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S/058/62/000/008/017/134  
A061/A101

AUTHOR: Dolginov, A. Z.

TITLE: Angular correlations in radiative nuclear transitions

PERIODICAL: Referativnyy zhurnal, Fizika, no. 8, 1962, 35, abstract 8B246  
(In collection: Gamma-luchi, Moscow - Leningrad, AN SSSR, 1961,  
523 - 681)

TEXT: This is a review devoted to the theory of angular correlations. The following cases are considered: (1) Angular correlation between two gamma quanta emitted in successive nuclear transitions. The polarization of gamma quanta is taken into consideration. (2) Angular correlation between gamma quanta in successive complex transitions. (3) Angular correlation between gamma quanta and internal conversion electrons. The finite dimensions of the nucleus are taken into consideration, and the  $E^0$  transitions are examined. (4) Angular correlation between two conversion electrons. (5) Angular correlation of beta particles and gamma quanta. Allowed and forbidden beta-gamma transitions of both oriented and non-oriented nuclei are considered. (6) Angular correlation of beta particles and conversion electrons. (7) Angular correlation of alpha particles and the subsequent

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Angular correlations in radiative nuclear transitions

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gamma quanta. (8) The influence of electric and magnetic fields of neighboring particles and of the proper electron shell of a radioactive atom on the angular correlation of emitted gamma quanta. The possibility of eliminating the influence of these fields is considered. (9) The change of angular correlation in the course of time under the action of alternating electric and magnetic fields. There may be both external and internal alternating and constant fields inside the specimen examined. E.g., constant electric fields inside a molecule or a crystal, or alternating fluctuating fields inside a liquid. (10) Relations between the Clebsch-Gordan coefficient, the Racah functions and the Fano functions are presented. Tables of Fano functions and different other functions are given which permit the angular correlations to be determined in radiative nuclear transitions and also in alpha, beta, or conversion transitions.

A. Dolginov

[Abstracter's note: Complete translation]

Card 2/2

CHEDIN, Yu.N.; DOLGINOV, A.Z.

Distribution of particles in the head of a comet. Astron. zhur.  
43 no. 1:181-191 Ja-F '65 (MIRA 19:2)

1. Fiziko-tekhnicheskiiy institut imeni A.F. Ioffe AN SSSR.  
Submitted March 12, 1965.

REF ID: A5006504

ACCESSION NR: A5006504

S/1X056/65/048/002/0548/0560

AUTHOR: Gnedin, Yu. N.; Dolginov, A. Z.

10  
9  
B

TITLE: Theory of multiple scattering. III.

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 2, 1965, 548-560

TOPIC TAGS: multiple scattering, inelastic scattering, anisotropic scattering, transport equation, force center, plane layer scattering

ABSTRACT: This is a continuation of an earlier study of isotropic multiple scattering by spherical bodies (ZhETF v. 45, 1136, 1963) and deals with multiple scattering of particles or quanta in the case when the cross section for the scattering by an individual force center is anisotropic, and the scattering body has the form of a flat layer. This case is of interest to the solution of many problems in atomic and nuclear physics, astrophysics, and physics of turbid bodies. An explicit expression is derived for the distribution of the multiply scattered particles outside and inside the body. The transport equation is solved in ex-

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11609-65  
ACCESSION NR: APS00650

explicit form for cases when the expansion of the cross section in terms of Legendre polynomials has a finite number of terms, and when the cross section has a sharp peak at small angles (Coulomb scattering). The solution contains terms that are due to poles of the kernel of the integral equation employed, to its branch points, or to crossing terms that depend on both. The pole terms are evaluated exactly, while various approximations are considered for the branch-point terms. These approximations are in terms of the parameters of the theory (the inelasticity of the scattering, the mean multiplicity of scattering with account of absorption, and the ratio of the layer thickness to the mean free path prior to absorption). The approximate results are accurate to a few per cent. Orig. art. has 60 formulas.

ASSOCIATION Fiziko-tehnicheskii Institut im. A. F. Ioffe Akademi nauk SSSR  
(Physicotechnical Institute, Academy of Sciences USSR)

SUBMITTED: 06/21/63

INCL: 05

SUB CODE: SP

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cont 2/2/63

L 22671-66 ENT(1) CW

ACC NR: AF6006783

SOURCE CODE: UR/CO33/66/04.3/001/0181/0191

AUTHORS: Gnedin, Yu. N.; Dolginov, A. Z.

ORG: Physico-Technical Institute Im. A. F. Ioffe, Academy of Sciences SSSR  
(Fiziko-tekhnicheskii in-t Akademii nauk SSSR)

TITLE: Particle distribution in a comet head

SOURCE: Astronomicheskii zhurnal, v. 43, no. 1, 1966, 181-191

TOPIC TAGS: comet, particle distribution, solar radiation, dissociated gas, spectral line, photoionization

ABSTRACT: Equations are obtained for neutral and charged particle distributions in a comet head. The neutral particle gas distribution is described by the transport equation

$$\frac{\partial N}{\partial t} + v \frac{\partial N}{\partial r} + b \frac{\partial N}{\partial v} = S - \beta N,$$

where b is particle acceleration under solar attraction and radiation pressure and S is the particle source strength. For a Maxwellian particle velocity distribution function, the solution of the above equation yields

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ACC NR: AP6006783

$$N(r, t) = G_0(r) \exp(\alpha b r) \Phi_0(r, \beta, b);$$

$$\Phi_m(r, \beta, b) = \int_0^{\infty} d\tau \tau^{-m} \exp\left[-\beta\tau - \frac{\alpha r^2}{\tau^2} - \frac{\alpha}{4} b^2 \tau^2\right].$$

For various values of the  $\alpha b/r$  ratio, closed form solutions are obtained which indicate that all particle density distributions arrived at by the above assumptions differ significantly from other known comet solutions. The situation is improved if one assumes the velocity distribution

$$G(v_0, t_0) = (2\pi v_0^{-1}) G(t_0) \delta(r^2 - v_0^2 t_0^2)$$

instead of the Maxwellian assumption. Similar expressions are derived for photo-dissociation and photoionization results. The probability of molecular dissociation is given by

$$W_v(p_1, p_2, p_3) = c n_v(t_0) v_v \sqrt{\frac{m_1^2}{2m_2^2 m_3^2 (h\nu - \epsilon)}} \times \\ \times \delta(p_1 + p_2 - p_3) \delta\left(\frac{p_1^2}{2m_1} + h\nu - \frac{p_2^2}{2m_2} - \frac{p_3^2}{2m_3} - \epsilon\right)$$

Particle distributions are obtained for  $\sqrt{\alpha} u_v \ll 1$  and  $\sqrt{\alpha} u_v \gg 1$ , where

$$u_v^2 = \frac{2m_2}{m_1 m_3} (h\nu - \epsilon)$$

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These results show that the particle distribution in the comet head falls as a function of  $r^{-m}$ , where  $m$  depends on the nature of the particle, its initial velocity, acceleration, etc. In the last analysis, the observed optical signature of the comet is analyzed along different spectral lines and is applied to the case of the Bergein comet (1959). The authors express sincere thanks to academician B. P. Korstantinov, on whose initiative this work was undertaken. Orig. art. has: 55 equations, 1 figure, and 1 table.

SUB CODE: 0320 SUBM DATE: 12Mar65/ ORIG REF: 003/ OTH REF: 002

Card 3/3 *4/4*



L 02448-67 EWT(1)/T IJP(c)

ACC NR: AP6028793

SOURCE CODE: UR/0033/66/043/004/0800/0812

AUTHOR: Gnedin, Yu. N.; Dolginov, A. Z.

47  
B

ORG: Physical and Technical Institute, Academy of Sciences, SSSR (Fiziko-tehnicheskiy  
n-t Akademii nauk SSSR)

TITLE: Radiative transfer in a medium of finite dimensions

SOURCE: Astronomicheskii zhurnal, v. 43, no. 4, 1966, 800-812

TOPIC TAGS: radiative transfer, Maxwell equation, scattering, indicatrix, multi-  
scattering, PARTICLE SCATTER, PHOTON SCATTERING, SCHROEDINGER  
EQUATION

ABSTRACT: Equations for the intensity of <sup>2/</sup>scattered particles and photons inside and  
outside a medium of finite dimensions are obtained from the Maxwell and Schroedinger equations.  
Approximations at which these equations coincide with the known transfer equation  
are indicated, and the connection between various forms of the latter equation is  
considered. The proposed form of the equation is convenient for the study of  
scattering in bodies of different geometrical shapes. The solutions of the equation  
are obtained in an explicit analytical form for multiscattering in a plane layer  
or a spherical volume. Isotropic and sharply anisotropic indicatrices for scattering  
on a single particle are discussed. Orig. art. has: 63 formulas. [CS]

SUB CODE: 20 / SUBM DATE: 05Jul65/ ORIG REF: 005/ OTH REF: 003

Card

*1/2 gd*

UDC: 523.025.0

ACC NR: AP/003218

SOURCE CODE: UR/0056/66/051/006/1771/1783

AUTHOR: Dolginov, A. Z.; Toptygin, I. N.

