

AUTHOR: Fel'dshteyn, Ya. I.

SOV/49-59-1-22/23

TITLE: Distribution of Aurorae in the [Arctic] Polar Region  
(Raspredeleniye polyarnykh siyaniy v okolopolyusnoy oblasti)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya,  
1959, Nr 1, pp 170-171 (USSR)

ABSTRACT: Analysis of the distribution of magnetic perturbations observed at high-latitude observatories and stations in the Central Arctic led Nikol'skiy (Refs 1-3) to suggest the existence of a second zone of high magnetic activity and aurorae. Such a zone would occur at geomagnetic latitudes of about 78-80°. Independently of Nikol'skiy, Alfven (Ref 4) concluded from his studies of the motion of ionised particles from the Sun in the magnetic field of the Earth, that there should exist at  $\Phi \sim 80^\circ$  a second aurorae zone. This zone should be considerably weaker than the main auroral zone at  $\Phi = 65-66^\circ$  ( $\Phi$  denotes here the geomagnetic latitude). Fig.1 gives the distribution of the aurorae, as a function of the geomagnetic latitude, observed in

Card 1/2 the winter of 1955/56 at several polar stations. These

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## Distribution of Aurorae in the [Arctic] Polar Region

stations were: Tadibe-Yaga at  $70^{\circ}.4N$ ;  $74^{\circ}$ ,  $1E$ ,  $\Phi = 60^{\circ}.5N$  (curve a in Fig.1); Cape Vykhodnoy at  $73^{\circ}.2N$ ,  $56^{\circ}.7E$ ,  $\Phi = 64^{\circ}.8N$  (curve v); Krasnoflotskiye Islands at  $78^{\circ}.6N$ ,  $98^{\circ}.7E$ ,  $\Phi = 67^{\circ}.3$  (curve B); the drifting polar station SP-5 at  $86^{\circ}.5N$ ,  $100^{\circ}E$ ,  $\Phi = 75^{\circ}.2N$  (curve g). Only the results obtained at the SP-5 station confirmed the existence of the second auroral zone at  $\Phi = 75-76^{\circ}$ . The positions of the other observation points were too far south to record the second zone; curves a, b, v show only the aurorae of the main zone near  $\Phi = 65^{\circ}$ . It was also found that the probability of an aurora on a particular day is considerably smaller in the second zone, than in the main zone, which confirms Alfven's predictions. There are 1 figure and 5 references, 4 of which are Soviet, 1 English.

ASSOCIATION: Arkticheskaya nauchno-issledovatel'skaya observatoriya  
Dikson (Dikson Arctic Scientific-Research Observatory)

SUBMITTED: July 4, 1957

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KRASOVSKIY, V.I.; doktor fiz.-matem.nauk, otv.red.; FEL'DSHTEYN, Ya.I.,  
red.; SIMKINA, G.S., tekhn.red.

[Spectral, electrophotometric, and radar observations of auroras  
and airglow; collection of articles] Spektral'nye, elektrofoto-  
metricheskie i radiolokatsionnye issledovaniia poliarnykh sianii  
i svecheniia nochnogo neba; sbornik statei. IV razdel programmy  
MGG (poliarnye sianii i svechenie nochnogo neba). Moskva.  
No.2/3. 1960. 69 p. (MIRA 13:12)

1. Akademiya nauk SSSR. Mezhdunarodnyy komitet po provedeniyu  
Mezhdunarodnogo geofizicheskogo goda.  
(Auroras) (Night sky)

BAGARYATSKIY, B.A., kand.fiziko-matem.nauk, otv.red.; FEL'DSHTEYN, Ya.I.,  
red.; MAKUNI, Ye.V., tekhn.red.

[Auroral investigations; collection of articles] Issledovaniia  
poliarnykh silanii; sbornik statei. IV razdel programmy MGG  
(poliarnye silaniia i svechenie nochnogo neba). Moskva. No.4.  
1960. 77 p. (MIRA 14:1)

1. Akademiya nauk SSSR. Meshduvedomatvennyy komitet po provedeniyu  
Meshdunarodnogo geofizicheskogo goda.  
(Auroras) (Night sky)

3.9100

S/169/61/000/002/030/039  
A005/A001

Translation from: Referativnyy zhurnal, Geofizika, 1961, No. 2, p. 48, # 20330

AUTHOR: Fel'dshteyn, Ya. I.

TITLE: The Q-Index of the Magnetic Activity of Observatories Dikson and Chelyuskin

PERIODICAL: V. sb.: "Vozmushcheniya elektromagnitn. polya Zemli". Moscow, AN SSSR, 1960, pp. 5-15 (English summary)

TEXT: On the basis of magnetograms of observatories Dikson and Chelyuskin obtained in the period from July 1956 to July 1957, the indices of the magnetic activity  $Q$  were determined every quarter of an hour, and the diurnal and annual courses of the magnetic activity were calculated. The comparison of the results obtained with the aid of the  $Q$ -indices with the analogous results based on other indices of magnetic activity (hourly amplitudes of the horizontal component,  $K$ -index) made it possible to compare the potentialities of the  $Q$ -index and other indices of magnetic activity, which were introduced earlier into the practice. The regularities which are shown by indices  $\gamma \left( \frac{\gamma}{n} \right)$  and  $K$ , are corroborated by the

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S/169/61/000/002/030/039  
A005/A001

The Q-Index of the Magnetic Activity of Observatories Dikson and Chelyuskin

Q-index. Moreover, the Q-index makes it possible to notice the details of phenomena, which escape while using other indices. There are 8 references.

V. A.

/B

Translator's note: This is the full translation of the original Russian abstract.

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20421

S/169/61/000/007/088/104

A006/A101

3,1810

AUTHOR: Fel'dshteyn, Ya.I.

TITLE: The geographical distribution of auroras polaris and the azimuths of arcs

PERIODICAL: Referativnyy zhurnal. Geofizika, no. 7, 1961, 35, abstract 70247 (V sb. "Issled. polyarn. siyaniy, no. 4", Moscow, AN SSSR, 1960, 61-78, English summary)

TEXT: The probable appearance of auroras polaris over a given point was evaluated from the ratio of the number of nights with zenith aurora to the total number of nights when observations were made. Continuous photographic observations at 39 stations (24 Soviet and 15 foreign stations) and hourly visual observations of the auroras at three Canadian stations during the winter 1957/1958, served as initial material for the northern hemisphere. To determine the location of the zone of auroras polaris and the location of the station in respect to the zone, the number of auroras to the North and the South of the station was compared. The observations have shown that the location of the zone of auroras polaris during magnetically-quiet and magnetically-disturbed days was somewhat

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28421  
S/169/61/000/007/088/104  
A006/A101

The geographical distribution ...

different. The distance between them was on the average  $3^{\circ}$ - $5^{\circ}$  in latitude; during magnetically-disturbed days the zone was situated more to the south than during magnetically-quiet days. Depending on the latitude some changes were observed in the recurrence of auroras polaris. There is a sharply marked maximum of intensity in the zones of aurora polaris and a monotonous north-and southward decrease in the latitudinal distribution on magnetically disturbed days. During magnetically-quiet days a distinct maximum of auroras polaris recurrence in the zenith appears  $8^{\circ}$ - $10^{\circ}$  to the north from the zone of auroras polaris. The probable appearance of auroras polaris at the zenith at these stations which are located far inside the zone of auroras polaris, can be compared with the probable appearance of the auroras inside the zone of auroras polaris. Apparently, this is a second zone, but it is observed only during magnetically quiet days. It was also established that far inside the zone of auroras polaris, the auroras appeared much more frequently during magnetically quiet than magnetically disturbed days. In the very zone, the reverse phenomenon was observed towards the south and somewhat to the north. The comparison of zones of aurora polaris in the Arctic and Antarctic indicates their somewhat different form and a considerable difference in their diameters. In the Antarctic, the zone of auroras polaris is almost a circle with about  $20^{\circ}$  radius; in the Arctic it is a prolate oval with

