UNCLASSIFIED - SOVIET BLOC INTERNATIONAL GEOPHYSICAL YEAR INFORMATION

(69)

PB 131632-68

INFORMATION ON SOVIET BLOC INTERNATIONAL GEOPHYSICAL COOPERATION - 1959

May 29, 1959

U. S. DEPARTMENT OF COMMERCE
Office of Technical Services
Washington 25, D. C.

Published Weekly
Subscription Price $12.00 for the Series

INTERNATIONAL GEOPHYSICAL COOPERATION PROGRAM--SOVIET-BLOC ACTIVITIES

Table of Contents

Approved For Release 1999/09/08 : CIA-RDP82-00141R000200690001-7

I. ROCKETS AND ARTIFICIAL EARTH SATELLITES

Sputnik III: 5,000 Times Around Earth

At 0154 hours Moscow time on 8 May, Sputnik III completed its 5,000th revolution of the Earth. Since it was injected into orbit, 358 days ago, the satellite has traveled a distance of 228.2 million kilometers. Despite its great weight of 1,327 kilograms, which is about 16 times greater than Sputnik I, Sputnik III was placed at a considerably greater altitude than the first Soviet satellite and has exceeded its predecessor's lifetime by a great margin. Sputnik I, launched 4 October 1957, lasted 94 days and completed 1,440 revolutions of the Earth, while Sputnik II, launched 3 November 1957, had a lifetime of 163 days, completing 2,370 revolutions.

Sputnik III's initial apogeal height was 1,880 kilometers and its orbital period, 105.95 minutes. For its 5,000th revolution, its orbital period has decreased to 99.51 minutes, and its apogee has sunk to 1,275 kilometers.

The solar and chemical batteries carried by Sputnik III are still operating, making it possible to conduct radio-technical observations of the satellite in those periods when it is illuminated by the Sun as well as when it is in the Earth's shadow. A precise knowledge of the parameters of its orbit is necessary for geographic and time fixes conducted with a satellite. For this reason, in the Soviet Union a special automatic measuring complex equipped with latest radiotechnical apparatus was created. The work of this complex made it possible to determine the elements of Sputnik III's orbit with an accuracy for exceeding that obtained during the tracking of Sputnik I.

In addition to this complex, a large number of other radio-technical means were used in observations of the satellite. From the moment of its launching till now, more than 80 optical stations and observatories scattered through the territory of the Soviet Union and more than 110 such stations in foreign countries have conducted these observations.

During the lifetime of Sputnik III, more than 29,000 ephemerides (target designations) were given to Soviet observation stations and more than 23,000 to foreign points by the coordinating-calculation center. In this same period, about 92,500 radio bearings of the inboard transmitter, "Mayak," and 10,900 results from optical observations of the satellite by Soviet observation stations and observatories and 3,820 results from foreign stations were obtained and processed. The numerous photographic and highly accurate cinetheodolite observations of the satellite and its carrier rocket are of great value.

Approved For Release 1999/09/08 : CIA-RDP82-00141R000200690001-7

V. Lutkin, lecturer at the Moscow Planetarium, says: "An enormous quantity of varied scientific data concerning the cosmos was obtained with the aid of the diverse and complex apparatus with which our third satellite was equipped. Many secrets of the cosmos are already solved. For example, investigations by satellites led to the discovery of a completely new phenomenon of exceptional interest. In the outer atmosphere, beginning with an altitude of 500-1,000 kilometers, a unique "aureole" around our planet was discovered which consists of an enormous accumulation of fast-moving, electrically charged particles possessing energies from several thousands to hundreds of thousands of electron volts. Now with the aid of the Soviet cosmic rocket, launched 2 January 1959, there have already been revealed two zones of such charged particles extending in altitude up to 40,000-50,000 kilometers from the surface of the Earth. Between the zones there is a space where the intensity is much less than in each of the zones. The composition of radiation in the zones is different. In the outer zone move low energy electrons. In the internal zone are particles of greater energy, evidently protons. Future cosmonauts must inevitably cross these zones of high concentration of particles which represent a danger to them (electrons bombarding the shell of the interplanetary rocket during braking produce X-rays which in a specific dosage are fatal to an organism). Therefore, it is necessary to provide special safeguards for the astronauts. Calculations show that even comparatively thin metal walls in a rocket can reliably protect the cosmonaut from harmful radiation.