ORG: Physicotechnical Institute im. A. F. Ioffe, Academy of Sciences, SSSR (Fiziko-  
tekhnicheskiy institut Akademii nauk SSSR)

TITLE: Multiple scattering of particles in a magnetic field with random inhomogeneities

SOURCE: Zh eksper i teor fiz, v. 51, no. 6, 1966, 1771-1783

TOPIC TAGS: random magnetic field, particle scattering, distribution function, plasma charged particle, kinetic equation, correlation statistics, physical diffusion

ABSTRACT: In view of the fact that in many earlier investigations sight was lost of the numerous singularities that arise in the distribution function of particles interacting with random magnetic fields; trapped in a moving plasma, the authors derive a kinetic equation for the motion of charged particles in a magnetic field that fluctuates in space and in time, and whose fluctuations can at the same time move in space in regular fashion with some specified velocity. The motion of the particles is described by a distribution function satisfying Boltzmann's equation. This equation is averaged over the random magnetic field and an equation is derived for the averaged distribution function under the assumption that the particle displacement by the random field is small compared with the correlation length. The derived kinetic equation is solved for certain simple cases of zero translational velocity

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ACC NR: AP7003218

and no constant magnetic field, when the particle-momentum changes are small, for a statistically isotropic random field, and for scattering in a static random magnetic field with spherical symmetry. The transition to the diffusion approximation is considered and the equation for diffusion of the particles in a medium with moving magnetic-field inhomogeneities is derived. Orig. art. has: 2 figures and 64 formulas.

SUB CODE: 20/    SUBM DATE: 12May56/    ORIG REF: 004/    OTH REF: 002

Card 2/2

DOLGINOV, I.M., inzh.; IL'YENKO, N.P., inzh.; KAKHOVSKIY, N.I., kand.tekhn.  
nauk; YUSHCHENKO, K.A., inzh.

Adoption of OKh21W5T steel welding in the chemical machinery industry. Mashinostroenie no.4:67-70 J1-Ag '63. (MIRA 17:2)

1. Kiyevskiy zavod "Bol'shevik" (for Dolginov, Il'yenko). 2. Institut elektrosvarki im. Ye.O.Patona AN UkrSSR (for Kakhovskiy, Yushchenko).

YEFUMI, Yu. N.; KARYAKIN, A. V.; SOROKIN, N. P.; DOLGINOV, I. Ye.

Portable luminescent illuminator. Vest. otorin. no.2:89-90 '62.  
(MIRA. 15:2)

1. Iz Nauchno-issledovatel'skogo instituta ukha, gorla i nosa  
Ministerstva zdruvookhraneniya RSFSR (dir. - prof. N. A.  
Bobrovskiy) i ordena Lenina klinicheskoy bol'nitsy imeni S. P.  
Botkina, Moskva.

(OTORHINOLARINGOLOGY—EQUIPMENT AND SUPPLIES)  
(ULTRAVIOLET RAYS)

DOLGIY, I.Ye.; MESHCHERYAKOV, A.P.

Synthesis and properties of dimethyl-di-(cyclopropylmethyl)-, methyltri-(cyclopropylmethyl)-, and tetra-(cyclopropylmethyl)silanes. Dokl. AN SSSR 154 no.6:1376-1378 F '64.  
(MIRA 17:2)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR. Predstavleno akademikom A.A.Balandinym.

DOLGINOV, L.S., inzhener; PERENT'YEV, A.A., inzhener.

Calculating temperature elongation in steam ducts with lens expansion pieces. Truly VNIITSS 6 no.2:143-150 '55. (MLRA 10:5)  
(Steam engineering)

BATIN, I.A., inzhener; DOLGINOV, L.S., inzhener.

██████████  
New method of controlling the fitting of steam pipe systems  
according to their bending moment. Sudostroenie 22 no.8:15-  
19 Ag '56. (MLRA 9:10)

(Marine pipe fitting)



DOLGINOV, L.S., inzhener.

Calculating thermal expansion compensation of compensator  
steam pipes. Sudostroenie 22 no.10:9-11 0 '56. (MLRA 10'2)

(Expansion (Heat)) (Marine pipe fitting)

DOIGINOV, L.S., insh.; ZAGUSTIN, S.H., insh.

Electric furnace used for heating pipes in fitting them for  
installation, Sudostroenie 24 no.8:69 Ag '58. (MIRA 11:10)  
(Electric furnaces) (Marine pipe fitting)

DOLGINOV, L.S., insh.

Designing steam pipes with lens-type clampless compensators.  
Sudostroenie 25 no.4:22-26 Ap '59. (MIRA 12:6)  
(Steam pipes)

DOLGINOV, S. Sh and ZUSGOV, L. N. (Moscow)

"A Tiny Magnetometer for the Measurement of Very Weak Magnetic Fields,"  
a paper submitted at the International Conference on Physics of Magnetic Phenomena  
Sverdlovsk, 23-31 May 56.

DOLGINOV, S.

PHASE I BOOK EXPLOITATION

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Vtoroy sovetskiy iskusstvennyy sputnik Zemli; materialy, opublikovannyye v gazete "Pravda" (The Second Soviet Artificial Earth Satellite; Material Published in "Pravda") Moscow, Izd-vo "Pravda", 1957. 47 p. 100,000 copies printed.

**PURPOSE:** The booklet was written to give the public information on the second artificial earth satellite.

**COVERAGE:** The book consists of a number of articles on the second sputnik originally published in the Moscow newspaper "Pravda". Basic information on orbit, structure, equipment, performance, and utilization of the sputniks is given. All these data have been repeatedly published elsewhere; therefore, only a few figures are arbitrarily singled out here. The total weight of the scientific apparatus, test animal, and power supply sources of the second sputnik was 508.3 kg. The initial orbital velocity was about 8,000 m per second. The second sputnik circled

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## The Second Soviet Artificial Earth Satellite (Cont.)

the earth initially in 103.7 minutes. Its radio transmitters operated on frequencies of 40.002 and 20.005 megacycles, etc. The last article quotes admiring comments of American, British, French, and Chinese scientists, statesmen, and journalists. The book contains 8 figures.

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Penetrating the Secrets of the Universe (2 figures), by S.N. Vernov, Corresponding Member, Academy of Sciences, USSR ("Pravda", Nov. 18, 1957)	38
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Conversation of the Two Sputniks. Chinese Poem by Go Mo-zho, President of the Academy of Sciences of the People's Republic of China, translated by V. Derzhavin ("Pravda", Nov. 16, 1957)	45
Around the Earth and Around the Sputniks, by G. Rassadin ("Pravda", Nov. 17, 1957)	46

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DOLGINOV, S. Sh.

AUTHORS: Pushkov, N. V., Dolginov, S. Sh.

53-4-1/11

TITLE: The Investigation of the Magnetic Field of the Earth by Means of Artificial Satellites and Rockets (Issledovaniye magnitnogo polya zemli na iskusstvennykh sputnikakh i raketakh).

PERIODICAL: Uspekhi Fizicheskikh Nauk, 1957, Vol. 63, Nr 4, pp. 645-656 (USSR).

ABSTRACT: The present paper investigates some physical and technical aspects of such investigations. First, the basic problems of geomagnetic measurements by means of artificial satellites and rockets are discussed. In this way it is possible to discover current systems in the ionosphere, to evaluate their density, and to draw conclusions concerning the existence of electric currents outside the ionosphere. Measurements carried out by means of satellites and rockets can furnish experimental results concerning the damping of magnetic anomalies and other peculiarities of the field in the case of increasing distance from the earth. These data can then be used for the verification of various hypotheses relating to the depth of sources of regional magnetic anomalies, which is of great importance for the study of the interior structure of the earth. The most interesting places for the measurement of the magnetic field by means of rockets are the zones with the most frequent occurrence of polar phenomena in Arctic

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The Investigation of the Magnetic Field of the Earth by Means of Artificial Satellites and Rockets. 53-4-1/11

and Antarctic regions. Magnetic measurements by means of satellites will obviously be less exact than measurements carried out by means of rockets, because the satellites are rather small, and because orientation changes continually. On the other hand, it is possible to extend measurements carried out with Sputniks over a longer period of time. The following is planned. a) Investigation of the spatial distribution of the constant magnetic field round the earth. b) Evaluation of the spatial distribution of the heights of the systems of electric currents inside and outside the atmosphere. c) Investigation of the inhomogeneous structure of the atmosphere. Interpretation of measurements carried out with satellites will be connected with a considerable amount of computation work, but it will yield very important results. The results obtained may also lead to new opinions. The magnetometers to be used on the satellites and in the rockets are then discussed. The best results will be obtained by means of such magnetometers as measure the components of the field or the scalar amount of the vector and its direction. The authors here describe the proton magnetometer (which is based on measuring the frequency of the free precession of the protons), and a self-orientating magnetometer for the total vector. There are 20 references, 5 of which are Slavic.

AVAILABLE:  
Card 2/2

Library of Congress.

308/35-59-41-9272

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1959, Nr 11, p 91  
(USSR)

AUTHORS: Dolginov, S.Sh., Zhuzgov, L.N., Pushkov, N.V.

TITLE: The Preliminary Report About Geomagnetic Measurements on the 3rd Soviet Artificial Earth Satellite.

PERIODICAL: Sb. Iskusstv. sputniki Zemli. Nr 2, AS USSR, 1958, pp 50 - 53

ABSTRACT: Geomagnetic measurements were carried out on the 3rd artificial earth satellite, which were accomplished with the aid of a magnetometer with magneto-saturated pick-ups. The obtained experimental data will be utilized in the following ways: 1) The comparison of the values of the field measured by the magnetometer and calculated according to the potential theory. 2) The comparison of the isolation of the full strength of the magnetic field and the intensity of the cosmic rays measured on the sputnik. 3) The analysis of the area over the Eastern-Siberian magnetic anomaly, in order to check the hypotheses on the depth of occurrence of its sources. 4) Investigation into the true existence of an atmospheric dynamo.