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2<sup>nd</sup> 421

S/169/61/000/007/088/104

A006/A101

The geographical distribution ...

its center in the homogeneous magnetization pole, and 20° minimum and 28° maximum radius. Such a difference in the radius and shape of the zones of aurora polaris can in the first approximation be explained by the difference between the constant magnetic field of the Earth and the dipole field. Diurnal changes in the recurrence of auroras polaris in the zenith indicate that there are two maxima of recurrence, namely the "early" and "nocturnal" one. The oval shape of the zone of aurora polaris can be explained by the deformation of the magnetic field of the Earth due to the incoming corpuscle flows. Theoretical calculations yield a spiral shape of particle settling, even if the magnetic field is not different from the dipole field, i.e. if there is no deformation of the magnetic field at great distances from the Earth. Observations of the azimuths of aurora polaris arcs show that rotation of the latter takes place; this can be explained by the fact that the zone of polar auroras has an oval shape; the evening (nocturnal) spiral has greater azimuths than the early spiral. There are 28 references. H

L. Yerasova

[Abstracter's note: Complete translation]

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89775

3,1810

S/169/61/000/002/029/039  
A005/A001

Translation from: Referativnyy zhurnal, Geofizika, 1961, No. 2, p. 48, # 20329

AUTHORS: Fel'dshteyn, Ya. I., Kurdina, Ye. N.

TITLE: Magnetic Variations Within the Main Zone of Aurora

PERIODICAL: V sb.: "Probl. Arktiki i antarktiki". No. 3, Leningrad, "Morsk. transport", 1960, pp. 118-119

TEXT: To study the variability of the components of the magnetic field within the auroral zone, a temporary record of the magnetic field was carried out from April 6 to May 6, 1957, in the Nagurskaya Bay (Franz Josef Land) which is located 108 km from the Tikhaya Bay. From the comparison of the magnetograms obtained in the Tikhaya Bay and Nagurskaya Bay, i. e., characteristic extrema in the H- and Z-components, a functional correlation was detected between the variations at both points, especially clear for the vertical component. The nature of the changeability of magnetic field variations north of the auroral zone differs considerably from the variations within the zone. Z noticeably changes within the auroral zone at distances of about 100 km, whereas within the auroral zone the variability considerably decreases. The explanation of these

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89775

Magnetic Variations Within the Main Zone of Aurora

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A005/A001

peculiarities is given. The essential conclusion is drawn that the number of stations within the zone may be less than that within (?) the zone of aurora when the network of temporary stations is established.

Kh. Kanonidi

Translator's note: This is the full translation of the original Russian abstract.

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89802

S/169/61/000/003/020/022  
A005/A005

9.9842 (2603,1041,1046)

Translation from: Referativnyy zhurnal, Geofizika, 1961, No. 3, p. 41, # 30329

AUTHOR: Fel'dshteyn, Ya. I.

TITLE: The Statistical Regularities of the Absolute Values of the Magnetic  
E Earth's Field and the Magnetic Activity at High Latitudes

PERIODICAL: "Tr. Arkt. i Antarkt. n.-1. in-ta", 1960, Vol. 223, pp. 79-97

TEXT: The author considers the recurrence frequency of deflections of the field from the stable values, which are different in magnitude, in contrast to investigations based on the analysis of the absolute values of the field (average diurnal variations over all days or over stormy days), for the purpose of more comprehensive knowledge of the nature of magnetic storms. Results are presented of the statistical processing of the hourly amplitudes of the horizontal component and the deflections of the absolute value of the field in a given hourly interval from the corresponding value in a stable day for the same month according to data from the polar observatories in the period 1935 - 1936; the obtained distribution curves are interpreted. It is concluded that the distribution curves of the

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89802

S/169/61/000/003/020/022  
A005/A005

The Statistical Regularities of the Absolute Values of the Magnetic Earth's Field and the Magnetic Activity at High Latitudes

absolute values consist of two parts: 1) the Gauss distribution for small absolute values of the variation field; 2) the deflection from the normal distribution curve at great values of the field. The author considers the connection of the hourly amplitudes with the absolute values H for various periods of 24 hours, and the connection of the diurnal course of the modulus of the absolute values of the perturbation vector of the magnetic field. Qualitative results are presented. There are 14 references.

Kh. K.

Translator's note: This is the full translation of the original Russian abstract.

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FEL'DSHTEYN, Ya.I.; SOLOMATINA, E.K.

Auroras in the Southern Hemisphere. Geomag. i aer. i no.4:  
534-539 J1-Ag '61. (MIRA 14:12)

1. Institut zemnogo magnetizma, ionosfery i rasprostraneniya  
radiovoln AN SSSR.

(Auroras)

FEL'DSHTEYN, Ya.I.

Magnetic activity in the high latitudes of the Northern Hemisphere.  
Geomag. i aer. 1 no.5:786-794 S-0 '61. (MIRA 15:1)


1. Institut zemnogo magnetizma ionosfery i rasprostraneniya  
radiovoln AN SSSR.  
(Arctic regions--Magnetism, Terrestrial)

S/203/61/001/006/012/021  
D055/D113

AUTHORS: Fel'dshteyn, Ya. I., and Shevnina, N.F.

TITLE: Seasonal variations in the frequency with which aurorae appear

PERIODICAL: Geomagnetizm i aeronomiya, v. 1, no. 6, 1961, 936-938

TEXT: The authors investigate seasonal variations in the frequency with which polar aurorae appear and exclude the effect of differences in duration of observation by taking data for a definite period of time each day from a number of stations located in the aurora and polar regions of both hemispheres. The results confirm the conclusions of other authors that equinoctial maxima in the frequency with which aurorae appear occur in the aurorae zone and also show that there is no maximum in winter months in the polar region. There are 3 figures, 1 table and 7 references: 4 Soviet and 3 non-Soviet. The English-language references are: C. Störmer. The Polar Aurora. Oxford, 1955; B. McInnes, K.A. Robertson. J. Atmos. and Terr. 

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Seasonal variations ...

S/203/61/001/006/012/021  
D055/D113

Phys., 1960, 19, 115-125; W. Stoffregen. Instruction for sealing auroral  
ascaplots. Upsala, 1959. ✓

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

SUBMITTED: September 20, 1961

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S/203/61/001/006/013/021  
D055/D113

AUTHOR: Fel'dshteyn, Ya.I.  
TITLE: Polar aurorae and the anomalous absorption of type-III  
radio waves  
PERIODICAL: Geomagnetizm i aeronomiya, v. 1, no. 6, 1961, 939-941

TEXT: Polar aurorae with absorption of type-III radio waves (absorption in the polar cap) and geomagnetic storms are discussed on the basis of observations made in the South Pole region. Most of the data used, are of Western origin, and on this basis the author finds that the entry into the Earth's atmosphere of solar protons, which cause anomalous absorption of type II, has no connection with polar aurorae; that these coincide at the geomagnetic pole with the beginning of a geomagnetic storm and disappear quickly as the storm proceeds. The corpuscular flows, which cause aurorae in the polar region (as distinct from the auroral region), reach the high latitudes at the beginning of a storm along the force lines of a magnetic dipole. Later the geomagnetic field is so deformed by the flows that the entry of

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S/203/61/001/006/013/021  
D055/D113

Polar aurorae ...