"Experiments conducted on Sputnik III made it possible to discover curious 'ducts,' the so-called 'radio-wave ducts,' in the ionosphere at an altitude of 200-300 kilometers. Entering into these, radio waves can encircle even the entire globe. What notable prospects are opened in connection with this discovery for the future of radio and television."

The observations of Sputnik III and the processing of the scientific data obtained from it continue. ("Five Thousand Revolutions Around the Earth," Moscow, Izvestiya, Pravda, and Sovetskaya Aviatsiya, 8 May 59)

II. UPPER ATMOSPHERE

Crimean Scientific Station Builds Large Radiotelescope

A radiotelescope for receiving 3-centimeter waves from the layers of the Sun's corona was built at the Crimean Scientific Station of the Physics Institute imeni Lebedev, Academy of Sciences USSR. The device has a

diameter of 30 meters. The telescope mirror, dug into the Earth and covered with concrete and zinc, is parabolic in shape and is inclined toward the south. The highly sensitive radio apparatus receives and measures the intensity of radio waves gathered in its focus. It is possible to obtain a complete picture of the radio emission of the solar corona from the entire surface of the Sun by changing the position of the receiver horn according to the movement of the Sun.

Viktor Vitol'dovich Vitkevich, chief of the Crimean Scientific Station, states that the radio image of the Sun does not appear to be uniform. In the image, the portions with especially intensive radio emission are more sharply defined that the radiation of the solar disc. A theory existed that these portions corresponded to the solar spots, which are visible in the usual images of the Sun. However, when the "radiospots" were plotted on a photograph of the solar disc, part of them did not coincide with all of the well known sunspots. To all appearances, the portions with intensified radio emission are connected with regions of heightened temperature, namely in the solar corona. With the aid of radio images, says Vitkevich, he succeeded in detecting the "hot" portions and obtaining a picture of the distribution of the temperatures, densities and other characteristics of the solar corona, i.e., at a considerably greater altitude from the surface of the chromosphere than it is possible to do with the usual optical observations. [A photograph accompanying the article is captioned: "One of the largest radiotelescopes in the world. Its diameter--30 meters."] ("Radio Portrait of the Sun," S. Khlavna; Moscow, Znaniye-Sila, No 4, Apr 59, p 42)

New Soviet Spectrograph

Investigations of the physical properties of the upper layers of the atmosphere are being conducted in the scientific station of the Institute of the Physics of the Atmosphere, Academy of Sciences USSR, with a unique apparatus of domestic production, a patrol spectrograph. The workers of the station have at their disposal extensive materials which characterize the physical processes originating in these layers of the atmosphere as a result of observations of night airglow and aurorae. Interesting information on the luminescence of hydrogen atoms has been obtained, and much data on aurorae observed near Moscow have been gathered. [A photograph shows N. N. Shefov inspecting the patrol spectrograph.] (Moscow, Izvestiya, 29 Apr 59, p 6)

III. SEISMOLOGY

Study on Nature of Layers of Reduced Velocity in Upper Areas of Mantle

V. A. Magnitskiy (Byull. MOIP, otd. geol., Vol 33, 1958, p 15) and others have explained the physical nature of a channel at a depth of 50-200 kilometers by three effects, those of temperature, phase transitions, and variable composition. Magnitskiy points out that the temperature effect leads to a geothermal gradient at these depths of 10 degrees per kilometer, which is too high. All descriptions of the phenomenon additionally encounter difficulties in explaining the fact that the width of a channel in relation to its depth is greater for transverse S-waves (50-200 kilometers) than for longitudinal P-waves (50-150 kilometers) and that P- and S-waves open up channels for various frequency ranges. This article presents a theoretical approach which explains these facts.

The mantle is considered to have a polycrystalline structure; at sufficiently high temperatures, values of which depend on frequency, the grain boundaries undergo a viscous slipping relative to one another, which causes the abrupt decrease of the modulus of elasticity with increased temperature. It is suggested here that this effect causes the formation of a Gutenberg channel in the upper areas of the mantle.

It is shown that the lower edge of an S-wave channel in the mantle is lower than that of P-waves, i.e., the channel for S-waves is wider than the channel for P-waves, in both directions. Furthermore, the width of the channel, the velocity profile in it, and the capacity for absorbing P- and S-waves all depend on frequency. The theory affords the possibility of reducing the approximate course of the temperature in the channel on the basis of the temperature at the point of origin at a depth of 50 kilometers.