G.A. Kokin

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SOV/20-129-1-21/64

~~3(6)~~ 3.9100

AUTHORS: Dolginov, S. Sh., Pushkov, N. V.

of the Earth

TITLE: Some Results of Measurement of the Geomagnetic Field <sup>of the Earth</sup> by Means  
of a Space Rocket

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 1,  
pp 77 - 80 (USSR)

ABSTRACT: It was one of the tasks of the rocket, that was fired on  
January 2, 1959, to yield experimental data on the intensity  
of the geomagnetic field at a distance of several earth's radii  
from the earth's center. Such data are of extreme importance  
for the realization of the present theory of magnetic storms  
and auroras. According to the present theories, electric currents  
may occur during magnetic storms, which flow around the earth.  
The electric currents flow at the distance of several earth's  
radii - according to one kind of the theory -, but flow at the  
distance of several dozens of earth's radii, according to the  
kind of theory. The geomagnetic field was measured on board of  
the rocket by means of a three-component magnetometer, with  
primary elements of magnetically saturated type. The construction  
of the magnetometer is shortly reported. The results of the geo-

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Some Results of Measurement of the Geomagnetic Field  
of the Earth by Means of a Space Rocket

magnetic field measurements, recorded by the rocket are illustrated by a diagram. The second diagram illustrates the variation of the intensity of the geomagnetic field along the line of flight of the rocket, under the assumption, that the field may be produced only by sources present within the earth. 8 coefficients of the development of the geomagnetic field in a series for spherical functions were computed by Yu. D. Kalinin. The measured values differ considerably from the computed ones in the range of  $14.7 \cdot 10^3$  to  $30 \cdot 10^3$  covered flight-kilometers. This disagreement decreases with increasing distance from the earth. The results of these measurements indicate the following: The geomagnetic field is determined in distances of 2 to 5 earth's radii not only by values, computed from the magnetic earth potential, but depends also on external sources. The anomalous effects may be caused by magnetic phenomena, which occur on the motion of charged particles in the geomagnetic field. Therefore, it is of great interest, to compare qualitatively the geomagnetic curve to curves of cosmic rays distribution (which was recorded by S. I. Vernov, A. Ye. Chadakov (Ref 3), Van Allen (Ref 4) and their cooperators). A ✓

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Some Results of Measurement of the Geomagnetic Field  
of the Earth by Means of a Space Rocket

SOV/20-129-1-21/64

Simultaneous consideration of the measurement results of the field strength and of the intensity of the cosmic rays shows, ~~that~~ ~~without doubt~~ the effects, observed in the magnetic field, are connected with the corpuscular radiation zone and are the result of the superposition of the magnetic field of the corpuscular zone to the internal geomagnetic field. One of the most likely reasons of the magnetism in the corpuscular zone are those points, which occur in consequence of the drift of particles in the inhomogeneous geomagnetic field. The observed variations of the anomalous part of the magnetic field may be essentially subject to 2 factors: To the variation of the current densities which are connected with the energy density, and to the variation of the position of the rocket, with respect to the maximum of current density. The intensity and the structure of the anomalous part of the magnetic field depend also on solar activity and on the degree of magnetic perturbation. Ye. G. Yeroshenko and Yu. V. Afanas'yev collaborated in the development of the apparatus and A. D. Shevnin and L. O. Tyurmina helped in the analysis of experimental data. ✓

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Some Results of Measurement of the Geomagnetic Field  
of the Earth by Means of a Space Rocket

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SOV/20-129-1-21/64

There are 2 figures and 5 references, 2 of which are Soviet.

PRESENTED: August 13, 1959, by A. A. Blagonravov, Academician

SUBMITTED: August 4, 1959

4

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DOLGINOV, S. Sh., YEROSHENKO, Ye. G., ZHUZGOV, L. N., PUSHKOV, N. V. and ~~TRUMINA, L. O.~~

"Studies of the Magnetic Field of the Earth and the Moon."

report presented at the XI International Astronautical Congress, Stockholm, Sweden,  
15-20 August 1960.



DOIGINOV, S.Sh.; YEROSHENKO, Ye.G.; PUSHKOV, N.V.; TYURMINA, L.O.

"Measuring of the Magnetic Fields of the Earth and Moon by Means  
of Sputnik III and Space Rockets I and II."

report presented at the First Intl Space Science Symposium, Nice, France, Jan 1960.  
National Academy of Sciences of the USSR, Moscow.

DOLGINOV, S. Sh.

PAGE 1 BOOK EXTRACTOR 08/1981

Abstracts and Book  
Laserometry spectra with VPL (Artificial Earth Satellite, No. 4)  
Moscow, 1960. 80 p. 3000 copies printed.

Supp. No. 1. L.V. Kuznetsov. No. of Publishing House, M.I. Prudkiy Spok. No. 1.  
17. Moscow.

Abstract: This collection of articles is intended to disseminate data collected  
in investigations performed by means of artificial earth satellites.

CONTENTS: The collection consists of 13 articles dealing with scientific data on  
artificial earth satellites (AES) and their spectra. The topics dis-  
cussed include measurements of the quality of the upper atmosphere, spectra of  
AES, measurements of atmospheric temperature, measurements of the  
AES, measurements of atmospheric pressure, and spectra of positive ions. The  
main of each type, physical principles, and spectrum of positive ions. The  
collection is part of a series published regularly. Abstracts follow each  
article.

Abstract: This determination of the conditions of illumination and the time  
interval in which the satellite passes in sunlight and in shadow.

The article discusses one of the possible methods of determining the conditions  
of illumination of satellites. The relative motion of the first, second, and  
third Soviet AES to the earth is briefly analyzed.

Abstract: A. A. Petrov, et al. V. E. Kuznetsov. Determining Optical Parameters  
of AES According to Ground Measurements  
An improved method of determining optical parameters and forecasting  
of satellite motion is given. The method is based on data from the  
processing of spectra and measurements.

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An improved method of determining optical parameters and forecasting  
of satellite motion is given. The method is based on data from the  
processing of spectra and measurements.

Abstract: A. A. Petrov, et al. V. E. Kuznetsov. Determining Optical Parameters  
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An improved method of determining optical parameters and forecasting  
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Abstract: A. A. Petrov, et al. V. E. Kuznetsov. Determining Optical Parameters  
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An improved method of determining optical parameters and forecasting  
of satellite motion is given. The method is based on data from the  
processing of spectra and measurements.

*Doleman, S Sh*

PHASE I BOOK EXPLOITATION

SOV/4282

Akademiya nauk SSSR

Iskusstvennyye sputniki zemli, vyp. 5 (Artificial Earth Satellites, No. 5)  
Moscow, Izd-vo AN SSSR, 73 p. Errata slip inserted. 7,000 copies printed.

Resp. Ed.: L. V. Kurnosova; Ed. of Publishing House: M. I. Frankin; Tech. Ed.:  
O. M. Gus'kova.

**PURPOSE:** The booklet is intended for scientists and engineering and scientific personnel working in the field of space travel and satellite flight.

**COVERAGE:** The collection of 10 articles deals with problems of satellite orbits, magnetic measurements, radiation, the visibility of space vehicles, the upper atmosphere, and meteoric substances. No personalities are mentioned. References accompany some of the articles.

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SOV/4282

## Artificial Earth Satellites (Cont.)

Sedov, L. I. Space Rocket; Orbits in the Direction of the Moon	3
<u>Dolginov, S. Sh., Ye. G. Yeroshenko, L. N. Zhungov, N. V. Pushkov, and L. O. Tyurmina.</u> Magnetic Measurements on the Second [Soviet] Space Rocket	16
Vernov, S. N., A. Ye. Chudukov, P. V. Vakulov, Yu. I. Logachev, and A. G. Nikolayev. Radiation Measurement in the Flight of the Second Space Rocket	24
Kurnosova, L. V., V. I. Logachev, L. A. Razorenov, and M. I. Fradkin. Investigation of Cosmic Radiation in the Flight of the Second Space Rocket to the Moon	30
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Card 2/3

Artificial Earth Satellites (Cont.)	SOV/4282
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Danilov, A. D. Concerning the Problem of the Formation of NO <sup>+</sup> in the Upper Atmosphere	60
Kuperov, L. P. Observations of Signals From the Third Soviet Artificial Earth Satellite From Cape Chalyuskin	66
Yabsunskiy, I. M., and O. V. Gurko. Change of the Albedo of the First Artificial Earth Satellite Resulting From the Action of External Factors	71

AVAILABLE: Library of Congress

Card 3/3

AC/pw/2a1  
11-30-60

*DeLamay, S Sh.*

PHASE I BOOK EXPLOITATION

SOV/4413

International Cosmic Ray Conference. Moscow, 1959.

Proceedings. v. III. Moscow, 1960. 253 p. Errata slip inserted. No. of copies printed not given.

Sponsoring Agency: International Union of Pure and Applied Physics. Cosmic Ray Commission.

Ed.: S. I. Syrovatskiy, Editorial Board: G. B. Zhdanov (Ed.-in-Chief), I. P. Ivanenko (Assistant Ed.-in-Chief), N. M. Gerasimova, A. I. Nikishov, V. I. Zatsepin, B. A. Khrenov, L. I. Dorman, V. F. Tulinov, S. I. Syrovatskiy, V. M. Fedorov, Yu. N. Vavilov, and A. T. Abrosimov.

PURPOSE: This book is intended for physicists, astronomers and other scientists concerned with the earth's radiation belts and cosmic ray research.

COVERAGE: This is Volume 3 of a 4-volume work containing the proceedings of the Moscow Cosmic Ray Conference held July 6-11, 1959. This volume contains 40 reports on the earth's radiation belts and primary cosmic radiation. The

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International Cosmic Ray Conference. Proceedings. v. III

SOV/4413

reports delivered by Soviet scientists are abstracted below. References accompany individual reports.

