

L 45735-65

ACCESSION NR: AT5011155

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR, Moscow (Physics Institute AN SSSR)

SUBMITTED: 25Nov64

ENCL: 00

SUB CODE: AA, EB

NR REF SOV: 000

OTHER: 000

ATD PRESS: 1001

Card

BJB
3/3

L 43197-65 EWG(v)/EWT(1) Pe-5/Pae-2 GW
ACCESSION NR: AP5009646 UR/0293/65/003/002/0268/0283

35
16
B

AUTHOR: Markov, M. N.; Merson, Ya. I.; Shamilev, M. R.

TITLE: Seasonal variations in the field of thermal radiation of the earth and atmosphere in the infrared region of the spectrum (on the basis of measurements from geophysical balloons in 1962-1963)

SOURCE: Kosmicheskiye issledovaniya, v. 3, no. 2, 1965, 268-283

TOPIC TAGS: thermal radiation, atmospheric radiation, upper atmosphere, aeronomy, stratosphere, mesosphere, troposphere, geophysical balloon, infrared radiation

ABSTRACT: Investigations of the earth's infrared radiation by instruments carried aloft in geophysical balloons in 1960-1961 revealed that this method yields important data for determining the general picture of the radiation of earth and space. The purpose of this paper is to report and interpret data on the angular distribution of integral infrared radiation of the earth under summer and winter conditions. These measurements, made in 1962-1963, have yielded much important information on the troposphere, stratosphere, and mesosphere. Only limited information is given on the apparatus used since in most respects it

Card 1/3

L 43197-65
ACCESSION NR: AP5009646

was similar to that used previously (M. N. Markov, Ya. I. Merson, and M. R. Shamilev, Kosmich. issled., 1963, v. 1, no. 2, 235). The instruments were carried to a height of 25-29 km by a balloon of greater volume than used before. A photograph of the balloon accompanies the text; it resembles those used in the United States for high-level atmospheric research, but no details are given. There were some changes in the instruments making it possible to measure the earth's thermal radiation during the daytime despite the presence of maximum temperature gradients in the surface boundary layer of the atmosphere and at the earth's surface. Measurements were made in the central zone of the European USSR. The records were obtained during the daytime and at angles of the sun above the horizon which were approximately identical in summer and winter. In two summer flights there were 8 periods of measurements with a total duration of 90 minutes, and 30 curves were obtained of the angular distribution of terrestrial radiation. There was one successful winter flight yielding 10 curves of angular distribution. Among the conclusions drawn are that the radiation from space attains a minimum in the space-earth transition region (at angles of sight 10-20° upward from the horizontal). Close to the zenith (40-50°), the intensity attains a maximum, but at an angle 20-30° from the zenith, the intensity again decreases. This agrees with the observations of 1960-1961. The following

Card 2/3

L 43197-65

ACCESSION NR: AP5009646

measurements are discussed in detail (complete data are given in tables and graphs):
a) intensity of thermal radiation at angles to $\pm \pi/3$ from the nadir for different flights; b) radiation level when sighting horizontally and radiation of the mesosphere; c) shape of the curves of angular distribution. Evaluations reveal disagreement between experimental data and theoretical computations. However, there is good agreement with respect to the scale of thermal inhomogeneities and the absolute values of effective temperature as determined by TIROS satellites. Orig. art. has: 6 figures and 7 tables. 12 [08]

ASSOCIATION: none

SUBMITTED: 04May64

ENCL: 00

SUB CODE: ES

NO REF SOV: 004

OTHER: 001

ATD PRESS: 3242

E J R
Card 3/3

L 2798-66 FSS-2/EWT(1)/FCC GS/GN
ACCESSION NR: AT5023569

UR/0000/65/090/000/0090/0093

AUTHOR: Markov, M. N.; Merson, Ya. I.; Shamilev, M. R.

44,55

44,55

44,55

46
43
BT1

TITLE: Investigation of the angular distribution of terrestrial and atmospheric radiation using geophysical rockets and balloons

SOURCE: Vsesoyuznaya konferentsiya po fizike kosmicheskogo prostranstva. Moscow, 1965. Issledovaniya kosmicheskogo prostranstva (Space research); trudy konferentsii. Moscow, Izd-vo Nauka, 1965, 90-93

TOPIC TAGS: atmospheric radiation, angular distribution, meteorologic rocket, meteorologic balloon, IR radiation

ABSTRACT: The authors report on a systematic study of infrared radiation from the earth which was begun in 1958. The angular distribution of terrestrial radiation was measured in the 0.8-40 μ spectral region using rocket equipment at altitudes of 100-500 km and geophysical balloons at altitudes up to 30 km. The viewing angle was 2π , angular resolution was $2 \cdot 10^{-3}$ rad, threshold of sensitivity-- 10^{-8} - 10^{-9} watt. The readings were recorded by self-contained systems and by telemetry. The rockets and balloons were launched during various seasons of the year, at various times of

Card 1/3

L 2798-66

ACCESSION NR: AT5023569

3

day and under various geographical conditions within the boundaries of the Soviet Union. About 50 launchings in all were made. The experimental setup is shown in fig. 1 of the Enclosure. It was found that the contribution of atmospheric radiation to the heat flow emanating from the planet is considerably greater than could be accounted for by existing hypotheses (especially at great thicknesses which correspond to large zenith angles). It is therefore assumed that the effective altitude of the radiating atmosphere reaches 150 km. The high-altitude distribution of atmospheric radiation has a layered structure (which is clearly defined at altitudes above 150 km). An increase in radiation intensity is observed, chiefly in the 2.5-8 μ spectral region, at altitudes of about 280, 430 and 500 km. There are no small-scale non-uniformities on the curve for angular distribution of terrestrial radiation. Diurnal variations in the curve are also small. Seasonal changes and those due to variations in climate and geography are more pronounced. Orig. art. has: 6 figures, 1 table. [14]