corpuscles into the polar region is made difficult. There are 3 tables and 10 references: 3 Soviet and 7 non-Soviet. The four English-language references are: H. Leinbach, G.C. Reid. Proc. symposium URSI AGY Committee at Brussels, 1959, 281; C. Collins, D.H. Jelly, A.G. Matthews. Canad. J. Phys., 1961, 39, no. 1, 35; T. Obayashi, J. Hakura, J. Atmos. and Terr. Phys., 1960, 18, no. 2/3, 101; J.H. Chapman. Canad. J. Phys., 1960, 38, no. 9, 1195. ✓

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

SUBMITTED: October 3, 1961

Card 2/2

42132

3.1310

S/203/62/002/002/008/017  
1046/1246

AUTHORS: Fel'dshteln, Ya. I. and N. F. Shevnina

TITLE: The location of the southern auroral zone

PERIODICAL: Geomagnetizm i aeronomiya, v. 2, no. 2, 1962, 286-289

TEXT: The space-time distribution of the aurorae observed at the Soviet antarctic station Lazarev in February-October 1960 shows that the southern auroral zone does not extend over the southern geographic pole; this zone is rather a  $\sim 25^\circ$  circle circumscribing the southern magnetic pole and getting no closer than 1000 km to the southern geographic pole (Ref. 2: F. R. Bond, F. Jacka. Austral. J. Phys., 1960, 13, 610). The asymmetry between the northern and the southern auroral zones can be explained by deviations of the actual geomagnetic field from the field of a dipole. There are 2 figures and 1 table. ✓

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

SUBMITTED: December 20, 1961

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3.1810

43k69  
8/203/62/002/003/021/021  
I023/I250

AUTHOR: Fel'dshteyn, Ya.I.

TITLE: Changes in the location of the aurora zone connected  
with the cycle of solar activityPERIODICAL: Geomagnetizm i Aeronomiya, v.2, no.3, 1962, 571-572  
Kratkie soobshcheniya (short communications)

TEXT: A review is given of the published literature on variations in the aurora frequency and its location with the solar activity. The location of the aurora zone depends on the solar activity cycle: during the minimum of the cycle the aurora zone is shifted by 2.5 - 3° to the North as compared with its position during the maximum of the cycle. The aurora zone is represented as a projection of the external zone of corpuscular radiation into the upper layer of the atmosphere. Calculations show the displacement of the aurora zone by 2.5 - 3° is equivalent to a displacement of the external radiation zone by 1.5 Earth radii at the equatorial plane. There is 1 figure, 8 references.

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S/203/62/002/003/021/021  
I023/I250

changes in the location of... X

ASSOCIATION: Institut zemnogo magnetizma, ionosfery i rasprostra-  
neniya radiovoln Akademii nauk SSSR (Institute of  
Terrestrial Magnetism, Ionosphere and Radiowave  
Propagation, Academy of Sciences USSR)

SUBMITTED: February 6, 1962

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FEL'DSHTEYN, Ya.I.

Auroras and magnetic activity in the polar region. Geomag. 1  
ser. 2 no.5:851-854 S-O '62. (MIRA 15:10)

1. Institut zemnogo magnetizma, ionosfery i rasprostraneniya  
radiovoln AN SSSR.  
(Auroras) (Magnetic storms)

ISAYEV, S.I.; KOROTIN, A.B.; FEL'DSHTEYN, Ya.I.

Joint Franco-Soviet expedition to study auroras. Geomag. i aer.  
2 no. 5:1014-1015 S-O '62. (MIRA 15:10)  
(Auroras) (International cooperation)



3,1810  
3,9120

39101  
S/169/62/000/006/084/093  
D228/D304

AUTHORS: Fel'dshteyn, Ya. I. and Solomatina, E. K.

TITLE: Some questions of the geographic distribution of auro-  
ras in the northern hemisphere

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 6, 1962, 24-25,  
abstract 6G141 (V sb. Polyarn. siyaniya i svcheniye  
nochn. neba, no. 7, M., AN SSSR, 1961, 51-60)

ABST: Diurnal changes in the appearance frequency of zenith auro-  
ral forms are analyzed from the material of forty northern hemi-  
sphere stations, situated in a large latitudinal interval -- from  
the auroral zone to the circumpolar region. The diurnal changes  
were calculated from auroral ascaplots for the first observational  
season of the IGY (the winter of 1957-1958). It appeared that ac-  
cording to the nature of the diurnal variations in the frequency  
of auroral appearances, the high-latitude region can be split into  
four belts: a) At stations (Arctic II, Nord, Alert), situated in  
the circumpolar region, there is a maximum in the frequency of

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Some questions of ...

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auroral appearances at about noon local time, with a weaker maximum in the morning hours local time (around local geomagnetic noon); around midnight the frequency of auroral appearances is minimal. b) Stations near the second auroral zone (Resolute Bay, Godhaven, Cape Tobin, Murchison Bay (Merchison Bay)) have a morning maximum at 6 - 8 hrs local time. At Stns. Murchison Bay and Cape Tobin a further maximum appears in the evening hours. c) At stations located between the first and second auroral zones, there are two maxima in the diurnal changes of the frequency of auroral appearances -- in the morning and in the evening; in comparison with the extremes, observed at stations situated near the second zone, the maxima shift closer to midnight. d) Stations near the first auroral zone are characterized by one maximum at about midnight local time. The morning maximum appears on moving from the main auroral zone towards higher geomagnetic latitudes, starting from  $0 \sim 67^\circ$  in the eastern hemisphere and from  $0 \sim 73^\circ$  in the western, i.e. at  $3 - 4^\circ$  to the north of the main auroral zone. A comparison is given for the diurnal magnetic activity variations in the winter of 1957-1958 and the appearance of auroras in different belts

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Some questions of ...

in this winter. The magnitude of the Q-index is taken as a measure of the magnetic activity: a) Near the geomagnetic pole the magnetic activity for the period November 1957 - February 1958 is maximum around local noon. In the circumpolar area the maximum in the diurnal changes of magnetic disturbances cannot coincide with that for the frequency of auroral appearances; the extreme for the appearance of auroras somewhat anticipates the maximum for the magnetic activity's diurnal variation. b) In the area of the second auroral zone the maximum in the daily changes of the frequency of auroral appearances somewhat anticipates the corresponding maximum for the diurnal magnetic activity changes; magnetic disturbances are not related to the appearance of auroras at the zenith. c) Between the first and second auroral zones the morning maximum for the frequency of auroral appearances coincides or somewhat anticipates that for the magnetic activity. The evening maximum in the frequency of auroral appearances falls on the magnetic activity minimum and, on the contrary, the evening magnetic activity maximum falls on the minimum for the frequency of auroral appearances. d) Near the auroral zone the maxima for the diurnal magnetic activity and auro-

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Some questions of ...

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ral changes either coincide or are displaced in relation to each other. In the latter case the maximum in the frequency of auroral appearances anticipates that for the magnetic activity's diurnal variations. In high latitudes the relation of the latitude of auroral appearances to the universal time can have a double character: 1) Both the degree of magnetic disturbance and the intensity and the frequency of auroral appearances strengthen simultaneously with respect to universal time. 2) Depending on the orientation of the earth's magnetic field relative to the line earth-sun, the most favorable conditions for the surmounting of the earth's magnetic barrier by solar corpuscular flows are created at definite moments of universal time; therefore, auroras and magnetic disturbances arise most often in these hours. The changes due to the first cause are determined by variations in the density and energies of a corpuscular flow's particles. Those induced by the second cause depend on the magnetic field's orientation relative to the line earth-sun. [Abstracter's note: Complete translation.]

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S/169/62/000/006/092/093  
D223/D304

AUTHOR: Fel'dshteyn, Ya. I.