TABLE OF CONTENTS:

I. THE EARTH'S RADIATION BELTS

3. Vernov, S.N., and A.E. Chudakov. Investigation of Radiation in Outer Space 19-29  
This paper presents the experimental data on radiation in outer space obtained by means of the 2nd and 3rd sputniks and the Soviet cosmic rocket. It describes the instrumentation of the sputniks and rocket, the high-intensity inner and outer zones, the location of these zones, the intensity stability and the composition of particles in these zones, and the composition of radiation outside the earth's magnetic field.
4. Dolginov, S. Sh., and N.V. Pushkov. Magnetic Field of the Outer Cor-  
sular Region 30-31  
It is stated that the magnetic field intensity values obtained by means of the Soviet cosmic rocket on January 2, 1959, substantially differ from those calculated theoretically. The way the difference between measured and calculated magnetic field values

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International Cosmic Ray Conference, Proceedings. v. III

SOV/4413

varied with increase in rocket distance from the Earth is compared with the corpuscular radiation intensity values obtained on the cosmic rocket and Pioneer III. The comparison shows that the observed changes in the Earth's magnetic field are related to the outer corpuscular region, and that they might be due to the superposition of the magnetic field of the corpuscular zone on the magnetic field of the Earth.

7. Vernov, S.N., A.E. Chudakov, A.I. Lebedinsky (Lebedinsky), and I. P. Ivanenko. Composition of the Earth's Corpuscular Radiation and Possible Mechanisms of Its Origination

46-49

This paper presents data on the composition of the Earth's corpuscular radiation obtained by means of the Soviet sputniks and the cosmic rocket. The overwhelming majority of particles in the external zone, limited by magnetic lines of force crossing the Earth's surface at geomagnetic latitudes of 55° and 65°, are electrons of 20-100 Kev. Protons of approximately 100 Mev were discovered in the internal zone, limited by

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International Cosmic Ray Conference . Proceedings . v. III

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magnetic lines of force crossing the Earth's surface at geomagnetic latitudes of 30-40°. Among the possible mechanisms of origination of the Earth's corpuscular radiation is injection into the Earth's magnetic field of electrons and protons, produced by the decay of neutrons emitted by the Earth's atmosphere as a result of cosmic ray irradiation.

9. Krassovsky (Krasovskiy), V.I., I.S. Shklovsky (Shklovskiy), G. I. Galperin, and N.M. Svetlitsky (Svetlitskiy). On Fast Corpuscles of the Upper Atmosphere 59-63  
This paper presents experimental data on fast corpuscles of the upper atmosphere and gives a detailed description of the equipment used in the experiment.
11. Dorman, L.I. On the Problem of the Nature of Soft Radiation in the Upper Atmosphere 74-80  
This paper summarizes the available data on bursts of soft radiation in the atmosphere and investigates the nature of the bursts in relation to processes on the sun, in corpuscular streams, and in the interplanetary medium. It also investigates the nature of these bursts in relation to the properties of the Earth's belts of radiation.
12. Askar'yan G. A. On the Nature of the External Radiation Belt of the Earth 81-82  
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International Cosmic Ray Conference. Proceedings. v. III      SCV/4413

It is stated that the external radiation belt encircling the earth is of nuclear origin, but that the explanations of the capture and accumulation of particles by the Earth's magnetic field in the course of its local variations are not convincing as an explanation of the nature of the external radiation belt. A more convincing explanation of the observed effects is given in this paper.

## II. PRIMARY COSMIC RADIATION

22. Charakhch'yan, A.M., and T.N. Charakhch'yan (Lebedev Physical Institute, USSR Academy of Sciences; Nuclear Physics Research Institute, Moscow University). Energy Spectrum of Primary Cosmic Particles      129-135  
This paper explains the results obtained from investigations of the electron component of cosmic radiation in the upper layers of the atmosphere.
23. Kocharyan, N.M., G.S. Snakyan, and Z.A. Kirakosyan (Kirakosyan). Spectrum of Cosmic Radiation Protons      136  
This is an abstract of the results obtained in four independent experiments. The full text has been published in Russian in Card 5/8

International Cosmic Ray Conference. Proceedings, v. III SOV/4413

the Zhurnal eksperimental'noy i teoreticheskoy fiziki, 35,  
1335 (1958).

III. THE ORIGIN OF COSMIC RAYS

33. Ginzburg, V.L. Some Aspects of the Theory of Cosmic Ray Origin 196-204  
This paper elucidates the following problems: 1) The mean gas concentration in the galaxy (including the halo). 2) The role of different cosmic ray sources; the injection and particle acceleration mechanism in sources. 3) The mechanism and role of cosmic ray escape from the galactic halo into intergalactic space; the fraction of metagalactic cosmic rays in the Galaxy. 4) The nature of cosmic ray movement in the galactic spiral in connection with cosmic ray isotropy and chemical composition 5) The origin of the cosmic ray electron component in the halo.
34. Shklovskiy, I.S. Achievements in Radioastronomy and Radioastronomical Theory of the Origin of Cosmic Rays 205-210  
This paper explains the radioastronomical theory of the origin of cosmic rays on the basis of the latest achievements in radioastronomy.

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International Cosmic Ray Conference. Proceedings. v. III 807/4413

35. Korchak, A.A., and S.I. Syrovatsky (Syrovatskiy). On the Composition of Primary Cosmic Rays 211-219  
This paper points out the inadequacy in the explanations of the composition of cosmic rays and presents another approach to the solution of this problem.
39. Terletsky (Terletskiy), M.P. Possible Acceleration of Changes by the Electromagnetic Field of the Magnetic Dipole of the Earth 233-238  
This paper presents the results of new computations of the electromagnetic field of a rotating dipole, as well as of a corrected analysis of ion motion equations pertaining to this field. Questions regarding the divergence between computations in inertial and rotating systems of coordinates are considered, and general conclusions with regard to the nature of distribution of charges around a rotating dipole and with regard to analysis of possible currents are made.
40. Dorman, L.I. On the Initial State of Charged-Particle Acceleration 239-244  
The author analyzes the following problems: 1) Injection energy in a solar flare in the case of charged-particle acceleration by the Fermi statistical mechanism. 2) Portion of accelerated particles and necessity of preliminary acceleration by the first order Fermi
- Card 7/8

International Cosmic Ray Conference. Proceedings. v. III SOV/4413

mechanism. 3) Acceleration of particles of the medium between approaching magnetic clouds: nonrelativistic case, relativistic case, and the case of particle acceleration from very low energies to relativistic energies 4) Maximum energy of accelerated particles in various specific cases: compression of the plasma column under laboratory conditions and under conditions of solar flares, collision of magnetized clouds in interplanetary and in interstellar space, and collision of galaxies.

AVAILABLE: Library of Congress

Card 8/8

JA/dwa/fal  
10-18-60

DOLGINOV, Sh. Sh. *et al.*

Researching the Magnetic Field of the Moon, ~~1970~~.

report presented at the International Symposium on the moon, held at the Pulkovo Observatory, Leningrad, USSR, 6-8 Dec 1970.

DOLGINOV, S. Sh.

- a. Radar Contact with Venus - V. A. Kotelnikov
- b. Some Results of the Constant Geomagnetic Field Measurements Carried Out from Sputnik III over the Territory of the USSR - S. Sh. Dolginov, L. N. Zhurav, H. V. Koshkov, Tyurina, L. C., I. V. Kozlovsky
- c. Some Results of Physiological Reactions to Space Flight Conditions - G. G. Gerasimov, V. N. Kozlovsky
- d. On the Motion of the Body of the Variable Mass With the Constant Power Consumption in the Gravitational Field - G. E. GREGOROVSKIY, Y. N. Ivanov, V. V. Kozlovsky
- e. On the Earliest Solar Corruptions - V. I. Krasovskiy
- f. Optimum Contour Heat Rejection Films Coated by Radiation - G. L. Krasovskiy
- g. Investigation of Interplanetary Plasma and Planetary Ionospheres by Means of Charged Particle Beams on Space Rockets - K. I. Ginzburg
- h. Rocket and Satellite Meteoric Dust Investigations - T. H. Koroleva
- i. On Investigation of Cosmic Radiation on Spacecraft-Satellites. - S. N. Verrov, Y. B. Kozlovsky, M. F. Kuznetsov, I. A. Savchenko, P. I. Shevchenko

reports to be presented at the XIIIth International Astronautical Congress, Washington D. C. 1-7 October 1951

(11)

29718 S/169/61/000/008/034/053  
A006/A101

3,2500 (1080)

AUTHORS: Dolginov, Sh. Sh., Yeroshenko, Ye. G., Zhuzgov, L. N., Pushkov, N. V.

TITLE: Investigation of the magnetic lunar field

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 8, 1961, 12, abstract 8080  
("Geomagnetizm i aeronomiya", 1961, v. 1, no. 1, 21-29)

TEXT: Information is given on experimental problems and data about the lunar field, obtained during the flight of the second Soviet space rocket. An analysis was made of the sensitivity threshold of the measuring instruments from data of measurements in the weak terrestrial magnetic field at 45-60 thousand km distance from the Earth's center. The noise level in the lunar orbit space was analyzed, and measurements were made directly near the Moon down to 55 km distance from its surface. As a result no indications of a noticeable lunar magnetic field were detected. It was estimated that the dipole magnetic moment of the Moon can be only less than 1/10,000 of the magnetic moment of the Earth. X

The authors' summary

[Abstracter's note: Complete translation]

Card 1/1



DOLGINOV, Sh. Sh., PUSHKOV, N. V.