ASSOCIATION: none

SUBMITTED: 02Sep65

ENCL: 01

SUB CODE: ES, SV

NO REF SOV: 000

OTHER: 000

ATD PRESS: 4/02

Card 2/3

L 2798-66

ACCESSION NR: AT5023569

ENCLOSURE: 01

0

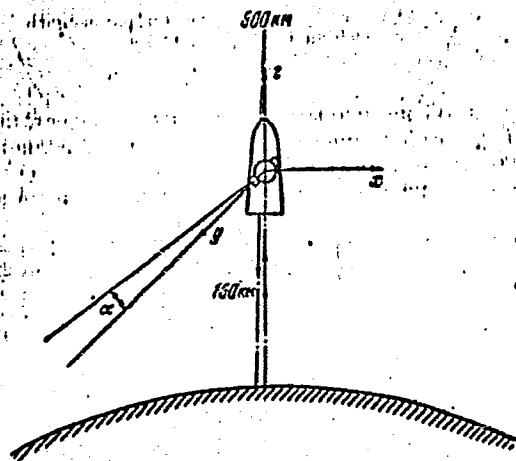


Fig. 1. Diagram of the experimental procedure

BVK
Card 3/3

L 2801-66 EWT(1)/FCC/EWA(h) GS/GW

ACCESSION NR: AT5023573

UR/0000/65/000/000/0112/0119

AUTHOR: Markov, M. N.; Merson, Ya. I.; Shamilev, M. R.

31
30
B+1

TITLE: IR-radiative layers in the upper atmosphere

SOURCE: Vsesoyuznaya konferentsiya po fizike kosmicheskogo prostranstva. Moscow, 1965. Issledovaniya kosmicheskogo prostranstva (Space research); trudy konferentsii. Moscow, Izd-vo Nauka, 1965, 112-119

TOPIC TAGS: IR radiation, atmospheric radiation, upper atmosphere

ABSTRACT: The authors propose a theoretical model for the IR-radiative layers in the upper atmosphere at altitudes of 280, 420 and 500 km. It is assumed that the emitting layers are ~5 km thick and that there is practically no absorption in the interlayer space. With the further assumption that radiation intensity is proportional to the length of the emitting layer (taking radiation dilution into account), theoretical curves are plotted for radiation intensity as a function of angular distribution. A comparison between experimental and theoretical curves shows satisfactory agreement at all three altitudes and at intermediate heights. The proposed model is also used for calculating isotropic radiation flux, and the number of non-

Card 1/3

L 2801-66

ACCESSION NR: AT5023573

equilibrium radiation events in the emitting layers. The isotropic radiation flux from all layers can be no more than a few tenths of the solar constant. It is estimated that there is a single radiation event each second. The concentration of neutral NO molecules in the lower layer is calculated at 10^9 cm^{-3} , the total number of radiating particles being $\sim 10^{17}$, assuming a path about 500 km long. No assumptions are made about other neutral molecules in the upper atmosphere which might radiate in the infrared zone. Rough approximations indicate that the effective temperature for the observed radiation reaches $\sim 2000^\circ\text{K}$. It is assumed that the radiating molecules are activated by corpuscular streams from the sun. A correlation is established between infrared radiation in the upper atmosphere and flares close to the central meridian of the solar disc. The results of these investigations may be used for developing hypotheses on our planetary atmosphere, particularly with regard to determining the composition of gases in the upper atmosphere from their emission spectra, verifying the theory of the nature of the ionosphere, and determining the temperature distribution in the thermosphere from the intensity and width spectral emission lines. Orig. art. has: 4 figures. [14]

ASSOCIATION: none

Card 2/2

L 2801-66

ACCESSION NR: AT5023573

SUBMITTED: 02Sep65

NO REF SOV: 008

ENCL: 00

OTHER: 002

SUB CODE: ES

ATD PRESS: 402

0

BVK

Card 3/3

L 45154-66 FSS-2/EWT(1) GW
ACC NR: AP6028339 SOURCE CODE: UR/0293/66/004/004/0592/0600 ,

AUTHORS: Liventsov, A. V.; Markov, M. N.; Merson, Ya. I.; Shamilev, M. R.

60
51
B

ORG: none

TITLE: Investigation of the angular distribution of the earth's thermal radiation in outer space during the launching of a geophysical rocket on 27 August 1958

SOURCE: Kosmicheskiye issledovaniya, v. 4, no. 4, 1966, 592-600

TOPIC TAGS: thermal radiation, infrared radiation, geophysic rocket, earth atmosphere, geophysic experiment, radiation measurement

ABSTRACT: The experimental apparatus and the recorded data of a geophysical experiment conducted on a rocket, launched on 27 August 1958, are discussed. In part I of the report, the instrument is described that was used in measuring the angular distribution of the earth's IR-radiation. The various components and electrical circuitry of the radiometer are described in great detail. The two halves of the optical ends of the instrument were placed end-to-end on a small rotor to scan simultaneously in the vertical the earth's atmosphere and outer space. The instrument was calibrated using a low temperature radiation source. The rocket flew to an altitude of 450 km during which time a total of 50 scanning cycles was completed. In part II, the recorded results are given in graphical form as radiation intensity versus angular distribution and altitude curves, observed along a horizontal direction.

Card 1/2

UDC: 551.521.32

I. 45154-66

ACC NR: AP6028339

7
The results show characteristics of nonisothermal radiation in the earth's atmosphere and several maxima in the IR-radiation at various altitudes. The following persons participated actively in the work: V. M. Yermakova, V. P. Glazunov, V. A. Zinov'yev, and S. S. Dudukin. The mechanical developments were the work of V. Ye. Shervinskiy, and the magnetic recordings were performed by A. F. Polyanskiy. The authors express their thanks to G. G. Boldyrev, A. M. Petryakhin, and K. A. Razin for their constant interest and influence on the work. Orig. art. has: 9 figures. [04]

SUB CODE: 04/ SUBM DATE: 15Mar65/ ORIG REF: 006/ ATD PRESS: 5081

Card 2/2 *Amn*

ACC NR: AP0011431

SOURCE CODE: UR/0020/66/167/004/0803/0806

AUTHOR: Markov, M. N.; Merson, Ya. I.; Shamilev, M. R.