TITLE: Representativeness of the magnetic variation observations of the Dixon Island observatory

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 6, 1962, 38, abstract 6G214 (V sb. Probl. Arktiki i Antarktiki, no. 8, L., Morsk. transport, 1961, 85-87)

NOTE: In connection with the shore effect, discovered in the geomagnetic variations in Antarctica (see RZhGeofiz, 1961, 5G265), special observations were made in January 1959 near the observatory on Dixon Island in order to check the representativeness of this observatory's geomagnetic observations. Analysis of these observations showed that there is no marked shore effect in the vicinity of Dixon Island. [Abstracter's note: Complete translation.] ✓

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40281  
S/169/62/000/007/139/149  
D228/D307

9.9/10

AUTHORS: Lopatina, G. B. and Fel'dshteyn, Ya. I.

TITLE: Geomagnetic effect of the ionosphere's F2 layer

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 7, 1962, 24, abstract 7G151 (V sb. Ionosfern. issledovaniya, no. 6, N., AN SSSR, 1961, 29-34)

TEXT: The latitudinal distribution of  $f_oF_2$  in different geomagnetic longitudes is analyzed from IGY data. The analysis is made according to the median values and separate quiet and disturbed days. Quiet and disturbed days were chosen according to their magnetic characteristics. The latitudinal distribution appears to differ somewhat on different geomagnetic meridians; moreover, hemispherical asymmetry is also observed, with the presence of a bend (or else an additional maximum) in middle latitudes. On quiet days the latitudinal distribution of  $f_oF_2$  does not differ from the

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Geomagnetic effect of ...

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D228/D307

median. On disturbed days there are considerable changes, and the equatorial minimum disappears in separate cases. [Abstracter's note: Complete translation.]

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94560

13445

S/169/62/000/011/077/077  
D228/D307

AUTHOR:

Fel'dshteyn, Ya.I.

TITLE:

Magneto-ionospheric disturbances and auroras in the circumpolar region

PERIODICAL:

Referativnyy zhurnal, Geofizika, no. 11, 1962, 38, abstract 11G244 (In collection: Polyarn. siyaniya i svecheniye nochn. neba, no. 7, M., AN SSSR, 1961, 43-50 (summary in Eng.))

TEXT:

Hourly values of the magnetic activity Q-index are compared with the zenith appearance of auroras on the grounds of data of the polar stations "Severnnyy polyus-6" (North Pole 6), "Severnnyy polyus-7" (North Pole 7), Resolute Bay, and College for the winter months of 1957/1958 and 1958/1959. In the auroral zone (College) the presence of a zenith aurora is, as a rule, related to a marked degree of magnetic disturbance. Zenith auroras are absent if the magnetic field is comparatively quiet. On the inner side of the auroral zone the relation is inverse: zenith auroras are on the average

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D228/D307

Magneto-ionospheric ...

associated with a quieter magnetic field; in the absence of an aurora the field is more disturbed. On these grounds it is concluded that in the circumpolar region glow-inducing particles have insufficient energy to penetrate to the E-layer, where currents responsible for polar magnetic disturbances flow. It is supposed that solar particles hitting the auroral zone first accelerate in the earth's radiation belt, while particles entering circumpolar regions fly directly from the sun and undergo no further acceleration. From these deliberations it is concluded that in the circumpolar region the auroral altitude must be higher than in the auroral zone. Comparison of some spectral auroral characteristics, observed on the inner side of the zone and in the zone itself, confirm this conclusion. Strong magnetic disturbances with no zenith appearance of auroras are sometimes noted in the circumpolar region. In such cases a still stronger degree of disturbance was observed in the auroral zone, i.e. the degree of disturbance on the inner side of the zone was just an echo of disturbances in the zone. During exceptionally strong magnetic disturbances (for example, on February 11, 1958) zenith auroras also appear on the inner side of the zone, Card 2/3

Magneto-ionospheric ...

S/169/62/000/011/077/077  
D228/D307

i.e. corpuscular flows then penetrated to the D- and E-layer level throughout the polar cap (penetration of particles to the D-layer can be judged by complete absorption at ionospheric stations). In the auroral zone the zenith appearance of an aurora is, as a rule, accompanied by the formation of the E<sub>s</sub>-layer. On the inner side of the zone this is not observed, which confirms the conclusion that particles penetrate less deeply into the circumpolar region.

[Abstracter's note: Complete translation]

Card 3/3

FELDSHTEYN, Ya. I.

"Morphology of Aurorae and Geomagnetism."

report presented at the 13th Gen Assembly, IUGG, Berkeley, Calif, 19-31 Aug 63.

FEL'DSHTEYN, Yakov Isaakovich; BAGARYATSKIY, B.A., kand. fiz.-  
mat. nauk, otv. red.; SHCHUKINA, Ye.P., red. izd-va;  
POLYAKOVA, T.V., tekhn. red.

[Collection of articles of the Intergovernmental Committee  
for the Execution of the International Geophysical Year]  
Sbornik statei Mezhduevdomstvennogo komiteta po provedeniu  
Mezhdunarodnogo geofizicheskogo goda. Moskva, Izd-vo AN SSSR.  
No.5. [Space-time distribution of magnetic activity at high  
latitudes of the northern hemisphere] Prostranstvenno-  
vremennoe raspredelenie magnitnoi aktivnosti v vysokikh shi-  
rotakh severnogo polushariia. 1963. 63 p. (MIRA 17:2)

1. Akademiya nauk SSSR. Mezhduevdomstvennyy komitet po pro-  
vedeniyu Mezhdunarodnogo geofizicheskogo goda. III razdel prog-  
rammy MGG. Geomagnetizm i zemnye toki.

FEL'DSHEYN, Ya.I.; SHEVNINA, N.F.

Some results of visual observations of polar lights in the  
northern hemisphere during the IGY—IGC. Geomag. i aer. 3  
no.4:679-692 JI-Ag '63. (MIRA 16:11)

1. Institut zemnogo magnetizma, ionosfery i rasprostraneniya  
radiovoln AN SSSR.

S/203/63/003/002/005/027  
D207/D308

AUTHOR: Feld'shteyn, Ya.I.

TITLE: Some problems in the morphology of auroras and magnetic disturbances at high latitudes

PERIODICAL: Geomagnetizm i aeronomiya, v. 3, no. 2, 1963, 227-239

TEXT: Photographic observations of auroras during the winter of IGY, obtained at Soviet and Western stations, are analyzed in order to determine the orientation of the extended forms of auroras in the northern and southern hemispheres. Orientation of the extended auroras is compared with the vector of the geomagnetic field perturbation. Distribution of auroras at night is given correctly by the auroral zone models of H. Fritz (Das Polarlicht, Leipzig, 1881), by E.H. Vestine (Terr. Magn. and Atmos. Electr., v. 49, no. 2, 1944, 77) and the present author. There are 8 figures and 2 tables.

ASSOCIATION: Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln AN SSSR (Institute of Terrestrial

Card 1/P

*Magnetism, Ionosphere & Radio-wave Propagation*

*AS USSR*

L 18238-63

EWT(1)/FCC(w)/BDS/EEC-2/ES(v)

AFMTC/ASD/AFMDC/ESD-3/APGC

Pe-4/P1-4/Po-4/Pq-4 Pt-2/GW

ACCESSION NR: AP3003327

S/0026/63/000/006/0090/0092

86  
83

AUTHOR: Fel'dshteyn, Ya, I.