"On Some of the Earth's Magnetic Field Investigations in Outer Space"

Soviet Papers Presented at Plenary Meetings of Committee on Space Research (COSPAR) and Third International Space Science Symposium, Washington, D. C., 23 Apr - 9 May 62.

DOLGINOV, Sh. Sh., FUSEKOV, H.V., TYURMINA, L. O., FRYAZINOV, K. V., and I ZEUGOV, L. N.

"Some of the Constant Geomagnetic Field Measurements Carried out from  
Sputnik III over the Territory of the USSR."

Soviet paper presented at the Plenary Meetings of Committee on Space Research  
(COSPAR) and Third International Space Symposium, Wash. D. C., 23 Apr - 9 May 62.

42154

S/203/62/002/001/002/019  
I023/I223

*3.2.19.198.2000*  
AUTHORS: Dolginev, Sh.Sh., Yeroshenko, Ye.G., Ehuzgov, L.N., and Pushkov, N.V.

TITLE: Magnetic measurements of an automatic interplanetary station to Venus

PERIODICAL: Geomagnetizm i Aeronomiya, v.2, no.1, 1962, 38-40

TEXT: A three-component magnetometer to measure the magnetic field near Venus and a magnetic variometer to measure the field during the voyage were installed on the automatic interplanetary station (AIS) to Venus. The threshold sensitivity of the variometer was 2γ, the range - 0 to 50γ. Data from the variometer were obtained on February 12 and 17, 1961. The magnetograms for February 12 (distance from Earth: 165000-175000km) are given together with data from the Moscow observatory ( $\varphi = 55^\circ$ ). The variations of the two magnetograms were approximately the same. Data of February 17 (distance from Earth:  $1.9 \times 10^6$  km, duration of

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S/203/62/002/001/002/019  
I023/I223

Magnetic measurements...

measurements: 22 min.) show almost constant values. During the same period variations on Earth were quite big: 20-25%. On February 17, 1961, the AIS was in the corpuscular stream (assumption based on data from a particle trap). The magnetic field of the stream was less than 9% in the direction of the axis of the transducer. From data on the neutron component of cosmic rays it can be deduced that the field of the stream was weak also on Earth. Geomagnetic disturbances can be explained by a direct interaction of the corpuscular stream with the geomagnetic field. There are 3 figures.

ASSOCIATION: Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln AN SSSR (Institute of Terrestrial Magnetism, Ionosphere, and Radio wave Propagation, AS USSR)

SUBMITTED: December 6, 1961

Card 2/2

3.9110

44419

8/203/62/002/006/004/020  
A160/A101

AUTHORS: Dolginov, Sh. Sh., Zhuzgov, L. N., Pushkov, N. V., Tyurmina, L. O.,  
Fryazinov, N. V.

TITLE: Some results of measuring the constant magnetic field of the Earth  
with the third artificial sputnik of the Earth above the territory  
of the USSR

PERIODICAL: Geomagnetizm i aeronomiya, v. 2, no. 6, 1962, 1061 - 1075

TEXT: The author presents some results of measuring the constant magnetic  
field of the Earth with the help of the third Soviet sputnik above the territory  
of the USSR from May to June 1958. A brief description is given of the metro-  
logical properties of the used equipment and of the method of eliminating mag-  
netic board noises from the sputnik magnetograms. It was determined that the  
deviation may be represented by three harmonics whose mean amplitude values  
equal  $U_{1m} = 1,500$ ,  $U_{2m} = 500$  and  $U_{3m} = 200 \gamma$ . A comparison of the measured  
values of the geomagnetic field intensities with the values of this intensity  
permitted to establish their agreement within the limits of 0.1 - 1% above a

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Some results of measuring the...

S/203/62/002/006/004/020  
A160/A101

major part of the USSR territory, including the Siberian world magnetic anomaly. The conclusion is illustrated by a limited number of typical magnetograms obtained on the segments of the trajectories traversing the whole territory of the USSR. The material yielded by the magnetic investigations with the third Soviet sputnik permits to fully determine the possibilities of carrying out special magnetic experiments. 1) The main harmonics of the Gaussian series can be determined with a precision of 0.1%. 2) With the help of a long-lasting sputnik the real existence of the exterior sources of the magnetic field has to be found out, not taking into consideration the theoretical values of the field, computed from the ground data. 3) Regular work should be done on the secular variation of the geomagnetic field. 4) In order to obtain highly accurate data, the requirements for the complex of auxiliary equipment should be determined. There are 12 figures and 1 table. X

ASSOCIATION: Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln AN SSSR (Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation, AS USSR)

SUBMITTED: July 10, 1962

Card 2/2

L 17341-63 EWT(1)/BDS/HS(v) AFFTC/ASI/ESD-3 Pe-4 GW

ACCESSION NR: AP3007337

5/0293/63/001/001/0055/0097

AUTHOR: Dolginov, Sh. B., Pushkov, N. V.

61

TITLE: Investigation of the magnetic field in space

SOURCE: Kosmicheskiye issledovaniya, v. 1, no. 1, 1963, 55-97

TOPIC TAGS: magnetic field, terrestrial magnetic field, interplanetary medium, lunar magnetic field, outer radiation belt, magnetosphere, magnetic storm, solar plasma, ring current, geomagnetic field, venusian magnetic field

ABSTRACT: Experimental data on the magnetic fields of the earth, moon, and interplanetary space, obtained by Soviet and U. S. rockets and missiles, have been surveyed, and the results of measurements made near the earth, in the outer radiation belt, and at the boundary of the geomagnetic field have been compared. It was found that the energy necessary to create and maintain the outer zone is supplied by the sun, but the mechanism whereby the solar plasma energy is transferred to the magnetosphere is still not clearly understood. It has not yet been possible to determine with finality

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L 17341-63

ACCESSION NR: AP007337

where or whether the classic current system associated with the main phase of magnetic storms actually exists. It has been found that: 1) at distances exceeding  $8 R_e$  (radius of the earth) the measured values of the field on the day and night sides of the earth exceed those theoretically computed, 2) the direction of the field at distances up to  $12 R_e$  differs from  $30$  to  $60^\circ$  from the direction of the dipole field, 3) considerable field fluctuations are noted in the region from  $10$  to  $15 R_e$ , 4) no notable difference exists in the characteristics of the terrestrial field on the day and night sides, 5) a transition zone probably exists in the  $10$  to  $15 R_e$  region between solar plasma and the geomagnetic field, 6) information is lacking on comparative conditions in the  $12$  to  $15 R_e$  region, and 7) it is possible for a magnetic trail to exist on the night side. Future attempts will be made to obtain convincing proof of the existence and localization of the current ring of magnetic storms and a precise establishment of the topology of the magnetic field at great distances.

ASSOCIATION: none

SUBMITTED: 01Dec62

SUB CODE: AS

Card 2/2

DATE ACQ: 21Oct63

NO REF SOV: 037

ENCL: 00

OTHER: 066



DOLGINOV, Sh. Sh. and BULANZHE, Yu. D.

Present state of magnetic measurement techniques,

Title: Conference on problems of marine magnetic surveys (held in Moscow in April 1962.

Source: Okeanologiya, v. 3, no. 4, 1963, p. 752

DOLGINOV, Sh., laureat Leninskoy premi, kand.fiz.-matem.nauk

Terrestrial magnetism. Av. i kosm. 46 no.7:26-32 J1 '63.  
(MIRA 16:8)  
(Magnetism, Terrestrial)

YEROSHENKO, Ye. G.; DOLGINOV, Sh. Sh.; ZHUZGOV, L. N.; FAS'OVSKIY, U. V.; ALEKSANYAN,  
I. M.

"Magnetic Investigations on the Electron 2 Satellite."

report presented at the 5th Intl Symp on Space Science, Florence, Italy, 12-16  
May 64.

I 23291-63 EWT(1)/FSF(h)/FSS-2/FS(v)-3/EMS(n)-2/FCC/EWA(d)/EEC(t) Po-4/Po-3/Po-4/  
ACCESSION NR: AP5001586 Pro-2/P1-4 TT/ S/0020/64/159/006/1272/1275

GN

AUTHOR: Gringauz, E. I.; Dolginov, Sh. Sh.; Bezrukikh, V. V.; Yero-  
shenko, Ye. G.; Zhurgov, L. N.; ~~MURTSV~~, L. S.; Solomatina, E. K.;  
Pastovskiy, U. V.

TITLE: Observations using the artificial satellite Electron-2 of the  
correlation between variations of the magnetic field and streams of  
positive ions inside the terrestrial magnetosphere.

SOURCE: AN SSSR. Doklady, v. 159, no. 6, 1964, 1272-1275

TOPIC TAGS: artificial satellite, magnetometer, positive ion, geomag-  
netic field, magnetosphere, radiation belt, flux intensity, negative  
ion, theoretical field, apogee distance

ABSTRACT: The artificial satellite Electron-2, equipped with magne-  
tometers and a trap for charged particles, recorded positive ions of  
all energies, their fluxes with energies of more than 100 ev, and  
measured all three components of the geomagnetic field in the magne-  
tosphere and at radiation belts. Recorded data showed a correlation  
between the variations of the magnetic activity on the terrestrial

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ACCESSION NR: AP5001986

surface and the intensities of fluxes of positive ions and the magnetic field far from the earth. This correlation was observed on quiet days and on days with magnetic disturbances. Numerous negative ion fluxes were recorded on magnetically quiet days. During this time, the magnetometer recorded a magnetic field of regular intensity although it exceeded the theoretical field by 20%. The maximum deflection from the theoretical field was detected at the apogee of the satellite. On 12 February 1964, all magnetic observatories on the earth recorded magnetic disturbances of sudden commencement while the trap in the satellite recorded positive ion fluxes exclusively of an intensity of  $4 \cdot 10^{-10}$  amp. At this time the satellite was at apogee. The magnetometer recorded a rapid increase in the magnetic field. Orig. art. has: 4 figures. [EG]

ASSOCIATION: none

SUBMITTED: 15Sep64

NO REF SOV: 003

ENCL: 00

OTHER: 008

SUB CODE: ES, SV

ATD PRESS: 3173

Card 2/2

GRINGAUZ, K.I.; DOLGINOV, Sh.Sh.; EEZRUKIKH, V.V.; YEFOSHENKO, Ye.G.;  
ZHUZGOV, L.N.; MUSATOV, L.S.; SOLOMATINA, E.K.; FASTOVSKIY, U.V.