ORG: None

TITLE: A study of ionospheric layers in the infrared spectral region

SOURCE: AN SSSR. Doklady, v. 167, no. 4, 1966, 803-806

TOPIC TAGS: ionosphere, ionosphere layers, infrared phenomena, ionosphere infrared radiation, solar radiation, nitrogen oxide, ionospheric nitrogen oxide

ABSTRACT: This paper reports and interprets the results of a study of the Earth's and its atmosphere infrared radiation in the .8 - 40 μ spectral region, - into the cosmic space. The infrared radiation was measured at various heights (25 to 500 km), at various points and in various directions. The results of measurements are summarized as follows: 1) maxima of IR power were observed at the altitudes of 250-300 km, 420-450 km, and near 500 km; 2) the IR radiation energy was concentrated in the spectral region between 2.5 and 8 μ ; 3) The maximum derirectional radiation intensity was along the layer tangent, equal to (3 - 7)10² w/m²; integrated over a layer ray length of about 1000 km., this is equal to an isotropic radiation of 10⁻³ ergs/sec per 1 cm³ of air; 4) the radiation intensity depends upon the solar radiation; it is correlated with the solar activity. Because of lack of reliable data on the composition of the atmosphere at great heights, interpretation of the obtained results is proposed on the

Card 1/2

UDC: 550.338

ACC NR: AP6011431

basis of a simplified atmosphere model, which has a) 3 layers, 5 km thick, at 280, 420 and 500 km. b) no absorbing gases between the radiating layers. With some minor additional assumptions it is then possible to compute the expected angular dependence of the radiation at various heights. It is shown that the model delivers a satisfactory correspondence between the computed and the observed results. The possible mechanisms of the radiation are discussed, with the conclusion that the NO ions and molecules have a decisive participation in the radiation process. The effective temperature, determined on the absorption band of NO, is of the order of 2000°K. The activation source, by exclusion on the basis of energies involved, is thought to be the corpuscular solar flow having peak energies, in the atmosphere, of thousands of ergs/sec.cm². The correlation of the IR radiation of the ionosphere with the flares at the central meridian of the Sun can be considered as established. Orig. art. has 2 figures, 1 table.

SUB CODE: 04, 20/ SUBM DATE: 21Jul65/ ORIG REF: 007/ OTH REF: 002

Card 2/2

MEDERAK, Pavel, MUDr.; ~~MERSTEN~~ Arnost, MUDr.

Situs inversus ventriculi. Cesk. roentg. 10 no.3:125-127
Aug 56.

1. Z radiologicke kliniky KU v Kosiciach, prednosta Doc. MUDr.
Eugen Kunststadt a z internej kliniky KU v Kosiciach, prednosta Doc.
MUDr. Frantisek Por.

(SITUS INVERSUS
transposition of stomach)

(STOMACH, abnorm.
transposition)

NEUBAUER, E.; MERSTEN, A.

Electrolyte clearance in chronic renal insufficiency. Cas. lek. cesk.
97 no.12:380-384 21 Mar 58.

1. Interna klinika UK v Kosiciach, prednosta doc. Fr. Por.
(GLOMERULONEPHRITIS, blood in
electrolyte clearance (Cz))
(ELECTROLYTES, in blood
clearance in glomerulonephritis (Cz))

MERSTEN, A.; SKAIA, R.; MERSTENOVA, E.

Dynamic-roentgenological diagnosis of stroma. Cesk. rentg. 13 no.4:
238-241 Aug 59

1. Interno-plucna katedra lekárskej fakulty UK v Kosiciach, veduci
doc. MUDr. Fr. Por.
(GOITER, diag.)

MEBSTEJ, A.; SEKALA, R.

Clinico-roentgenological importance of intestinal malrotation in adults. Cesk. rentg. 14 no.2:105-109 Ap '60.

1. Interno-plucna katedra ledarskej fakulty univerzity P. J. Safarika v Kosiciach, veduci doc.MUDr. Fr. Por.
(INTESTINES abnorm.)

DMETER, I.; MERSTEN, A.; SCHWEITZER, P.

Difficulties in interpretation of the roentgenological picture of pulmonary edema. Cesk. rentg. 15 no.6:378-383 '61.

1. Interna kliniki Univ. P. J.Safarika, Kosice, prednosta doc. dr. Frant. Por.

(PULMONARY EDEMA radiography)

CZECHOSLOVAKIA

GOMBOS, B; MERSTEN, A.

Internal Medicine Clinic of the Medical Faculty UPJS
(Interna ~~kaxk~~ klinika Lekarskej fakulty UPJS), Kosici
(for both)

Prague, Rozhledy v tuberkulose, no 5, 1963, pp 351-353

"Unilateral Silicosis."

MERSTEN, A.; MAAROVA, E.; MERSTENOVA, E.; SCHWEITZER, P.; BLASKOVA, B.

Anomaly of the aortic arch. Pseudocoarctation, Arcus aortae
bicurvatus. Cesk. radiol. 19 no.3:178-181 My '65

1. Interna klinika (prednosta: prof. dr. F. Por) a Ustav pre
sudne lekarstvo (prednosta: doc. dr. J. Lukaci) Lekarskej
fakulty University P.J. Safarika v Kosiciach.

MERSTEN, A.; SKAIA, R.; MERSTENOVA, E.

Dynamic-roentgenological diagnosis of stroma. Cesk. rentg. 13 no.4:
238-241 Aug 59

1. Interno-plucna katedra lekarskej fakulty UK v Kosiciach, veduci
doc. MUDr. Fr. Por.
(GOITER, diag.)

BROMOWICZ, J.; MERT, B.; ZAJGNER, J.

Intraspinal hemorrhage from angioma of the spinal cord in labor.
Neurologia etc. polska 11 no.6:858-860 '61.

1. Z Kliniki Neurochirurgii WAM w Lodzi i z Katedry Radiologii
WAM w Lodzi.

(LABOR compl) (SPINAL CORD neopl) (HEM-ANGIOMA in pregn)

MERT, O. KYNCL, J.

Significance of waterglass as a stabilizer in bleaching with hydrogen peroxide.
p. 182.