TITLE: Northern lights in the middle latitudes

SOURCE: Priroda, no. 6, 1963, 90-92

TOPIC TAGS: charged particle, northern light, middle latitude, outer radiation belt, IGY, IGC

ABSTRACT: When the earth enters the streams of charged particles coming from the sun, which cause periodic magnetic storms, the geometry of the geomagnetic field and of the outer radiation belt is changed and the inner boundary of the belt is brought closer to the earth, with the result that the northern lights can be seen in more southerly latitudes than usual. The IGY-IGC period coincided with a maximum of highly intensive sun activity; the earth had frequent encounters with the streams of particles, producing magnetic storms and northern lights in the middle latitudes. Observations made in 1957-58 at the Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln AN SSSR (Institute of Terrestrial Magnetism, the Ionosphere and Radio-Wave Propagation of the

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L 18238-63

ACCESSION NR: AP3003327

3

AN SSSR) showed that the more intensive the magnetic disturbance, the farther south the northern lights appear in the zenith. In the middle latitudes, the northern lights are observed most often during the equinoxes, when the earth is projected on the "geoactive" zones of the sun. Protracted forms mostly extend east--west, due to the effect of the earth's magnetic field on the movement of the charged particles in the upper layers of the atmosphere. In the Arctic and Antarctic the arcs may point in any direction. Radar methods show that the lights are not present in daylight hours in the middle latitudes, whereas in the arctic regions they appear predominantly around noon, but are very rare in the midnight hours. Figure 2 of Enclosure 1 shows the relation of the number of hours with northern lights at the zenith to geomagnetic latitude, as observed in the winter of 1957--1958 in European USSR. The number diminishes sharply from 64° to 61° ; 600 hours at Murmansk, 75 at Leningrad, 5 at Moscow, none at Odessa. Orig. has 1 graph and 1 diagram (southern boundary of the appearance of northern lights in the zenith over the Soviet Union as a function of the level of magnetic activity (Kr) ).

ASSOCIATION: Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln AN SSSR; Moscow (Institute of Terrestrial Magnetism, the Ionosphere and

Card 2/4



L 29122-66 -- EWT(1)/FCC GW

ACC NR: AP018866

SOURCE CODE: UR/0203/65/005/005/0858/0867

AUTHOR: Fatkullin, M. N.; Fel'dshteyn, Ya. I.ORG: Institute of Terrestrial Magnetism, the Ionosphere and Radio Wave Propagation, AN SSSR (Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln AN SSSR)TITLE: Quiet solar-diurnal variations in the IGY period. III. Principal characteristics of the planetary distribution of  $S_q$  variations in the middle and low latitudesSOURCE: Geomagnetism i aeronomiya, v. 5, no. 5, 1965, 858-867

TOPIC TAGS: geomagnetic field, diurnal variation

ABSTRACT: This is Part III of a paper by the same authors (see Geomagnetism i Aeronomiya, 5, nos. 2 and 4, 1965). This part gives some results of investigation of quiet solar-diurnal variations of the geomagnetic field in the middle and low latitudes on the basis of IGY data. In particular, the authors have determined the coordinates of the foot of  $S_q$  current systems and the equatorial electrojet at different UT. They also discuss the selection of a coordinate system applicable for an analytical representation of the planetary distribution of  $S_q$  variations. It follows from an analysis of the morphology of  $S_q$  variations that the field of  $S_q$  variations possesses neither geographic nor geomagnetic symmetry. The authors have constructed the isolines of  $S_q$  variations and briefly discuss the principal types of such isolines. Also considered is the problem of the relation between the equatorial electrojet and  $S_q$  current systems. The authors express thanks to N. M. Rudnevaya and I. V. Merkushevaya for their help in processing the materials of the observations. Orig. art. has: 4 figures and 4 tables.

SUB CODE: 08 / SUBM DATE: 05Aug64 / ORIG REF: 007 / OTH REF: 017

IDG: 550-385

FEL'DSHTEYN, Ya.I.; ZAYTSEV, A.N.

Current system of  $S_D$ -variations for the winter season during  
the IGY. Geomag. i aer. 5 no.6:1123-1125 N-D '65.

(MIRA 19:1)

1. Institut zemnogo magnetizma, ionosfery i rasprostraneniya  
radiovoln AN SSSR. Submitted April 30, 1965.

BAGARYATSKIY, B.A.; FEL'DSHTEYN, Ya.I.; LEBEDINSKIY, A.I., doktor  
fiz.-matem. nauk, otv. red.; MILYUTINA, Ye.N., red.

[Collection of articles] Sbornik statei. Moskva, Nauka.  
No.12. 1965. 56 p. (MIRA 18:4)

1. Akademiya nauk SSSR. Mezhduevdomstvennyy geofizicheskiy  
komitet. IV razdel programmy MGG. Polyarnyye siyaniya.

L 43936-66 EWI(1)/ECC GW

ACC NR: AP6028355

SOURCE CODE: UR/0203/66/006/004/0733/0742

AUTHOR: Fel'dshteyn, Ya. I.; Shevnin, A. D.

4039B

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

TITLE: Magnetic field of annular currents on the earth's surface according to observations during the IGY

SOURCE: Geomagnetizm i aeronomiya, v. 6, no. 4, 1966, 733-742

TOPIC TAGS: geomagnetic field, magnetic storm, magnetosphere, ~~disturbance~~, aurora, ~~geomagnetic storm~~, ~~geomagnetic storm~~

ABSTRACT: The ring-current field DR during the magnetic-storm<sup>12</sup> regeneration phase is examined. Using deviation values of the H-component of the field during the quiet state obtained in the period from 1 November 1957 through 31 December 1958 as reference data, different values for the DR field were found for the day and night sides of the earth during the storm regeneration period. The latitudinal distribution of the ring-current field is found to follow the law of the cosines for the geomagnetic latitude. Data obtained during the magnetic storm of 11 February 1958 show that the asymmetry of the disturbance field

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UDC: 550.385

L 43936-66

ACC NR: AP6028355

during the buildup of DR, i.e., before the maximum of the main phase is reached, in the case of intense storms can be explained without having to assume that the current belt DR<sub>1</sub> subsides in the ionosphere<sup>1</sup> on the night side. Orig. art. has: 2 figures and 2 formulas. [DM]

SUB CODE: 08/ SUBM DATE: 07Dec65/ ORIG REF: 018/ OTH REF: 016  
ATD PRESS: 5061

hs  
Card 2/2

L 06195-67, EMT(1)/FCC GW

ACC NR: AP6032693 SOURCE CODE: UR/0203/66/006/005/0894/0900

AUTHOR: Fel'dshteyn, Ya. I.

37  
BORG: Institute of Terrestrial Magnetism, Ionosphere, and Propagation  
of Radio Waves, AN SSSR (Institut zemnogo magnetizma, ionosfery i  
rasprostraneniya radiovoln AN SSSR)TITLE: The position of the oval auroral zone on the night side of the  
earth during magnetically quiet days

SOURCE: Geomagnetizm i aeronomiya, v. 6, no. 5, 1966, 894-900

TOPIC TAGS: auroral zone, geomagnetic pole, polar distance, geomagne-  
tic latitude, auroral activity, magnetic force line, ~~night side, mag-~~  
~~netic quiet day, AURORA, GEOMAGNETIC FIELD~~ABSTRACT: The auroral zone, according to statistical investigations  
during the IGY, has an oval shape with the minimum distance from the  
geomagnetic pole on the daylight side and the maximum distance on the  
night side. The same applies to auroras. The polar distance of the  
zone on the night side stretches to the 67th geomagnetic parallel and  
to the 77th parallel on the daylight side. The polar distance of the  
auroral zone changes, depending upon the magnetic activity. In  
periods with magnetically quiet days, the auroral zone contracts near-

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UDC: 550.388.8

L 06195-67

ACC NR: AP6032693

er to the magnetic pole. A comparison of activity recorded by two drift stations Arctic Ice Flow and the Soviet Arktika-2 shows a disagreement in results. The station Arktika-2 recorded many auroras in the day, but midnight records were scarce. The station Arctic Ice Flow recorded auroras in daylight as well as at midnight. In magnetically quiet periods, the asymmetry of the magnetosphere can be studied. The oval zone is located on the outer border of a region in which electrons of energies more than 40 kev are captured. A shift of the oval zone indicates that the force lines of the geomagnetic field are farther from the earth in the equatorial plane. The observed position of the oval zone on the night side of the earth makes it possible to determine the maximum distance of geomagnetic force lines from the earth on magnetically quiet days. Orig. art. has: 1 table and 7 figures.