Relation between magnetic field variation and fluxes of positive  
ions within the earth's magnetosphere as observed with the aid  
of an Electron-2 satellite. Dokl. AN SSSR 159 no.6:1272-1275  
D '64 (MIRA 18:1)

1. Predstavleno akademikom A.L. Mintsem.

I: 2885-56 FSS-2/ENT(1)/FS(v)-3/PCG/EIA(c)/EWA(h) TT/CS/GW

ACCESSION NR: AT5023603

UR/0000/65/000/000/0336/0341

AUTHOR: Gringauz, K. I.; Dolginov, Sh. Sh.; Bezrukikh, V. V.; Yeroshenko, Ye. G. 896  
Zhuzgov, L. N.; Musatov, L. S.; Solomatina, E. K.; Fastovskiy, U. V. 131

TITLE: Comparison of simultaneous measurements of magnetic field and positive ion flux within the Earth's magnetosphere recorded by the Elektron-2 satellite

SOURCE: Vsesoyuznaya konferentsiya po fizike kosmicheskogo prostranstva. Moscow, 1965. Issledovaniya kosmicheskogo prostranstva (Space research); trudy konferentsii. Moscow, Izd-vo Nauka, 1965, 336-341

TOPIC TAGS: space environment, ionospheric physics, electron density, ion density, earth magnetic field/Elektron 2 satellite

ABSTRACT: Measurements of charged-particle flux and magnetic field at a height of 6-11.6 R (R, Earth's radius) were made by Elektron-2. The particle trap used was capable of recording positive ion flux with ion energy in excess of the potential difference of the satellite with respect to its environment and electron flux with electron energy in excess of 100 ev. The magnetometer, with orthogonally arranged sensors, was capable of measuring the magnetic field in the range of  $\pm 120 \times 10^{-5}$  erg

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L 2885-66

ACCESSION NR: AT5023603

in each component direction. Its threshold was  $2 \times 10^{-5}$  erg. The satellite measurements, when compared with solar activity data in the form of  $K_p$  indexes recorded via ground observatories, show inconsistencies in the correlation between the variation of magnetic activity on the Earth's surface and the variation of the geomagnetic field intensity and charged particle flux as measured by the satellite. It is uncertain whether these observations can be explained by the solar wind penetrating the magnetosphere or by near-earth plasma due to charged particles accelerated by a yet unknown mechanism. Orig. art. has: 6 figures. [BD]

ASSOCIATION: none

SUBMITTED: 02Sep65

NO REF SOV: 003

ENCL: 00

OTHER: 008

SUB CODE: ES,1V

ATD PRESS: 4109

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L 1285-66 FSS-2/EWT(1)/FS(v)-3/FCC/EWA(d)/EWA(h) ... TT/GS/3W  
ACCESSION NR: AT5023604 UR/0000/65/000/000/0342/0356

AUTHOR: Dolginov, Sh. Sh.; Veroshenko, Ya. G.; Zhuzgov, L. N.

TITLE: Investigation of the earth's magnetosphere in the radiation belt zone (3-6R<sub>g</sub>) in February-April 1964

SOURCE: Vsesoyuznaya konferentsiya po fizike kosmicheskogo prostranstva. Moscow, 1965. Issledovaniya kosmicheskogo prostranstva (Space research); trudy Konferentsii. Moscow, Izd-vo Nauka, 1965, 342-356

TOPIC TAGS: geomagnetic field, geomagnetism, magnetic storm, artificial earth satellite, radiation belt, satellite data analysis

ABSTRACT: The authors give a detailed report on the "Elektron-2" satellite including orbital information and telemetered observations in the region of the outer radiation belt at distances of 3-6R<sub>g</sub>. Magnetometric measurements indicate that there is an outer magnetic field during the calm of the day associated with the protons and electrons of the radiation belts. This conclusion is made on the basis of comparatively limited observation time. Further observations by the "Elektron-4" at other orbital positions with respect to the line between the sun and the earth

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L 1285-66

ACCESSION NR: AT5023604

should give more definite information on the extent to which the observed effects may be attributed to the radiation zone. Peculiarities observed in the dynamics of the magnetosphere far from the boundary zone, and effects observed during polar storms may be connected with the mysterious mechanism responsible for magnetic storms. "The authors consider it their pleasant duty to thank those who assisted in analyzing the materials during preparation and conduction of the experiment." Orig. art. has: 9 figures. [14]

ASSOCIATION: none

SUBMITTED: 02Sep65

ENCL: 00

SUB CODE: ES, SV

NO REF SOV: 010

OTHER: 025

ATD PRESS: 4102

Card

2/2

L 2992-66 FSS-2/EWT(1)/FS(v)-3/FCC/EWA(d) TT/GS/GW

ACCESSION NR: AT5023643

UR/0000/65/000/000/0606/0614

AUTHOR: Dolginov, Sh. Sh.; Nalivaiko, V. I.; Tyurmin, A. V.; Chincev, M. H. 76  
72  
B+

TITLE: Experiments in the world magnetic survey program

SOURCE: Vsesoyuznaya konferentsiya po fizike kosmicheskogo prostranstva. Moscow, 1965. Issledovaniya kosmicheskogo prostranstva (Space research); trudy konferentsii. Moscow, Izd-vo Nauka, 1965, 606-614.

TOPIC TAGS: geomagnetic field, geomagnetism, secular magnetic field, secular magnetic variation, artificial earth satellite, aeromagnetometer, proton magnetometer, PM 4 magnetometer, PM 5 magnetometer

ABSTRACT: A brief review is given of the various attempts to obtain a world-wide magnetic-field map. The use of artificial earth satellites to map the earth's magnetic field is shown to be the most efficient of the various methods used. For optimum efficiency in a single experiment, a satellite must have an orbit inclined to the equatorial plane by  $85^\circ$ , as had several of the Cosmos series. The low-number Cosmos series (such as Cosmos-26) carried proton magnetometers aboard, which essentially measure the frequency of proton-free precession in the earth's magnetic field. The disadvantages of this type of magnetometer were

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L 2992-66

ACCESSION NR: AT5023643

4

alleviated in the later Cosmos series (Cosmos-49), by using self-tuning magnetometers with logic circuits. One such device, designated PM-4, automatically selects and analyzes the optimum signal during a part of the free nuclear precession period of the proton. Two such devices on Cosmos-49, set 90° apart, had a measurement accuracy of 2-3 gauss. Magnetic field measurements were taken by both the Cosmos-26 and -49 vehicles at altitudes of 270-403 km and 270-490 km respectively, during March and October of 1964. Typical magnetograms from these measurements are shown separately. Recommendations are made for further scientific investigations with magnetic-field charts to better determine the earth's geomagnetic field and to correct the coefficients of the Gaussian series. Orig. art. has: 4 figures. [04]

ASSOCIATION: Vsesoyuznaya konferentsiya po fizike kosmicheskogo prostranstva, Moscow (All-Union Conference on Space Physics)

SUBMITTED: 02Sep65

ENCL: 00

SUB CODE: ES,5V

NO REF SOV: 005

OTHER: 004

ATD PRESS: 4/10

Card 2/2 *hd*

L 02976-67 EWT(1)/FSS-2/FCC TI/SW

ACC NR: AP6032857

SOURCE CODE: UR/0020/66/170/003/0574/0577

AUTHOR: Dolginov, Sh. Sh.; Yeroshenko, Ye. G.; Zhuzgov, L. N.; Pushkov, N. V. 91  
117ORG: Institute of Terrestrial Magnetism, Ionosphere, and Radiowave Propagation,  
Academy of Sciences, USSR (Institut Zemnogo magnetizma, Ionosfery i rasprostraneniya  
radiovoln Akademii nauk SSSR) 8TITLE: Measurement of the magnetic field in the vicinity of the moon by the Luna-10  
artificial satellite

SOURCE: AN SSSR. Doklady, v. 170, no. 3, 1966, 574-577

TOPIC TAGS: magnetic field, lunar orbit, lunar satellite, *LUNAR ENVIRONMENT,*  
*MAGNETIC FIELD MEASUREMENT*

ABSTRACT: The magnetic field intensity in the vicinity of the moon was measured by a three-component magnetometer carried on Luna-10. The magnetometer measurement range and its threshold of sensitivity in each direction were 50  $\gamma$  ( $1 \gamma = 10^{-5}$  Oe) and 1  $\gamma$ , respectively. During the lunar orbital flight the satellite rotated around a given axis. The magnetic field components parallel ( $T_{\parallel}$ ) and perpendicular ( $T_{\perp}$ ) to this axis were measured. The absolute and relative errors in measuring the resultant magnetic field were estimated to be  $\pm 10 \gamma$  and  $\pm 5 \gamma$ , respectively. During the observation period (3 April to 4 May 1966), the total magnetic field and its components fluctuated in the following ranges:  $T = 23-40 \gamma$ ,  $T_{\parallel} = 18-38 \gamma$ , and  $T_{\perp} = 12-16 \gamma$ . A correlation was established between variations in  $T$  and  $T_{\parallel}$

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UDC: 538.7

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ACC NR: AP6032857

and changes in the magnetic activity index. It was not possible to establish the presence of a lunar dipole magnetic field or the Earth's magnetospheric tail by means of these direct observation methods. The most reliable average value of  $\mathcal{U}$  obtained was 15  $\gamma$ , which exceeds the interplanetary value for the same index of magnetic activity. It is hypothesized that the moon is magnetically permeable. The authors express their gratitude to E. I. Magilovskiy, V. N. Orbidko, Yu. V. Afanas'yev, and V. P. Lyulik. Orig. art. has: 2 figures. 4

SUB CODE: 03/ SUBM DATE: 27Jul66/ ORIG REF: 001/ OTH REF: 003/ ATD PRESS: 5099

Card

2/2 *egfr*

ACC NR: AP7007600

SOURCE CODE: UR/0293/66/004/006/0880/0899

AUTHOR: Zhuzgov, L. N.; ~~Dolginov, Sh. Sh.~~; Yaroshenko, Ye. G.