A relationship is given which denotes that the dynamic modulus is constant along the length of the channel in the interval depth of 50-200 kilometers.

The temperature gradient at depths of 50-200 kilometers is found to be on the order of 1-1.5 degree per kilometer, which is two to three times as great as the adiabatic gradient at depths of 600-800 kilometers. "On the Physical Nature of the Channels (Layers of Reduced Velocity) in the Upper Areas of the Mantel at Depths of 50-200 Kilometers," by V. N. Zharkov, Institute of the Physics of the Earth imeni O. Yu. Shmidt; Moscow, Doklady Akademii Nauk SSSR, Vol 125, No 4, Apr 59, pp 771-774)

Study on Displacement Fields in Faulting

At present the process of the origin of earthquakes is connected with the interruption of the continuity of the medium at the focus. The nature of dislocations of the media relative to the surface of the fracture at the foci occurring at various depths and in different geological conditions has been insufficiently studied, however. On the basis of existing data, it is possible to suppose that a fracture is accompanied by sliding, most probably at the foci of earthquakes.

For a true analysis of the processes at the focus it is necessary to set up formulas describing the fields of displacements in different types of faults (a fault accompanied by sliding; by separation; by a combination of sliding, separation, and the turning of one of its planes relative to the other; etc). A comparison of the displacement fields, determined by theoretical formulas, with displacements, observed during earthquakes can serve as an explanation of the peculiarities of faults at the foci of earthquakes. This work attempts the construction of the dynamic field of the displacement for different types of elastic media.

The writer has determined the field of displacement in an isotopic and homogeneous elastic space with an instantaneous dislocation of the continuity of the medium and the specific displacements of the plane of the fault. The solution is based on A. V. Voterra's theory of dislocation and is linked with the determination of the tension which is removed from the plane of the fault at the moment of its formation. The results obtained can be used in studying stresses and faults in the foci of earthquakes. ("Field of Displacements Affiliated With Breaks in the Continuity of Elastic Media," by A. V. Vvedenskaya, Institute of the Physics of the Earth, Academy of Sciences USSR; Moscow, Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, No 4, Apr 59, pp 516-526)

Earthquake in Kamchatka Region

An earthquake with a scale intensity of about VIII was recorded at 1917 hours, 4 May, in Petropavlovsk-Kamchatskiy. The focus of the quake was determined to be under the bottom of the Pacific Ocean in a southeastern direction from the shores of the Kamchatka peninsula. Buildings in the city and neighboring regions were damaged; there were one dead and 13 injured. Enterprises and institutions are operating normally. ("Earthquake in the Region of Kamchatka"; Moscow, Sovetskiy Flot, 6 May 59, p 4)

Use of Sound Recordings for Determining Distances While Conducting Deep Seismic Soundings at Sea

The Pacific Ocean Staff of the Geological-Geophysical Expedition of the Institute of the Physics of the Earth, Academy of Sciences USSR, is operating in Far Eastern USSR waters during the IGY. It is engaged in investigations of the structure of the Earth's crust in the transition zone from the Asiatic continent to the Pacific Ocean. Included in the complex of geophysical methods of research used is the method of deep seismic sounding (GSZ).

The region where the soundings are being conducted occupies a large area of the ocean and the seas, and the profiles are widely spaced and far from shore. The length of the profiles is such that the observations on them must be conducted continuously in the course of several days. Under these conditions, particular difficulties arise for determining the positions of the ships detonating the charges and the observing ships. The usual navigational methods are insufficiently accurate for GSZ purposes. Experimental operations in 1957 showed that radiogeodetic methods could not be used effectively because of the spacing of the profiles and the necessity for continuous observations.

In conducting GSZ at sea the explosions made by one ship moving along the profile are received by several seismic stations on other ships lying at drift along the line of the profile. For the interpretation of seismic data it is more important to know the relative distances from the point of the explosion to the recording ships with a high degree of accuracy than the absolute location of each ship. In regional work at sea, by which investigations are described, coordinate methods of navigation are sufficiently accurate (3-5 kilometers) for fixes.

Sound waves radiated through the water can be used for determining the distances from the point of the explosion to the observation ships. The determination of distances according to sound can be easily combined with the conduct of seismic work at sea and does not depend on the time of the day, the weather, currents, etc. This method was the basis of all GSZ work in the Okhotsk Sea and the Pacific Ocean in 1957. The time of the first arrival of the sound and the constant value of the velocity, V = 1470 kilometers per second, was used in all of the operations in determining distances.