SUB CODE: 04/ SUBM DATE: 07Dec65/ ORIG REF: 008/ OTH REF: 005/

Card 2/2 afa

ACC NR: ATG026925

SOURCE CODE: UR/0000/66/000/000/0079/0088

AUTHOR: Bagaryatskiy, B. A.; Fel dshteyn, Ya. I.

ORG: none

TITLE: Auroral radar echo and structure of the polar current vortex

SOURCE: AN SSSR. Kol'skiy filial, Polyarnyy geofizicheskiy institut. Vysokoshirotnyye issledovaniya v oblasti geomagnetizma i aeronomii (High-latitude studies in geomagnetism and aeronomy). Moscow, Izd-vo Nauka, 1966, 79-88

TOPIC TAGS: radar echo, atmospheric ionization, aurora, signal scattering

ABSTRACT: The physical theory of the so-called auroral radar echoes from the ionosphere of high latitudes in the 30-1000 Mc range includes two basic processes. The first concerns the mechanism of reflection or scattering by means of which it is possible to explain the occurrence of echo signals at these frequencies proceeding from the permissible values of the electron density in the regions of auroral ionization. The second question is associated with interpreting the characteristic space and time peculiarities inherent to this type of reflection. The present article is devoted to the second problem based on radar investigations of ionization in the polar aurora regions in the Northern Hemisphere. The 19 stations involved in the investigation

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ACC NR: AT6026925

were divided into two groups, in each of which the statistical characteristics of the observed radar echoes were substantially different. The statistical data revealed that reflections from regions close to the auroral zones occur with greatest probability during those hours of the day when, according to the theory of the polar current vortex, the current density is maximal. A later peak of reflections recorded at most middle-latitude stations between 2400 and 0400 local time is accompanied in all cases, without exception, by a decrease of the horizontal component of the magnetic field. The first peak occurring between 1700 and 2100 hr is characterized by the development of a different type of magnetic activity. It can be established that for stations of the Jodrell Bank type, near where the constant field is not disturbed by the presence of anomalies, this activity is associated with an increase of the horizontal component. It is concluded that reflection from the zone of polar auroras is an effect which owes its pattern of behavior to the development of the polar current vortex of a magnetic storm. The frequency of the appearance of radar echoes depends on the conditions of the occurrence, disappearance, and shift during the day of regions of high anomalous ionization. Therefore, the presence of a close relationship between magnetic disturbances and the appearance of radar echoes should be expected, and actually the time regularities of magnetic activity and auroral reflections occur identically in basic features. The periods of maximal values of the frequency of appearance of radar echoes vary in relation to the geomagnetic latitude of the station. A comparison of the spiral distributions of magnetic activity with the corresponding distributions of the auroral ultrashort-wave reflections revealed that they practically coincided in the entire range of in-

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ACC NR: AT6026925

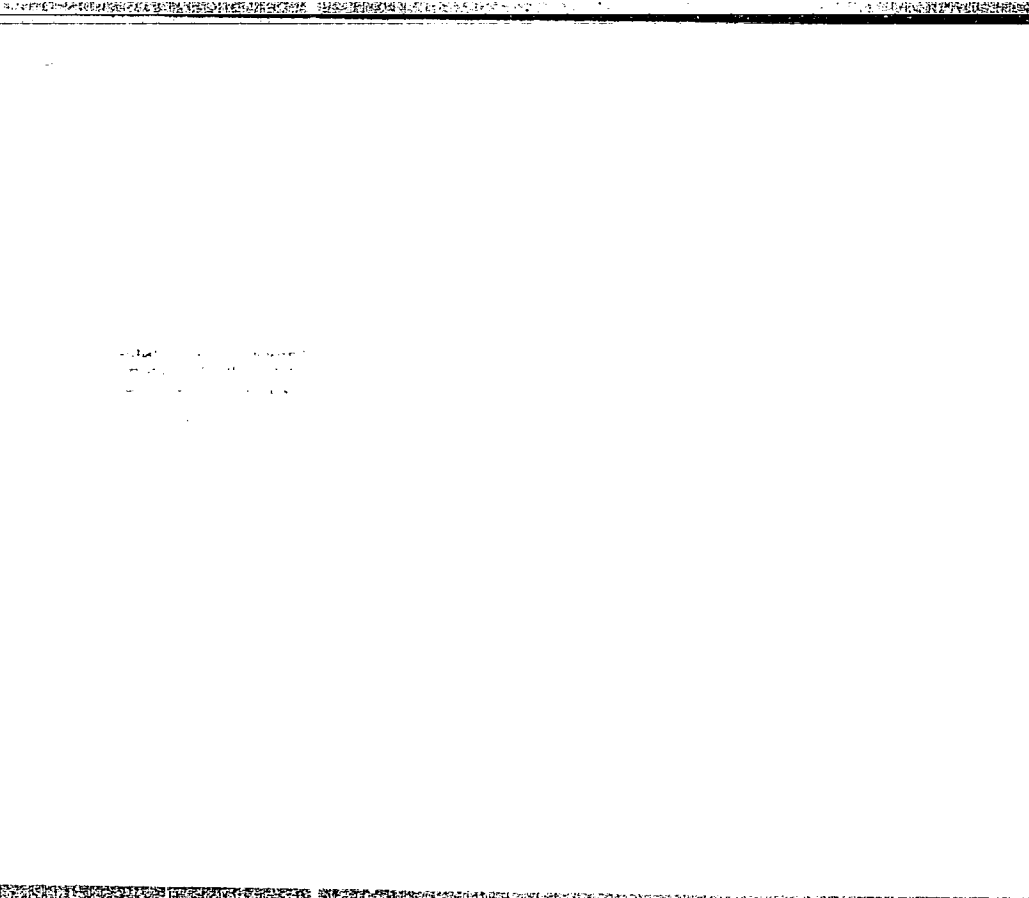
Investigated latitudes. This indicated that the penetration of corpuscular fluxes into the upper layers of the atmosphere has a direct and simultaneous effect both on the occurrence of geomagnetic activity and on the appearance of radar ultrashort-wave reflections. Orig. art. has: 4 figures.

SUB CODE: 04,17/ SUBM DATE: 21Apr66/ ORIG REF: 008/ OTH REF: 011

Card 2/3

FEL'DSHTEYN, Ya. I.  
CA

Application of the group theory to the analysis of crystal anisotropy. N. S. Anisov and Ya. I. Fel'dshchik (A. A. Shchegolev State Univ., Leningrad). *Doklady Akad. Nauk S.S.S.R.* 70, 800-3 (1980); *cf. Z. Physik* 67, 700 (1984); *C.A.B.* 794.—For the derivation of the ferromagnetic properties of cubic and hexagonal crystals the tensor of anisotropy is defined and implicitly calculated from a fundamental tensor-vector equation and the matrices for the reflection and rotation symmetry operation of the groups. The conditions for isotropy and anisotropy are defined and explicitly discussed for cubic and hexagonal elementary cell operations. The cases are in a wider range also applicable to other phys. properties of crystals besides ferromagnetism and magnetostriction. W. E.