ORG: none

TITLE: Investigation of the magnetic field from the satellite "Luna-10"

SOURCE: Kosmicheskiye issledovaniya, v. 4, no. 6, 1966, 880-899

TOPIC TAGS: lunar satellite, magnetic field, solar wind / Luna-10  
lunar satellite

SUB CODE: 22,03,20

ABSTRACT:

change of the index of magnetic activity at the earth's surface. The error of the absolute scalar value of the field is estimated at  $\pm 10 \gamma$ . Comparison of the measured field values in the region of the pericenter and apocenter and evaluation of possible distortions of the field by the solar wind indicate that the moon does not have a field of a dipole nature. The authors discuss the problem of whether the observed field can be identified with the interplanetary field of solar origin, deformed or trapped by a moon having finite conductivity and permeability. Comparison of measurements in periods of the full and new moons fails to indicate a direct extent of the earth's magnetic field on the nighttime side to distances  $60 R_E$ .

This is a report on observations of the magnetic field of regular structure in the neighborhood of the moon whose intensity during the time of observations varied in the range  $24-40 \gamma$ , in agreement with the

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UDC: 620.105.2.000

0421075

ACC NR: AP7007600

The authors thank Yu. V. Afanas'yov, V. P. Lyulik, and G. N. Alekseyeva for participating in the preparation of the apparatus. Orig. art. has: 3 formulas, 12 figures and 1 table. JPRS: 39,718/

Card 2/2



DOLGINOV, Ye.A.

Structure and origin of Jurassic depressions in the alpine  
Caucasus. Sov.geol. 1 no.11:88-105 M '58. (MIRA 12:4)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.  
(Caucasus--Geology, Structural)

**DOLGINOV, Ye.A.**

Most mobile zones in the Caucasus. Izv. vys. ucheb. zav.; geol. i  
razv. 1 no.12:64-70 D '58. (MIRA 12:12)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.  
(Caucasus--Geology, Structural)

DOLGINOV, Ye.A.

Peculiarity of tectonic boudinage in sedimentary strata.  
Nauch. dokl. vys. shkoly; geol.-geog. nauki no.3:60-63 '58.  
(MIRA 12:1)

1. Moskovskiy universitet, geologicheskiy fakul'tet, kafedra dinami-  
cheskoy geologii.  
(Geology, Structural) (Rocks, Sedimentary)

DOIGINOV, Ye.A.

Characteristics of faulting in the area of the old nucleus of the  
Caucasus. Izv. vys. ucheb. zav.; geol. i razv. 2 no.7:60-69 J1 '59  
(MIRA 13:3)

1. Moskovskiy gosudarstvennyy universitet.  
(Caucasus--Faults(Geology))

DOLGINOV, Ye, A., Canl of Geol- Min Sci -- (diss) "The Structure and Genesis of the Jurassic Depression in the Central Caucasus," Moscow, 1959, 21. pp (Moscow State University in M. V. Lomonosov) (KL, 7-60, 107)

DOIGINOV, Ye. A.

Structural plan of the Greater Caucasus. Vest. Mosk. un.  
Ser. biol., pochv., geol., geog. 14 no.3:109-116 '59.

(MIRA. 13:6)

1. Kafedra dinamicheskoy geologii Moskovskogo universiteta.  
(Caucasus--Geology, Structural)

DOLGINOV, Ye.A.

Fourth conference of post-graduate students and young  
scientists of Moscow State University. Izv.vys.ucheb.  
zav.; geol.i razv. 2 no.11:128-136 N. '59.  
(MIRA 13:6)

(Geology)

DOEGINOV, Ye.A.

Block movements in the mega-anticlinorium kernel of the Greater  
Caucasus in the Jurassic. Vest.Mosk.un.Ser.4: Geol 15 no.1;  
3-10 '60. (MIRA 14:4)

1. Kafedra dinamicheskoy geologii Moskovskogo universiteta.  
(Caucasus--Geology, Structural)



BELOV, A.A.; DOLGINOV, Ye.A.; KROPACHEV, S.M.; ORLOV, R. Yu.; SOKOLOV, B.A.

Cherkessk-Kelasuri lateral disturbance of the structure of the  
Greater Caucasus. Izv. AN SSSR, Ser. geol. 24 no.6:24-32 Je '60.  
(MIRA 14:4)

1. Moskovskiy gosudarstvennyy universitet.  
(Caucasus--Geology, Structural)

DOI... M...; ...

Light-weight, portable pump with plastic parts for cleaning vessels.  
Sber.nauch.-tekh.inform.Azerb.Inst.nauch.-tekh.inform.Ser.Mashinostroi.  
prom. no.483-8 '62. (MIRA 18:8)

BELYANKINA, M.N.; DOLGINOV, Ye.A.

Genesis and the structural position of granites in the northwestern part  
of the Yenisey Range. Vest. Mosk. un. Ser. 4: Geol. 18 no.6:59-68 N-D  
'63. (MIRA 18:7)

1. Kafedra diamicheskoy geologii Moskovskogo universiteta.

DOLGINOV, Yo.A.

Characteristics of the development of the Sayan-Yenisey fold area.  
Vest.Mosk.un.Ser.4: Geol. 19 no.5:10-16 S-0 '64.

(MIRA 17:12)

1. Kafedra dinamicheskoy geologii Moskovskogo universiteta.

BELYKHIN, M.I.; KULGINOV, Ye.A.

Riphean structures in the northwestern part of the Fennoscandia Range.  
Geotektonika no.2:17-31 No-Ap '65. (MIRA 38:5)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

DOLGINOV, Ye.S., inzh.; RODOV, S.M., inzh.

Methods of supporting inclined conveying galleries. Prom. stroi.  
42 no.10:37-38 0 '64. (MIRA 1964)

1. Dnepropetrovskiy filial Gosudarstvennogo instituta po proyektirovaniyu, issledovaniyu i ispytaniyu stal'nykh konstruktsiy i mostov.

DOIGINOVA, M., kand. tekhn. nauk, staryiy prepodavatel'; SKIBITSKIY,  
N., gruppovoy inzhener-konstruktor

Polyethylene is a good substitute for nonferrous metals. Mer.  
flot 23 no. 12:29-31 D '63. (MIRA 17:5)

1. Sudoremontnyy zavod imeni Parizhskey Kommuny (for Skibitskiy).

DOLGINOVA, M. Ye., Cand Tech Sci -- (diss) "Intensification  
of the combustion of natural gas in the smelting furnace."  
Baku, 1958, 16 pp with <sup>drawings</sup> ~~sketches~~ (Min of Higher Education  
USSR. Azerbaydzhan Order of Labor Red Banner Industrial  
Inst in M. Azizbekov) 150 copies (KL, 27-58, 106)



DOLGINOVA, M.Ye.

**AUTHOR:** Ginzburg, Z.I., Engineer. SCV/122-98-7-30/31

**TITLE:** Production Engineering and Technical Session on the Exchange of Experience in the Utilization of Natural Gas in Industrial Furnaces of Engineering Plants (Prolivodno-remontnyye mashinostroyeniya kessalya 50 obratnu opytom ispol'zovaniya prirodnykh gaza v proizvodstvennykh remontno-remontnykh mashinostroyeniye zavodov)

**PERIODICAL:** Vestnik Mashinostroyeniya, 1958, nr 7, pp 56-57 (USSR)

**ABSTRACT:** The session was called by the Khar'kov sovetskoy (Khar'kov economic council), the metal-working section of the nauchno-tekhnicheskoye obshchestvo Mashinostroyeniya (Scientific and Technical Society for the Engineering Industry) and the Institut Ispol'zovaniya gaza v sotsial'nom khozyaystve i proizvodstvennoy tekhnologii (Institute for Gas Utilization in Commercial Services and Industry of the A.S.S.R. Ukraine SSR) of Engineering Plants

depth of 1 mm in 4.5 hours. A tunnel furnace made of fireclay slugs has been designed and built at the works. The furnace is heated with injector burners of medium pressure, and uses natural gas as oxidant. In co-operation with the Gas Utilization Institute, the design and construction of a high-speed of 32 dia rods, feeding accomplished for the end. An original design of a conveyor for transporting the rods from the furnace to the forging machine is also completed. The design, prepared by the factory, of a turbine burner of 50-80 m<sup>3</sup>/h capacity uses the energy of high-pressure gas to drive a fan which feeds air for combustion from the atmosphere and a turbine for the gas-combustion process. The design of a turbine burner of the Khar'kov Institute for the design of cast metal repair yard is also completed. The method of cast metal repair on the use of natural gas for the production of pipes. The method developed and tested in practice, which dispenses with the use of conventional furnace operating

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of Engineering Plants

The session was devoted to the exchange of experience in the utilization of natural gas in industrial furnaces of engineering plants. The session was held in the Khar'kov Institute for the Utilization of Natural Gas in Industrial Furnaces of Engineering Plants. The session was held in the Khar'kov Institute for the Utilization of Natural Gas in Industrial Furnaces of Engineering Plants. The session was held in the Khar'kov Institute for the Utilization of Natural Gas in Industrial Furnaces of Engineering Plants.