(Textil. Vol. 12, no. 5, May 1957. Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EAL) LC, Vol. 6, no. 10, October 1957. Uncl.

MINT G.

CZECHOSLOVAKIA/Chemical Technology - Chemical Products and Their Application, Part 4. - DYEing and Chemical Treatment of Textile Materials. H-34

Abs Jour : Ref Zhur - Khimiya, No 14, 1958, 49096

Author : Stefan Plesnik, Oldrich Mert.

Inst : -

Title : Synthetic Thermoplastic Resins.

Orig Pub : Textil (Ceskosl.), 1957, 12, No 10, 379-381

Abstract : Review. A description of thermoplastics and of methods of their application for sizing fabrics is presented. Bibliography with 9 titles.

Card 1/1

MERT, O.

Distr: 4E2c(j)

15

The influence of inorganic and organic acids on the polyamide fiber Silon. Oldrich Mert and Stefan Plesnik. Veda a výzkum v průmyslu textil. 4, 35-50(1958).-- Dil. H₂SO₄ decreases the mech. properties of fibers; dil. HCO₂H has no effect. The duration of the influence is more important than acid concn.; pH is the most important factor. B. Morsan

3
1) (1/3)
1

I. 23496-66 EWT(m)/T JK

ACC NR: AP6014432

SOURCE CODE: PO/0046/65/010/007/0457/0458

AUTHOR: Merta, Andrzej; Zarnowiecki, Krzysztof

26
B

ORG: Department of Radiological Protection, Institute of Nuclear Research, Warsaw
(Zaklad Ochrony przed Promieniowaniem Instytut Badan Jadrowych)

TITLE: Application of motor-car engine for control of air pollution with radioactive aerosols

19

SOURCE: Nukleonika, v. 10, no. 7, 1965, 457-458

TOPIC TAGS: radioactive aerosol, air pollution, vehicle engine, gas filter, radioactivity measurement

ABSTRACT: The carburetor of a running automobile engine is used to provide a negative differential air pressure to pass atmospheric air through a particulate filter. In series with the filter, and ahead of the carburetor suction chamber is a gas-flow meter, which gives a measure of the volume of air passing through a given filter so that the radioactivity count of the filter can be related to the air volume. The advantages of this system and the variations in the methods and the conditions of measurement are discussed. Some yields in terms of volume of air filtered per unit time are given for two different arrangements. Orig. art. has: 2 figures. [NA]

SUB CODE: 18 / SUBM DATE: none

Card 1/1 BK

2

MERTA, A., diplomovany ekonom

The 4th national conference on the role of information
in science and technology. Jemna mech opt 7 no.3:65-66
Mr '62.

MERTA, J.

A series of JIK circuit breakers for circuits up to 2⁰ amp. and 500 volts, with a cataract delayed-action device.

p. 257 (Elektrotechnik) Vol.12, no. 8, Aug. 1957, Praha, Czechoslovakia

SO: MONTHLY INDEX OF EAST EUROPEAN ACCESSIONS (SEAI) LC, VOL. 7, NO. 1, Jan. 1958

MERTA, O.

TECHNOLOGY

Periodical: PALIVA. Vol. 38, no. 9, Sept. 1958

MERTA, O. Our fuel and heating oil. p. 297

Monthly List of East European Accessions (EEAI) LC, Vol. 8, no. 3
March 1959 Unclass.

MERTA, O.

"Gas heating."p.38

ADRAVOTNI TECHNIKA A VZDUCHOTECHNIKA (Ceskoslovenska akademie ved. Ceskoslovenska vedecka technicka spolecnost pro zdravotni techniku a vzduhotecniku) Praha, Czechoslovakia Vol. 2, no. 1, 1959

Monthly List of East European Accessions (EEA) LC, Vol. 8, no. 6, June 1959

Uncl.

MERTA, O.

Use of gas for heating. p. 86

FALIVA. (Ministerstvo paliv a Ceskoslovenska vedecka technicka spolecnost
pro vyuziti pri Ceskoslovenske akademii ved) Praha, Czechoslovakia.
Vol. 39, no. 3, Mar. 1959

Monthly List of East European Accessions (EEAI), LV, Vol. 8, No. 7, July 1959
Uncl.

MERTA, Oldrich, inz.

Experience of the Bohumin locomotive depot with heavy freight transportation. Zelez dop tech 10 no.12:370-372 '62.

MERTA, O. inz.

Heating of houses in Prague. Paliva 42 no.7:217-218 JI '62.

MERTA, Oldrich, ina.

Ensuring trouble-free operation of heating systems. Zdravot tech
7 no.6:268-270 '64.

1. Technicke sluzby, Prague.

MERTASLOVA, N.B.

Variability of temperature and salinity in the Norwegian Sea. (MIRA 18:10)
Trudy GOIN no.84s243-251 '65.

RAPPOPORT, D.M.; SEDOVA, L.I.; MERTEKHIN, I.I.

Apparatus for determining the fuel consumption and the number of crankshaft revolutions. Trakt. i sel'khoz mash. 31 no.1:18-20 Ja '61. (MIRA 14:1)

1. Nauchno-issledovatel'skiy avtotraktornyy institut.
(Tractors--Engines--Testing)

RAPPOPORT, D.M.; MERTEKHIN, I.I.; SUVOROV, A.M.; KHRIPIN, V.V.

Mobile laboratory of the Automobile and Tractor Scientific Research
Institute. Trakt. i selkhoz mash. 32 no.3:20-24 Mr '62.
(MIRA 15:2)

(Tractors--Testing)

MERSTEN, A.; MAAROVA, E.; MERSTENOVA, E.; SCHWEITZER, P.; BLASKOVA, B.

Anomaly of the aortic arch. Pseudocoarctation, Arcus aortae
bicurvatus. Cesk. radiol. 19 no.3:178-181 My '65

1. Interna klinika (prednosta: prof. dr. F. Por) a Ustav pre
sudne lekarstvo (prednosta: doc. dr. J. Lukaci) Lekarskej
fakulty University P.J. Safarika v Kosiciach.