This article considers the peculiarities of the arrival of sound in the ocean and an evaluation of the possible accuracy of the phonometric method in determining distances. The writer proposes two methods of determining distances from the explosions to the points of observation with an error of not more than one percent, which are based on an analysis of the kinematic representation of the arrival of the sound and its comparison with observed sound recordings.

The first of these methods is based on the use of the time of the very first arrival of the sound and the variable velocity which is calculated on known laws of the change in the velocity of sound in water with depth and known bottom relief. The accuracy of determining distances by this method under such conditions is not less than 0.4 percent.

The second method is based on the use of the time of arrival of the beginning of a group of recordings of the sound and the constant for all of the profile velocity. For calculating the velocity by this method it is necessary, in addition, to know the duration of the sound pulse from the explosion. The accuracy of this method is not less than 0.7 percent.

In principle, the accuracy of determining the distances by the proposed methods can be increased still more by a more detailed calculation of the change in the velocity of sound propagation with depth and by increasing the accuracy of the numerical calculations.

By the proposed methods, an estimation can be made of the accuracy of determining distances for any region with a depth of not less than 1.5 to 2 kilometers, in which the law for the change in the speed of sound with depth is sufficiently maintained in a horizontal direction. ("Use of Recordings of Sound for Determining Distances During Deep Seismic Sounding Operations at Sea," by S. M. Zverev, Institute of the Physics of the Earth, Academy of Sciences USSR; Moscow, Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, No 4, Apr 59, pp 560-569)

Method of Estimating Accuracy of Determining Earthquake Hypocenters

In considering a statistical method of estimating the accuracy in determinations of the hypocenter of an earthquake, it is suggested that the error in determining the location of the focus depends only on inaccuracies in noting the arrival time of the waves and does not depend on unconsidered heterogeneities in the medium.

An estimate of the accuracy is produced by the construction of the distribution function of the errors. [Cases for determining the hypocenter of an earthquake by the Vadati and Ishikawa methods are presented.] ("On Estimating the Accuracy in Determination of the Hypocenters of Earthquakes," by Ye. V. Glivenko, Institute of the Physics of the Earth, Academy of Sciences USSR; Moscow, Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, No 4, Apr 59, pp 527-537)

Study on Selection of Frequency Characteristics for Filters Used in Recording Seismic Signals

The principal factors determining the connection between the mode of the spectrum and the pulse duration and between the pulse form and the limiting frequency of its spectrum have been investigated by the writer. A nomographic method of determining the duration of the limiting frequency itself according to a given curve is proposed.

[Gol'tsman introduces criteria making it possible to find approximately, according to a given spectrum, the initial and terminal moments of the signal. These criteria are suitable for determining the limiting frequency of the spectrum of a given signal. It is shown that the effective duration of the pulse is determined principally by the steepness of the slope of the fronts of the separate extremums of the true and virtual components of the spectrum. The limits of the frequency of the spectrum depend on the steepness of the fronts of the separate extremums of the signals. A general conclusion is made on the basis of the obtained results which is useful in designing filters, particularly high-frequency filters.] ("On the Selection of Frequency Characteristics of Filters for Seismic Signals," by F. M. Gol'tsman, Leningrad State University imeni A. A. Zhdanov; Moscow, Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, No 4, Apr 59, pp 549-559)

IV. OCEANOGRAPHY

Scientific Expedition on Kazan' Operating in Atlantic

The expeditionary ship Kazan', flagship of the Kaliningrad Sovnarkhoz, is voyaging in the equatorial waters of the Atlantic Ocean. On board this large seagoing fishing trawler is a group of young scientific associates of the Baltic Scientific Research Institute of the Fish Economy and Oceanography.