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DOLGINOVA, M.Ye.; ALEKSIYENKO, P.M.

Cupola furnaces using natural gas. Gas.prom. 4 no.9:31-35  
S '59. (MIRA 12:11)  
(Furnaces) (Gas, Natural)

18(2,5)

SOV/128-59.9-5/25

AUTHOR:

Dolginova, M. Ye., Candidate of Technical Sciences and  
Aleksyenko, P. M., Engineer

TITLE:

Industrial Practice in Iron Melting with the Use of  
Natural Gas

PERIODICAL:

Liteynoye proizvodstvo, 1959, Nr 9, pp 16-18 (USSR)

ABSTRACT:

In the course of 1957-1958, the Baku Machine-Building Plant imeni P. Montin, the Kishlinskiy Machine-Building Plant, and the Ship-Building Plant imeni P. P. Zhenskaya Kommuna introduced the method of iron melting with the use of natural gas as fuel. At the present time, there are eight iron-melting cupolas working on natural gas in operation. The heat value of natural gas varies from 8000 to 8700 calories. As is seen from Figure 1, the temperatures attained at burning of natural gas are sufficient for iron melting (the minimum required temperatures - 1500° - 1550° C). The general furnace construction is given in Figure 2. A special burner to be used with the furnace is given in Figure 3; it is provided with two channels for mixing natural gas and air inside the burner. The required

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SOV/128-59-9-5/25  
Industrial Practice in Iron Melting with the Use of Natural Gas

gas-air ratio is 1 to 10. The optimum speed of the gas-air mixture outlet is 35-40 m/sec. The required air pressure amounts to 500-1100 mm of water column. The natural gas consumption having an average heat value of 8400 calories is 100-110 m<sup>3</sup>, the corresponding air consumption is 1000-1100m<sup>3</sup> per ton of charge. Experience has shown that cast iron melted in a gas cupola possesses better mechanical properties than when produced in a coke furnace. The simpleness of gas furnaces construction enables their building at a comparatively low cost. There are : graph, 2 tables and 2 diagrams.

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DOLGINOVA, M.Ye.

Plastic valves. Izv. vys. ucheb. zav., neft' i gaz 6 no.7:  
120-123 '63. (MIRA 17:8)

1. Azerbaydzhanskiy institut nefti i khimii imeni azizbeyeva.

S/203/61/001/005/003/028  
A006/A101

AUTHOR: Dolginova, Yu.N.

TITLE: Determining the degree of polarization of the solar corona from observations made during the solar eclipse on June 30, 1954

PERIODICAL: Geomagnetizm i astronomiya, v. 1, no. 5, 1961, 646 - 649

TEXT: The author attempts to determine polarization of solar corona at distances from 1.5 - 7 R  $\odot$  from the center of the solar disk. Data are used which the author has gathered during the solar eclipse on June 30, 1954. (NIZMIR expedition to the Kozelets village, 75 km from Kiyev). Photographs of the corona were taken with a three-objective camera with polaroides, producing pictures of the corona at 3 positions of the polaroids. Photometry was made in N - S, W - E directions. The degree of polarization and the position of its plane were determined by D.A. Rozhkovskiy's graphical method (Ref. 6: D.A. Rozhkovskiy, Astron. tsirkulyar, 1956, no. 166, 13) based on V.G. Fesenkov's formulae (Ref. 7: V.G. Fesenkov, Astron. zh., 1956, v. 33, 588). Such graphic determinations were made every 0.25 R  $\odot$  within a range of 1.5 - 3.0 R  $\odot$  from the disk center and every 0.5 R  $\odot$  at larger distances. Experimental and theoretical polarization curves

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Determining the degree ...

S/203/61/001/005/003/028  
A006/A101

are close for the polar direction, but differ for the equatorial direction. Polarization in the latter direction depends apparently more on the corona shape. Data on polarization angle  $\alpha$  (in degrees) are tabulated and illustrated. To estimate errors in the values obtained, relative errors of  $\Delta p/p$  were determined for different distances from the disk center in several directions, and absolute errors for the polarization angle  $\alpha$ . For distances of 3.0 and 4.0 R  $\odot$  from the disk center,  $\Delta p/p$  was equal to 15 and 65% respectively; for 5 R  $\odot$  the error exceeded 100%. For both  $\alpha$  and  $p$  values the NW direction proved to be the poorest, as shown in tabulated data of angles  $\alpha$ . On the whole the determination of angles  $\alpha$  is accompanied by greater errors than determination of  $p$ . This may be due to inaccurate accounting for dispersed light, inaccurate orientation of polaroids and not sufficiently precise determination of position angles of photometric sections, connected with the small scale of the corona image. The author thanks G.M. Nikol'skiy. There are 4 figures, 2 tables and 9 references: 6 Soviet-bloc and 3 non-Soviet-bloc.

ASSOCIATION: Institut zemnogo magnetizma, ionosfery and rasprostraneniya radiovoln AN SSSR (Institute of Earth Magnetism, Ionosphere and Propagation of Radiowaves, AS USSR)

SUBMITTED: July 29, 1961

Card 2/2

S/214/62/000/006/001/001  
D207/D308

**AUTHORS:** Akin'yan, S.T. and Dolginova, Yu.N.  
**TITLE:** Chromospheric flares and radio bursts of IU type on July 12, and 18, 1961.  
**PERIODICAL:** Solnechnyye dannyye, no. 6, 1962, 61-65

**TEXT:** Radiotelescopes at IZMIRAN recorded on July 12 and 18, 1961 two strong radio bursts of IU type frequencies of 208 and 545 Mc/s. These bursts accompanied chromospheric flares of 3+ magnitude which occurred on the same days and were recorded at the Observatory of GAO AN USSR and at IZMIRAN. An analysis of these bursts led to the following conclusions, in full agreement with the work published earlier: (1) The maximum of the first stage of the radio bursts of IU type is close in time to the maximum of the flare brightness; (2) The beginning of the second stage of the bursts on July 12 coincided with the moment of ejection of an eruptive filament in the region of the flare; (3) The ejection and collapse of a filament on July 18 preceded the maximum brightness of the flare, which may have

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Chromospheric flares ...

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D207/D308

been due to the unsharp division between the first and second stages of the radio burst. Acknowledgements are made to Doctor F. Fürstenberg from the Heinrich Hertz Institute for supplying the records of some radio bursts, and to staff members of GAO AN USSR E.A. Gurtovenko and T.V. Orlova for the supply of the records of the July 12 flare. There are 2 figures.

ASSOCIATION: Institut zemnogo magnetizma, ionosfery i resprostran-  
iya radiovoln AN SSSR (Institute for Terrestrial  
Magnetism, Ionosphere and Radiowave Propagation, AS  
USSR)

Card 2/2

ACC NR: AR7000896

SOURCE CODE: UR/0058/66/000/009/11043/11043

AUTHOR: Akin'yan, S. T. ; Dolginova, Yu, N.

TITLE: Relationship of large chromospheric flares to type IV solar radio emission bursts

SOURCE: Ref. zh. Fizika, Abs. 9Zh313

REF SOURCE: Sb. Solnechn. aktivnost'. No. 2. M., Nauka, 1965, 183-198

TOPIC TAGS: solar radio emission, chromospheric flare, radio emission, ~~radio emission burst~~, geomagnetic disturbance, solar flare, *solar coronal radiation*

ABSTRACT: A study is made of the correlation between strong chromospheric flares (class  $> 2$ ) and type-IV solar radio emission bursts and geomagnetic disturbances. An analysis is made of data obtained during the IGY 1958-1961 by participating observatories (a total of 20 flares with accompanying type-IV bursts and geomagnetic disturbances). A correlation was noted between the behavior of the photometric curve of chromospheric flare intensity and that of the first stage of type-IV bursts (bursts in the region of centimeter waves). The second stage of

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type-IV radio emission bursts occurs within the decimeter- and meter-wave range and after the chromatospheric flare maximum, coinciding with the initial stage of the accompanying burst. The velocity of the source in the corona during the second stage of the burst is  $\sim 1000$  km/sec. This velocity corresponds to the velocity of corpuscular streams within the range of the Earth's effect. The determining factor in the magnitude of the geomagnetic disturbance is not the class of the flare but the intensity of the second stage of the burst. The greatest magnitude in the second stage of the burst is produced by chromatospheric flares with a heliographic longitude of  $\pm 40^\circ$ . N. Sobolev. [Translation of abstract] [SP]

SUB CODE: 0308

Card 2/2

*DOLGINOV, P.P.*

MAKHINYA, P.M., inzhener; DOLGINOV, P.P.

Transporting lime-gypsum solutions with pumps (without gypsum hardening retarders). *Biul.stroi,tekh.* 10 no.11:13 Je '53. (MLRA 6:8)

1. Ukrainskiy filial Byuro tekhnicheskoy pomoshchi stroitel'stvu Ministerstva stroitel'stva. (Plastering)