MALKOVA, Nadezda; MERTENOVA, Jirina

A study of the after-effects of morbilli encephalitis. Cesk. pediat.
16 no.7/8:611-614 JI-Ag '61.

1. Infekcni klinika Praha 8, Bulovka, prednosta prof. MUDr. J. Prochazka.

(MEASLES compl) (ENCEPHALITIS etiol) ;

BLAHOVA, O.; MERTENOVA, J.; KROO, A.H.; SIXTOVA, E.

Care of patients with acute stenosing laryngotracheobronchitis.
Cesk. pediat. 19 no.5:412-415 My'64

1. Katedra detske otolaryngologie fakulty detskeho lekarstvi
KU [Karlovy university) v Praze (prozatimni vedouci: doc. dr.
J.Klos, CSc.) a Infekcni klinika v Praze 8-Bulovka (prednosta:
prof. dr. J. Prochazka, DrSc.)

MERTENS, E. B.

USSR/Physics - Photoeffect

Jan/Feb 52

"Negative Photoeffect in Silver Sulfide," Ye. G. Miselyuk, E. B. Mertens

"Iz Ak Nauk SSSR, Ser Fiz" Vol XVI, No 1, pp 115-120

Investigates the effect of light and of elec field on the formation of neg photoeffect in silver sulfide and other substances. Studies experimentally the spectral distribution of sensitivity and the dependence of cond on temp. Indebted to V. Ye. Lashkarev.

218T93

35. Device for Pulling Germanium Crystals

"Laboratory Installation for Growing and Alloying Germanium Single Crystals," by E. B. Mertens, Ye. G. Miselyuk, G. P. Ryalochuk, and G. A. Spynu, Priborostroyeniye, No 4, Apr 57, pp 26-27

The installation described is based on the method of pulling a single crystal of germanium from a melt. The installation contains devices for control of speed of crystal pulling, rotation of crucible with molten germanium, temperature of crystallization, cooling of crystal, and the rate of introduction of alloying elements.

The over-all dimensions of this crystal-pulling installation is 1,200 x 1,100 x 650 mm, and it weighs about 360 kg.

The basic components of the installation are vacuum system, resistance melting furnace, and mechanism for pulling the crystal and rotating the crucible. The vacuum is produced by an oil-vapor diffusion pump and a prevacuum pump VN-461. The melting furnace is placed in a glass bulb vacuum chamber. A vacuum of 2×10^{-5} mm is obtained in the chamber one hour after the pumps are started. The melting furnace is made of a conical quartz crucible with a tungsten heating element in the form of a wire wound around it. A graphite crucible carrying the germanium charge is placed inside the quartz crucible. The size of the crucible is such as to permit the growing of a 300-g single crystal. The linear speed of crystal pulling is 0.2-6 mm per min.

Power supply to the melting furnace is taken from an ac power line through a ferroresonant stabilizer and transformer type LATR-1. Power consumption by the furnace is about 800 w for pulling a 300-g crystal.

To grow a 100-g single crystal takes about 2 hours at a pulling speed of one mm per min. (U)

MERTENS, E.B.

AUTHOR

KVASNITSKAYA, A.N., MERTENS, E.B., MISELYUK, E.C.,
SKOPENKO, A.I.

PA - 2530

TITLE:

Germanium Point Triodes with Low Lifetime of Minority Carriers.
(Tochechnyye triody iz germaniya s malym vremenem zhizni nos-
novnykh nositeley toka, Russian)
Zhurnal Tekhn. Fiz., 1957, Vol 27, Nr 3, pp 437 - 440 (U.S.S.R.)
Received: 4 / 1957

Reviewed: 5 / 1957

PERIODICAL:

ABSTRACT:

Investigations for the development of Germanium point triodes which are suited for fast acting impulse-schemes are described. The duration t_c of the process (reduction of the collector-current after the end of the impulse of the emitter current from the value which corresponds to the saturation state, to the value corresponding to the final state of the triod) can by a manyfold exceed the duration t_a of the process of the increase of the collector current up to the value corresponding up to the state of saturation. The factors which influence t_c were determined in order to find ways for the reduction of t_c , the relations between t_c and t_a were investigated, as well as other relations between factors which influence the frequency characteristics and the actual life of the unreal (minority) current carriers τ_{eff} . Life was measured by means of the photoelectric method. The samples were of n-germanium with the specific resistance

Card 1/2

PA - 2530

Germanium Point Triodes with Low Lifetime of Minority Carriers.
of 2 - 4 Ohm.cm and τ_{eff} of from $\geq 10 \div 15$ to $\leq 0,3 \div 0,5$ sec.

The measurements were carried out in an impulse-scheme of the amplifier with earthed triode-basis in the case of small and in the case of great injection-levels. The process of decrease of the collector-current is in these two cases determined by various physical factors. Whereas t_c in the case of small injection-levels is chiefly determined by the scattering of the times of flight and in the case of small l (distance between emitter and collector) practically does not depend on the quantity τ_{eff} in the germanium, t_c in the case of great injection-levels is essentially determined by τ_{eff} and i_e (emitter current) and depends only to a very small extent on l . Analogous results were obtained in the case of measurements in the impulse amplifier with an earthed emitter of the triode. The characteristic data for this case are shown in a table. (2 illustrations and 1 table) Institute for Physics of the Academy of Science of the USSR, Kiev

ASSOCIATION:
PRESENTED BY:

SUBMITTED: 17.7.1956
AVAILABLE: Library of Congress
Card 2/2

~ MERTENS, V.P., starshiy vkladach

Differential work norms for tractor operations on collective farms. Mekh. sil'. hosp. 9 no. 7:28-29 J1 '58. (MIRA 11:8)

1. Ukrain's'ka akademiya sil's'ko-gospodarchikh nauk.
(Tractors)

MERTENS, V.P.

First results obtained in using machinery owned by the collective
farm. Mekh.sil'.hosp. 9 no.11:18-20 N '58. (MIRA 11:12)

1. Starshiy prepodavatel' Ukrainskoy akademii sel'skokhozyaystvennykh
nauk.
(Agricultural machinery)

MERTESHOV, M.