The goals of the expedition, according to Ye. Prosfirov, leader of the group, are to determine the extent of sardine reserves discovered by the last expedition in the fishing regions of the Middle Atlantic, and also to study the distribution and behavior of this valuable fish. After fulfilling the first task, the Kazan' will proceed south from the Gulf of Guinea to the Cape of Good Hope. Here the region where another species of sardines is found will be studied. The expedition will complete the hydrophysical and hydrobiological studies of the waters of the equatorial region of the Atlantic Ocean near the shores of West Africa, which have been going on for 3 years. This will make it possible to fill in still another blank spot on Kaliningrad industrial fishing charts. ("Scientific Expedition in the Atlantic"; Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 29 Mar 59, p 1)

V. ARCTIC AND ANTARCTIC

Scientific Station at Bukhta Tiksi Built Especially for Auroral Studies

A scientific research station was created specially for observations of auroras during the IGY in the area of Bukhta Tiksi. It is situated almost in the center of a large depression, surrounded on three sides by mountains. Nikolay Ivanovich Tyabin is head of the observatory. A whole scientific settlement has developed in this location. The site was chosen specially because it was far away from industrial interference. The low station building faces the Arctic Ocean. One of the side walls, with narrow windows, is directed toward the hurricane-force northeast winds.

About 100 meters from the laboratory building is a massive metal tripod, supporting the original S-180 instrument, i.e., a system of mirrors with an automatic camera. The S-180, an invention by Prof A. I. Lebedinskiy of Moscow State University, photographs the whole firmament at the same time on a sensitive motion-picture film. Yuliy Nadubovich, graduate of Kiev University, operates this instrument.

On the elevated shore of a small lake there is another, no less original, instrument of Soviet design -- a high-dispersion, diffraction spectrograph. With the help of this instrument, Petr Sukhoivanenko studies the spectral composition of auroras.

The radar antenna is located next to the building. With its radio pulses it searches for the foci of auroras, which cannot be detected with optical instruments.

One room of the station building contains a panel with numerous buttons and miniature scales, which is operated by Andrey Smirnov, technician. He relays the photographic assignments to the movie camera of the S-180 instrument. Nikolay Bliznyuk, senior laboratory engineer, operates the radar from another room.

The next room contains the spectral laboratory. Here Petr Sukhoivanenko was recently able to determine the presence of helium and hydrogen in the spectrum of auroras.

The group of scientists conducts observations day and night, studying different processes in the auroras. The small staff consists mainly of graduates of Kiev University, who had expressed a desire to work in a difficult job.

The results of observations are sent to scientific institutions of Moscow, Leningrad, and Kiev, as well as to the Scientific Center for the Conduct of the IGY.

Based on the observations, Soviet scientists have developed an essentially new theory on the origin of auroras. Even the preliminary conclusions of Soviet scientists prompted S. Chapman, well-known British physicist and author of one of the theories on auroras and magnetic storms, to make a public statement regarding the necessity of reviewing his own theory.

The study of auroras is of great practical importance. Many people who admire the colorful spectacle of the auroras do not suspect that they present an almost insurmountable obstacle in radio communications. Polar pilots sometimes experience great difficulties because of auroras.

Scientists have set themselves the ambitious task of predicting the formation of auroras and, even more important, turning them into an ally rather than an enemy by using them for improving the propagation of radio waves. ("Mysteries of Auroras;" Moscow, Sovetskaya Rossiya, 26 Feb 59)

Drift Station Severnyy Polyus-6

At present the drift speed of Severnyy Polyus-6 is somewhat faster than had been expected and the ice island is quickly approaching the sound between Greenland and Spitsbergen. During the fourth year of its drift, Severnyy Polyus-6 will enter the sound and will probably break up partially; however, it is expected that it will be possible to continue the work at the drift station even then. It is assumed that the station will cease to exist in February or March 1960, at which time the remains of the ice island will probably be carried out into the Atlantic Ocean.

The drift of Severnyy Polyus-6 will be longer than that of other stations and ships. Previously the station Severnyy Polyus-4 had the longest drift period, 1,109 days.

Three shifts of polar scientists have worked at Severnyy Polyus-6. The staff of the fourth shift, which will probably be the last one, is now getting ready to replace the third shift. During a 3-year period, many interesting and important studies were made on the ice floe, providing a valuable contribution to the study of the Arctic. ("On an Ice Island Across the Ocean"; Leningradskaya Pravda, 7 Mar 59)

Polar Scientists Return From Drift Stations

The Arctic and Antarctic Institute in Leningrad received a radiogram on 13 April from N. A. Belov, chief of Severnyy Polyus-7, stating that the last group of polar workers had been evacuated from the drifting ice floe and had arrived on Ostrov Dikson.

According to a radiogram from S. T. Serlapov, chief of station Severnyy Polyus-6, this station was turned over to the new staff of polar workers on 12 April.