Met (3)

Metallurgical Abst.  
Vol. 21 Apr. 1954  
Properties of Metals

Concerning the Fatigue of Metals. N. S. Akulov, I. P. Mazin, and Ya. I. Fel'dshim (*Doklady Akad. Nauk S.S.S.R.*, 1951, 78, (2), 203-206).—[In Russian]. Some published empirical formulae for interpreting fatigue data are discussed. Then, on the basis of a simple physical model of the formation of primary fatigue cracks, the relation  $N = N_0 e^{a(A - A_0)}$  is deduced for  $A > A_0$ , with  $N \rightarrow \infty$  for  $A < A_0$ . In this expression,  $A$  is the amplitude of stress for fracture after  $N$  cycles,  $a$  is the const. of proportionality in the equation  $dS = aSdA$  (where  $S$  is the general area of cleavage in unit vol. for one cycle) and  $A_0$  the critical value of  $A$  at which cleavage begins. Published experimental data for C and alloy steels agree well with this formula.—G. V. E. T.

FEL'DSHTEYN, Ya. I.

## U S S R .

**Kinetics of Superstructure Transformations in Alloys.**  
 N. S. Akalov and Ya. I. Fel'dshstein (*Doklady Akad. Nauk S.S.S.R.*, 1952, 82, (2), 221-223). [In Russian]. A. had previously shown (*ibid.*, 1949, 86, 361; *M.A.*, 29, 630) that the change in magnetic moment of an alloy during ordering is a linear function of the degree of order ( $\alpha$ ). Applying this theory to binary alloys, expressions are derived for the saturation magnetic moments of f.c.c. and b.c.c. lattices. The dependence of the paramagnetic susceptibility on  $\alpha$  is  $\chi = \chi_0(1 + b\alpha)^n$ . Putting  $\alpha = \alpha_0(1 - e^{-t/\tau})$ ,  $\alpha = 1 + b\alpha_0$ , and  $\beta = b\alpha_0$ , this gives  $y = \sqrt{\chi/\chi_0} = \alpha - \beta e^{-t/\tau}$ , or  $\ln(x - y) = \ln \beta - (t/\tau)$ . Hence on plotting the experimental data as curves of  $\ln(x - y)$  against the time  $t$ , straight lines should be obtained, and the time of relaxation  $\tau$  can be obtained from the slope. As an example, data obtained by Perchalina for the alloy CoMn at 300° C. have been plotted for  $n = 1$  and  $n = 2$ ; values of  $\tau$  from these and from analogous curves for other temp. ( $T$ ), have been plotted as graphs of  $\log \tau$  against  $1/T$ . The relation is linear, whether  $n$  is taken as 1 or as 2 (because the experimental accuracy is insufficient). Using the relation  $\tau = \tau_0 e^{H/RT}$ , the energy of activation  $H$  is 16.7 kg.cal./mole for  $n = 1$ , and 15.4 kg.cal./mole for  $n = 2$ .

- G. V. E. T. |

ACC NR: AF7013723

SOURCE CODE: UR/0203/65/005/006/1123/1125

AUTHOR: Fel'dshtoy, Ya. I.; Znytsev, A. N.

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

TITLE: Current system of  $S_p$  variations in the high latitudes for the winter season in the IGY Period

SOURCE: Geomagnetism i aeronomiya, v. 5, no. 6, 1965, 1125-1125

TOPIC TAGS: geomagnetic latitude, earth current, electric field, ionosphere, geomagnetism

SUB CODE: 08

ABSTRACT: The authors present a diagram of the current system of  $S_p$  variations for the winter season of the IGY; it takes into account the separation of the nighttime and evening vortices. The coordinate system is corrected geomagnetic latitude and the time of the eccentric dipole. Intensity of currents in the earth is taken into account. Between the current lines there is a current of 1000 a. The intensity of the nighttime current vortex is 180,000 a; the intensity of the evening current

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UDC: 550.385 0933 2199

ACC NR: AP7013723

is 40,000 a. The maximum intensity of the nighttime vortex is observed in the early morning hours -- the polar electrojet. On the daytime side of the earth at latitudes 60-70° the intensity of magnetic disturbances is insignificant; at these latitudes there are extremely insignificant currents. In the evening hours at  $\Phi' \sim 65^\circ$  the positive changes of the H component are determined by the appearance of the relatively weaker evening electrojet which is closed completely through the middle latitudes. This causes negative baylike disturbances in the evening hours in the middle latitudes. Part of the current from the nighttime electrojet also is closed through the middle latitudes, leading to the appearance of positive baylike disturbances in the morning and nighttime hours. The result of the current system shown in the diagram is appearance of electrical fields in the ionosphere directed equatorward along the oval zone and poleward in the evening hours at  $\Phi' \sim 65^\circ$ . These electrical fields can appear as a result of the separate penetration of protons and electrons into the ionosphere. Orig. art. has: 1 figure. [JPRS: 34,593]

Card 2/2



ACC NR:AP7007830

SOURCE CODE: UR/0203/67/007/001/0177/0179

AUTHOR: Fel'dshteyn, Ya. I.; Lukina, L. V.; Shevnina, N. F.

ORG: Institute of Terrestrial Magnetism, Ionosphere, and Propagation of Radio Waves of the AN SSSR. (Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln AN SSSR).

TITLE: Auroras in the period of minimum solar activity cycle

SOURCE: Geomagnetizm i aeronomiya, v. 7, no. 1, 1967, 177-179

TOPIC TAGS: auroral property, solar activity, ~~appearance frequency~~, auroral zone, geomagnetic latitude, geomagnetic field, *aurora, solar cycle, astronomical observatory*

ABSTRACT: The frequency of occurrence and other properties of auroras during the minimum solar activity are investigated using photographs obtained during the IGYQS. The latitudinal distribution of the frequency of occurrence of auroras during the period from 1963 to 1965 is presented graphically for the winter months. Observation data obtained at Dixon and Chelyuskin stations shows that auroras occurring at midnight are observed in the northern sky and south of the zenith, respectively. The oval auroral zone observed at night was located between 69° and 70° northern geomagnetic latitude. Auroras were observed

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UDC: 550.388.8

ACC NR: AP7007830

within the oval auroral zone regardless of the decrease of solar activity. The central line of the zone at night observed during the solar activity minimum was shifted toward the pole. At night, the oval zone was located between  $68^{\circ}$  and  $71^{\circ}$  geomagnetic latitude. The diurnal variation in the frequency of occurrence of auroras has one maximum at midnight at geomagnetic latitudes less than  $68^{\circ}$  and two maxima at midnight at  $71^{\circ}$  latitude. The observed maxima were attributed to the asymmetry of the auroral zone, which is nearer to the pole during the morning and evening than at midnight. The change of the position of the oval auroral zone in the IGY and the IGYQS was the same. Azimuths of stretched auroras changed markedly during the IGY as well as in the diurnal and yearly periods. Orig. art. has: 3 figures.

[EG]

SUB CODE: 0403/SUBM DATE: 16May66/ ORIG REF: 006/ OTH REF: 006

Card 2/2

KAMY SHEV, Pavel Aleksandrovich; FEL'DSHEYNNA, E.I., prof., doktor  
tekh. nauk, red.; RUKAVISHNIKOV, A.P., red.; YELIZAROVA,  
L.I., tekhn. red.

[Practice of contour grinding]Praktika profil'nogo shlifova-  
niia; iz opyta instrumental'shchikov Gor'kovskogo avtozavoda.  
Pod red. E.I.Fel'dshteina. Izd.3., dop. Gor'kii, Gor'kov-  
skoe knizhnoe izd-vo, 1962. 403 p. (MIRA 15:11)  
(Grinding and polishing)

CHEN, A. M., POKHAYEV, D. N., ...

"On the prevention of deformation of the spinal column in school children."

report submitted at the 13th All-Union Congress of Hygienists, Epidemiologists and Infectionists, 1959.