New designs for cold storage warehouses. Mias. ind. SSSR no.2:
25-28 '57. (MIRA 10:5)

1. Direktor Gosudarstvennogo instituta po proyektirovaniyu
predprivatny kholodil'noy, molochnoy, maslyanoy i syrodel'noy
promyshlennosti.
(Cold storage warehouses)

BULGAKOV, V.; MECHALOV, V.

Market of national enterprises. Int. Rev. 5:61 '61.

(Farm—Farm produce—Marketing)

BULGAKOV, V.P., inzh.; MERTESHOV, M.N., inzh.

Production of refrigerating machinery in France; low refrigeration
compressors. Khol. tekhn. 38 no.4:61-64 J1-Ag '61. (MIRA 15:1)
(France--Refrigeration and refrigerating machinery)

BULGAKOV, V.P., inzh.; MERTESHOV, M.N., inzh.

Refrigerating machinery manufacture in France; machines of medium
and large refrigerating capacity. Khol. tekhn. 38 no.5:69-72 S-0
'61. (MIRA 15:1)

(France--Refrigeration and refrigerating machinery)

MERTICARU, N., ing.

Conference of the U.N.C. Economic Committee for Asia and the
Far East. Cel. hirtde 10 no.1223-26 Ja'61

MERTICARU, N., ing.

The Calarasi Pulp and Paper Mill. Cel hirtie 13 no.8:306-309
Ag '64.

LORINCZI, Kazmer, dr.; MERTH, Jozsef, dr.; PERENYI, Katalin, dr.

Our experiences with pentamidine in the treatment of interstitial plasma-cell pneumonia. Gyermekgyogyaszat 15 no.7: 207-212 J1'64

1. Fejer magye es Szekesjehervar Varos Korhaza (Igazgato: Szoro, Zoltan, dr.) Gyermekosztalyanak (Foorvos: Merthl, Jozsef, dr.) kczlemenye.

GLAZMAN, B.A.; SAVINYKH, A.G.; GLADKOVA, A.A.; LYUKHANOV, O.F.; KUNDIN, V.M.;
MERTINS, I.P.

Automation of hydrolysis processes. *Gidroliz. i lesokhim. prom.*
17 no.7:25-28 '64. (MIRA 17:11)

1. Krasnodarskiy gidroliznyy zavod (for Glazman, Savinykh, Gladkova,
Lyukhanov). 2. Proyektno-konstruktorskoye byuro Severo-Kavkazskogo
soveta narodnogo khozyaystva (for Kundin, Mertins).

ACC NR: AP6034939

(N)

SOURCE CODE: UR/0146/66/009/005/0020/0022

AUTHOR: Mertins, V.; Karpov, Yu. S.

ORG: Leningrad Electrotechnical Institute im. V. I. Ul'yanov -Lenin, Novgorod Branch (Novgorodskiy filial Leningradskogo elektrotekhnicheskogo instituta)

TITLE: Low frequency voltage fluctuations in film resistors

SOURCE: IVUZ. Priborostroyeniye, v. 9, no. 5, 1966, 20-22

TOPIC TAGS: fixed resistor, signal to noise ratio, low frequency

ABSTRACT: Low frequency noise in the 120—20,000 cps range of thin film and MCT, VS, and ULM type commercial resistors was measured. The commercial resistors had nominal values from 12 to 180 k Ω ; the thin film resistors, made from vacuum-deposited Nichrome on a glass base, had nominal values from 2 to 70 k Ω . The measurements were made by comparing noise voltages developed across samples to those developed across a standard, reactance free, wire-wound resistor. The measuring equipment included a low-noise tube-type preamplifier with a calibrated attenuator, and an RMS voltage analyzer. The noise for all of the samples decreased with frequency and was relatively independent of the applied voltage across resistors. Orig. art. has: 2 figures and 1 formula.

SUB CODE: 09/ SUBM DATE: 31Jan66/ ORIG REF: 003/ OTH REF: 008

Card 1/1

UDC: 621.391.822.3

MERTINSON, Ye.Ye.

Works of H.V. Mentskii in the field of investigation of structure and biological significance of proteins. Fiziol. zh. SSSR 37 no.6:680-687 (CIML 21:4) Nov-Dec 51.

1. Department of Biochemistry, Tartu State University.

MERTL, Antonin, MUDr

Our experience in therapy with reflex conditioned sleep. *Heur. psychiat. cesk.* 18 no.3:207-210 May 55.

1. Ze statni lecebny psychiatricks v Kromerizi, reditel MUDr
Alois Pliskal

(SLEEP, therapy
reflex conditioned sleep in mental disord.)
(MENTAL DISORDERS, therapy
sleep, reflex conditioned)
(REFLEX, CONDITIONED, ther. use
sleep in mental disord.)

HAVLOVIC, Vratislav; MERTL, Frantisek

Holeless flow counter 21 . JADERNA energie 7 no.9:312-314 S '61.

1. Fyzikalni ustav lekarske fakulty Karlovy university v Plzni.
2. Nyni: Katedra fyziky lekarske fakulty Karlovy university v Hradci Kralove (for Havlovic).

MATOUSEK, J.; MERTL, F.; PATOCKA, S.

On the problem and detection of so-called "hot" particles.
Cesk. hyg. 8 no.4:241-246 My '63.

1. Fyzikalni ustav lekarske fakulty KU, Plzen.
(RADIOAUTOGRAPHY) (AEROSOLS)

EYBL, V.; SYKORA, J.; MERTL, F.

Effect of calcium complexes of aminopolycarboxylic acids on acute experimental cadmium poisoning. *Prac. lek.* 15 no.6: 234-238 Ag '63.

1. Farmakologický ústav lékařské fakulty KU v Plzni, přednosta prof. dr. Z. Kocher Oddelení pro choroby z povolání fakultní nemocnice v Plzni, vedoucí MUDr. F. Huzl, CSc. Fyzikální ústav lékařské fakulty KU v Plzni, přednosta doc. dr. M. Petran, CSc.

(CADMIUM) (CHELATING AGENTS)
(HEPATITIS, TOXIC) (KIDNEY)
(GASTROINTESTINAL SYSTEM) (SPLEEN)

MATOUSEK, J.; MERTL, F.; PATOCKA, S.