In the next few days the staff members of Severnyy Polyus-6 and Severnyy Polyus-7 will fly to the mainland. ("To the Mainland"; Moscow, Sovetskaya Aviatsiya, 14 Apr 59)

Studies of Antarctic Climate

The study of the climate of Antarctica has revealed the fact that four clearly defined climatic zones may be distinguished: (1) the zone of drifting ice (relatively the warmest); (2) the climatic zone of the coast; (3) the climatic zone of the antarctic slope (from the sea level to an elevation of 2,800 meters); and (4) the coldest zone, the so-called antarctic plateau, which is over 2,800 meters above sea level.

Antarctica has been called the land of ice and storms. However, it may also be called the land of sun. At an elevation of about 4,000 meters above sea level, on the ice cupola of Antarctica, the intensity of solar radiation is 1.81 calories per square centimeter per minute. This is the greatest intensity recorded anywhere on the Earth. By comparison, it may be noted that in the temperate zones the intensity is only a little over one calorie per square centimeter per minute. However, the sun does not produce heat, since its rays hit the surface at an acute angle.

Ultraviolet radiation is also very high in Antarctica, because the air is clear and there are many sunny days.

Aside from regular observations at the stations, the following method was used to determine the annual mean temperature in different regions of Antarctica. The glaciologists drilled holes in the ice and measured its temperature at a depth of 15-20 meters. The temperature of the ice at these depths was approximately equal to the annual mean temperature of the air at the given location. For example, at Mirnyy the ice temperature at a depth of 15-20 meters was minus 10.2 degrees centigrade and the annual mean temperature of the air was minus 10.1 degrees. At Pionerskaya, 400 kilometers from Mirnyy at an elevation of 2,700 meters above sea level, the ice temperature was minus 39.7 degrees and the air temperature was minus 39.6 degrees.

Using the above method, the polar scientists traveling into the interior by sled-tractor train took measurements of the ice temperature at depths of 15-20 meters every 50 kilometers. These temperature recordings of the ice were then entered on a map. Detailed temperature maps of a large section of Antarctica are now available.

The scientists also established that the low temperatures in Antarctica are restricted to a thin layer of the atmosphere, i.e., about 700-900 meters high. Above this layer, the air warms up by 20-25 degrees, and sometimes even by 35 degrees. This is called surface inversion. Therefore, the air masses moving from Antarctica to the equator do not generally have such a low temperature as might be expected. Sometimes colder air masses [than those from the Antarctic] penetrate the USSR from the Arctic regions. Besides, the cold air of Antarctica is moderated by the ocean water.

Preliminary estimates also show that the energy of the atmospheric circulation of the Southern Hemisphere is transmitted to the Northern Hemisphere and, to a certain extent, feeds the circulation of the Northern Hemisphere. This fact is very important for the development of methods for long-range weather forecasts.

Scientists have long known that the Southern Hemisphere is colder than the Northern Hemisphere. Until now this was explained by the influence of Antarctica. However, a contrary conclusion has now been reached. Actually, Antarctica itself exists because the Southern Hemisphere is colder than the Northern Hemisphere. In other words, Antarctica does not directly influence the cooling process of the Southern Hemisphere, as had been assumed previously.

Soviet scientists have conducted extensive research on the climate of Antarctica. The results so far obtained require careful and additional processing. At any rate, the collected material will be helpful in solving the mysteries of the Sixth Continent. ("The Climate of Antarctica;" Riga, Sovetskaya Latviya, 7 Mar 59)

Magnetic Map of East Antarctica Is Compiled

The work of the Third Antarctic Expedition has great significance for the development of long-distance transantarctic and transarctic radio communications. It has been established that in addition to the already known region of intense magnetic storms, which interfere with radio communications, there is another such region south of Mirnyy.

Until now the region of East Antarctica, where the expedition operated, was a blank spot on the magnetic charts. Isogonic lines, i.e., lines of equal magnetic variation, had been traced by dotted lines, or hypothetically. During the traverses into the interior and during long-distance flights, magnetic observations were conducted. As a result, a magnetic map of East Antarctica was compiled which differs considerably from the previously existing hpothetical map. In the future, traverses and flights in this region will be less dangerous. ("Antarctica Is Definitely a Continent," by M. Ye. Ostrekin, Chief, Geophysical Detachment, Third Antarctic Expedition; Leningradskaya Pravda, 8 Mar 59)

* * *

USCOMM-DC-60839