, was 290,000 years old; and samples from 10 and 36 miles out proved to be 740,000 and 8 million years old, respectively.

SELENOLOGY

Tektites from Tycho

While other scientists still argue about whether or not the mysterious glassy meteorites called tektites come from the moon, a NASA researcher believes he has the origin of those found in Australia pinned down to the very crater.

Theory, says Dean R. Chapman of Ames Research Center, Moffett Field, Calif., predicts that if tektites do indeed come from the moon, their landing patterns on earth depend upon the location of the crater they came from and their time of origin.

"Each lunar crater has its characteristic pattern," he says. "That corresponding to a certain ray from Tycho appears compatible with the presently known geographic patterns both of australasianite chemistry and of microtektites from ocean cores."

INFORMATION RETRIEVAL

Oceanographic data file set up

A computer system providing ready access to the vast quantity of data collected during oceanographic cruises has been developed at the Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada.

The data are filed in one-minute blocks, each with 16 variables for depth, salinity, location, date, etc., D. I. Ross of the institute reports. Using standard computer programs, the data can be refined to a special "edited data tape" on which all the data from a three-month cruise can fit on some 2,000 feet of magnetic tape.