Artificial radioactivity of the atmosphere and fall-out
during the period between July 1960 and December 1962.
Cesk. hyg. 9 no.2:85-96 Mr'64

1. Fyzikalni ustav lekarske fakulty KU, Plzen.

*

L 13250-66

ACC NR: AP6006040

SOURCE CODE: CZ/0053/65/014/004/0293/0293

AUTHOR: Eybl, V.; Sykora, J.; Mertl, F.

ORG: Institute of Pharmacology, Medical Faculty, Charles University, Plzen
(Farmakologicky ustav lek. fak. UK); Department of Occupational Disease, SFN, Plzen
(Odd. chorob s povolani SFN); Institute of Physics, Medical Faculty, Charles University, Plzen (Fysikalni ustav lek. fak. UK)

TITLE: Transfer of cadmium and cadmium complexes of EDTA and DTPA through the placental barrier [This paper was presented during the Twelfth Pharmacologic Days, Smolenice, 29 Jan 65.]

SOURCE: Ceskoslovenska fysiologie, v. 14, no. 4, 1965, 293

TOPIC TAGS: radioisotope, tracer study, biologic reproduction, pharmacology, animal physiology, organocadmium compound, rat, aliphatic carboxylic acid, chelate compound

ABSTRACT: Study in 3-week pregnant rats given $Cd^{115m}Cl_2$ with carrier, CaEDTA and CaDTPA and the cadmium radioactive complexes revealed that cadmium chelates easily penetrated the placental barrier and destroyed the fetus. [JPRS]

SUB CODE: 06 / SUBM DATE: none / SOV REF: 001

Card 1/1

1. 13238-66 EWT(1)/EWA(j)/EWA(b)-2 R0
ACC NR: AP6006052 SOURCE CODE: CZ/0053/65/014/004/0293/0299

AUTHOR: Koutensky, J.; Eybl, V.; Jonakova, M.; Sykora, J.; Mertl, F.

ORG: Institute of Pharmacology, Medical Faculty, Charles University, Plzen ^{HO}
(Farmakologicky ustav lek. fak. UK); Department of Occupational Diseases, SFN, ^B
Plzen (Odd. chorob z pov. SFN); Institute of Physics, Medical Faculty, Charles
University, Plzen (Fyzikalni ustav LF UK)

TITLE: Role of cadmium in acute ferritin toxicity [This paper was presented
during the Twelfth Pharmacologic Days, Smolenice, 28 Jan 65.] ⁶⁴⁴⁵⁵

SOURCE: Ceskoslovenska fysiologie, v. 14, no. 4, 1965, 298-299

TOPIC TAGS: mouse, pharmacology, cadmium, protein, organoiron compound, toxicology,
blood pressure

ABSTRACT: Cadmium-containing crystallized ferritin had an LD50 of 100 mg /Kg
in mice; cadmium is stored in kidneys and spleen; while noncrystallized ferritin
lowers blood pressure transiently, crystallized ferritin with cadmium raises it;
CaDTA and CaDTPA can solubilize body cadmium and remove it from the body, as shown
chromatographically. [JPRS]

SUB CODE: 06 / SUBM DATE: none / OTH REF: 004

Card 1/1

CZECHOSLOVAKIA

LYDL, V.; JONAKOVA, M.; KOUTLEJSKY, J.; KOCHER, Z.; KEREK, F.;
SYKORA, J.; Pharmacological and Physical Institute, Faculty of
Medicine, Charles University; Department of Occupational Diseases
(Farmakologicky a Fyzikalni Ustav Lek. Fak. KU a Oddeleni pro
Choroby z Povolani), SFN [Abbreviation not explained], Plzen.

"The Effect of Dibenzylethylenediamine Salts of CaEDTA."

Prague, Ceskoslovenska Fysiologie, Vol.15, No 5, Sep 66, p 419

Abstract: The effect of the dibenzylethylenediamine salt of
CaEDTA on the excretion of Mn and on its distribution in the or-
ganism was investigated. The content of Mn in the liver is red-
uced after the application of the discussed substance. The level
of chelates in the organism is increased. No references. Sub-
mitted at 14 Days of Pharmacology at Smolenice, 17 Feb 66.

1/1

MERTL, I.

Institute of Chemical Process Fundamentals of the Czechoslovak Academy of Sciences, Prague, for both

Prague, collection of Czechoslovak Medical Communications, No. 1, 1965, pp. 3526-3528

Saturated vapor pressure of ethyl acetate, thyl acetate, n-butyl acetate, ethyl propionate and thyl propionate."

MERTL, K.
VLCEK, M.

"Erection of power poles on piles."

ENERGETIKA. Praha, Czechoslovakia, Vol. 9, May 1959.

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 8, September 1959.

MERTL, K.

New method of erecting power poles by means of blasting. p. 304.

ENERGETIKA. Praha, Czechoslovakia, Vol. 9, No. 6, June, 1959

Monthly list of East European Accessions, (EEAI) LC, Vol. 8, No. 10
Oct. 1959
Uncl.

MERTL, Vaclav

Czechoslovak power generating machines and equipment at the 4th International Brno Fair. Tech praca 14 no.9:679-682 S '62.

1. Technoexport, Praha.

I. 34563-66

ACC NR: AF6025513

SOURCE CODE: CZ/0014/65/000/012/0469/0470

AUTHOR: Kryze, Jiri (Engineer; Candidate of sciences); Mertl, Vladimir (Engineer) ^{4/6}
B

ORG: none

TITLE: Equipment for recording the volt-ampere characteristics of tunnel diodes

SOURCE: Sdelovaci technika, no. 12, 1965, 469-470

TOPIC TAGS: recording equipment, tunnel diode, volt ampere characteristic

ABSTRACT: The article describes equipment for recording the volt-ampere characteristics of tunnel diodes. The principle of the device is explained and diagrams are presented. Better than 1% accuracy is obtained. Orig. art. has: 4 figures.
[JPRS: 34,691]

SUB CODE: 14, 09 / SUBM DATE: none / ORIG REF: 001 / SOV REF: 001
OTH REF: 002

Card 1/1 *AS*

0916 0893

MERTL, Vladislav

Blistering of baked alkyd-melamine coatings in humid surroundings.
Tech praca:Suppl.: Naterove hmoty a natery 15 no.4:n.p. Ap 163.