FEL'DT, Vladimir Vasil'yevich; FEL'DT, A.T.

[Annotated bibliography of literature on chemistry; chemistry, chemical technology, methods of teaching chemistry, and popular scientific literature] Annotirovannyi ukazatel' literatury po khimii; khimii, khimicheskoi tekhnologii, metodiki prepodavaniia khimii i nauchno-populiarnoi literatury. Posobie dlia uchitelei. Moskva, Gos.uchebno-pedagog.izd-vo, 1961. 159 p. (MIRA 15:6)

(Bibliography--Chemistry)

FATKULLIN, M.N.; FEL'DSHTEYN, Ya.I.

Quiet solar diurnal variation of the geomagnetic field during IOY.  
Part 1: Relations between  $S_q$ -variations and the ionospheric parameters.  
Geomag. i aer. 5 no.2:312-321 Mr-Apr '65. (MIRA 18:7)

1. Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln  
AN SSSR.

LEVCHENKO, V.V., doktor khim.nauk, prof.; IVANTSOVA, M.A.; SOLOV'YEV,  
N.G.; FEL'DT, V.V.; BALEZIN, S.A., doktor khim.nauk, prof.,  
red.; SERGEYENKOV, A.A., red.; MAKHOVA, N.N., tekhn.red.

[Chemistry; textbook for grades 8-10 of secondary schools]  
Khimia; uchebnik dlia VIII-X klassov srednei shkoly. Pod red.  
S.A.Balezina. Izd.3. Moskva, Gos.uchebno-pedagog.izd-vo M-va  
pros.v.RSFSR, 1950. 455 p. (MIRA 14:7)  
(Chemistry)

FEL'DT, V. V.

"Moving Pictures in Chemistry Courses," Khim. v shkole, No.2, 1952



FEL'DT, Vladimir Vasil'yevich; FEL'DT, A.T.

[Annotated bibliography of literature on chemistry; chemistry, chemical technology, methods of teaching chemistry, and popular scientific literature] Annotirovannyi ukazatel' literatury po khimii; khimii, khimicheskoi tekhnologii, metodiki prepodavaniia khimii i nauchno-populiarnoi literatury. Posobie dlia uchitelei. Moskva, Gos.uchebno-pedagog.izd-vo, 1961. 159 p.  
(MIRA 15:6)

(Bibliography--Chemistry)

FEL'DT, V. V.

Some means to improve visual aids in chemistry. Khim. v shkole  
17 no.4:49-59 J1-Ag '62. (MIRA 15:10)

(Chemistry--Audio-visual aids)

~~FEL'DT. Vladimir Vasil'yevich; METEL'SKAYA, G.S., red.; DRANNIKOVA,~~  
M.S., tekhn. red.

[Drawings in the teaching of chemistry; a teachers' manual] Risunok v prepodavanii khimii; posobie dlia uchitel'si. Moskva, Uchpedgiz, 1963. 138 p. (MIRA 16:9)  
(Chemistry--Audiovisual aids)

FEL'DT, V.V.

Evening dedicated to the life and work of A.P. Borodin.  
Khim. v shkole 18 no.4:75-77 J1-Ag '63. (MIRA 17:1)

FEL'DT, V.V.

Selection of literature for use in teaching chemistry. Khim. v shkole  
18 no.6:50-52 N-D 63. (MIRA 17:1)

FEL'DT, Z.S., uchitel'nitsa

~~\_\_\_\_\_~~  
Educational work during zoology classes. Biol. v shkole no.5:29-32  
8-0 '58. (MIRA 11:11)

1. Srednyaya shkola rabochey molodshy No.16, Odessa.  
(Zoology—Study and teaching)

FEL'DT, Z.S., uchitel'nitsa biologii

Familiarizing students with some problems in practical  
utilization of plants. Biol.v shkole no.6:56-58 M-D '59.  
(MIRA 13:3)

1. Shkola rabochey molodeshi No.16 g.Odessey.  
(Botany, Economic--Study and teaching)

SOV/111-59-1-23/35

AUTHORS: Fel'dtser, N.G., Supervisor; Yampol'skiy, K.I., Engineer

TITLE: Detecting the Areas of Communication -Cable Sheath Faults  
with the Aid of Freon (Nakhozhdeniye mest povrezhdeniya obo-  
lochek kabeley svyazi pri pomoshchi freona)

PERIODICAL: Vestnik svyazi, 1959, Nr 1, pp 23 - 24 (USSR)

ABSTRACT: To detect the location of sheath faults in communication  
cables, marker gases of radioactive and non-radioactive type  
may be used. Recently Soviet cable repair crews abandoned  
the use of radioactive marker gases because of various short-  
comings, and turned to the use of halogenated hydrocarbons  
under the trade names of freon 12 and freon 22 the proper-  
ties of which are indicated in table 1. Their advantages  
for the given purpose are expounded. They are used in con-  
nection with the GTI-2 leak detector (Figure 1) consisting  
of two parts, the pickup and ventilation device and the  
measuring block. The use of freon for cable-sheath fault

Card 1/2



SOV/111-59-1-23/35

Detecting the Areas of Communication-Cable Sheath Faults with the Aid of Freon

detection in 1957 and 1958 proved the efficiency and convenience of this method. There are 3 photos and 1 table.

ASSOCIATION: Laboratoriya upravleniya tekhnicheskoy eksploatatsii kabel'noy magistrali (The Laboratory of the Administration for Technical Exploitation of the Cable Main)

Card 2/2

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pptn. of a graphite layer on the diaphragm, a direct elec.  
connection is introduced between this graphite layer and the  
anodes of the electrolytic cell. The gas developed per-  
manently on the anodes loosens the structure of the graphite  
and inhibits the formation of a solid layer. István Finkly
- c. Electrolyzing indium oxide in fused caustic electrolyte.  
Mat F. W. Heberlein and Nevin R. Birly (to American  
Metal Co., Ltd.). U.S. 2,521,217, Sept. 5, 1950. In<sub>2</sub>O<sub>3</sub>  
1.5 kg., contg. a little ZnO, was added to 18.5 kg. molten  
NaOH at about 800°F. A steel strip anode was sub-  
merged in the center of a steel cell which served as the  
cathode. A c.d. of about 7 amp./sq. in. of anode was  
nearly sufficient to maintain the temp. of the cell at 750-  
850°F. An initial cell voltage of 5 v. had increased to nearly  
7.5 v. after 48 hrs. In<sub>2</sub>O<sub>3</sub> 1.5 g. was added every 0.5 hr. A  
fused alloy of In and Na, m. 725-80°F., which formed at  
the bottom of the vessel was tapped at intervals. After 48  
hrs. the electrolyte had to be replaced because of the build-  
up of Fe and Na<sub>2</sub>O. The electrolyte was then leached with  
H<sub>2</sub>O to form insol. In(OH)<sub>3</sub> and metallic In prills. The  
Na was removed from the alloy by pouring H<sub>2</sub>O over the  
molten surface. After skimming off the caustic slag, the  
metal is treated with NaOH, H<sub>2</sub>O, and NaNO<sub>3</sub> to remove  
ZnO and Fe<sub>2</sub>O<sub>3</sub>. An overall In recovery of 82% or better  
was obtained. Edward Orban

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After a review of the tectonical phenomena participating in the formation of carboniferous series in the coalfield area of Lower Mediterranean age, the author describes the roof movements measured by steel props on the longwall of one of the inclined shafts. From the measured roof movements the charge of the props and the yielding of softwood caps in relation to steel props operating with hardwood wedges are determined. Finally the experiences with the application of steel props are described, the essence of which is that by the application of steel props the loads can be directly measured and thus complicated calculation can be dispensed with.