MERTLIK, M.

Present state and further development of longwall mining in the brown coal basin of northern Bohemia. p. 268.

UHLI (Ministerstvo paliv) Praha, Czechoslovakia. Vol. 1, no. 11, Nov. 1959

Monthly list of East European Accessions (EEAI), Vol. 9, no. 1, Jan. 1960

Uncl.

L 3019:66 FCC

ACC NR: AT6020303

SOURCE CODE: HU/2504/65/052/01-0143/0156

AUTHOR: Marcz, F. ~~Merts, F.~~

32
B+

ORG: Research Laboratory for Geophysics, MTA , Sopron

TITLE: New results in the field of point-discharge currents

SOURCE: Academiae scientiarum hungaricae. Acta technica, v. 52, no. 1-2, 1965, 143-156.

TOPIC TAGS: atmospheric electricity, diurnal variation

ABSTRACT: The results of the observations conducted at the Station for Atmospheric Electricity at the Geophysical Observatory in Nagyenyk (cf. MTA VI. Oszt. Kozl., v. 32, 1963, 137-144) between 1960 and 1963 were presented and discussed. The diurnal and seasonal variations in frequency, point-discharge current quantity, distribution, and relations between point-discharge currents and other phenomena were investigated. The findings reported in the previous study (loc. cit.) were confirmed and interpreted. Orig. art. has: 14 figures and 1 table. [Orig. art. in German.] [JPRS]

SUB CODE: 04 / SUM DATE: 18Apr64 / OTH REF: 004 / SOV REF: 001

Card 1/1 CC

ACCESSION NR: AP4030643

s/0048/64/028/004/p681/0682

AUTHOR: Merts, V.I.; Nitshe, R.

TITLE: Ferroelectricity in SbSI and other compounds of Group V, VI and VII elements [Report, Symposium on Ferromagnetism and Ferroelectricity held in Leningrad 30 May to 5 June 1963]

SOURCE: AN SSSR. Izv. Ser.fiz., v.28, no.4, 1964, 681-682

TOPIC TAGS: SbSI, ferroelectricity, photoconductivity, photoconductivity sensitivity maximum, absorption edge shift, piezoelectricity, dielectric constant temperature dependence, spontaneous polarization temperature dependence, coercive field, first order ferroelectric transition, super Curie point hysteresis, double hysteresis loop, polarization switching

ABSTRACT: A number of properties of SbSI are reported. Some of them are remarkable. The material crystallizes in long needles with cleavage planes parallel to the long (c) axis. It is both photoconductive and ferroelectric. The maximum photoconductive sensitivity occurs at about 6350 Å. The temperature coefficient of the energy gap is extraordinarily great (0.0015 eV/°C). When an electric field is applied parallel to

Card 1/2

ACCESSION NR: AP4030643

the c axis, the crystal expands in this direction and the absorption edge shifts to shorter wavelengths. The absorption edge displacement is much greater than and in the opposite direction from what would be expected on the basis of the Franz-Keldysh effect (W.Franz, Z.Naturforsch., 13, 484, 1958; L.V.Keldysh, Zhur. eksp. i teor. fiz., 34, 1138, 1958). The material has a ferroelectric Curie point at 22°C. No relaxation was observed at frequencies up to 10^9 cycles/sec. The dielectric constant parallel to the c axis is 50 000 at the Curie point. The temperature dependence of the dielectric constant is typical. At 0°C the spontaneous polarization is 25 microcoulombs/cm² and the coercive field is 100 V/cm. The square of the spontaneous polarization is a linear function of the temperature. Although there are many indications that the ferroelectric transition is first order, no double hysteresis loops were observed above the Curie point. The polarization reversal time is 3 microsec at 1400 V/cm and is approximately inversely proportional to the cube of the field for fields between 70 and 1400 V/cm. Orig.art.has: 2 formulas.

ASSOCIATION: none

SUBMITTED: 00

SUB CODE: EM

DATE ACQ: 30Apr64

NR REF SOV: 001

ENCL: 00

OTHER: 002

Card 2/2

MEYERSON, A. H.

Winds

On the determination of wind divergence in the atmosphere and the movement of air in the friction layer. Met. i gidrol. No. 5 1949.

Monthly List of Russian Accessions, Library of Congress, October 1950. Unclassified.

Mertsalov, A.N.

5

551.556:551.577.1
 Mertsalov, A. N. Raspredeleniye vetrov s vysotoi v sloe treanla i formirovaniye osadkov.
 [Distribution of wind with height in the frictional layer and formation of precipitation.]
 Leningrad. Tsentralnyy Institut Prognozov. Trudy, 15(42):63-73, 1949. fig. 6 tables, 12
 eqs. DLC—Study based on eleven cyclones. A considerable part of precipitation is originated
 in the frictional layer of the atmosphere. This part can be calculated knowing the surface
 wind distribution and the height of the condensation level. The wind convergence in different
 levels is found using AUSTIN's empirical model of wind distribution with height, which gives
 better results than ERMAN's theoretical model. Methods for the calculation of precipitation
 from the free atmosphere are also discussed. Subject Headings: 1. Precipitation forecasting
 2. Wind profiles 3. Convergence.—A.A.

AID P - 3843

Subject : USSR/Meteorology

Card 1/1 Pub. 71-a - 6/35

Author : Mertsalov, A. N.

Title : On establishing the "vortex" part of the pressure changes on maps of absolute pressure topography

Periodical : Met. 1. gidr., 6, 30-31, N/D 1955

Abstract : The article gives a mathematical analysis of pressure changes which in certain cases consist of the "vortex" part and the divergence, depending upon the wind direction. One diagram. One Russian reference, 1954.

Institution : None

Submitted : No date

MEITSALOV, A. N.

870-177 551.543.1:551.52:551.515.7(47)
 Meitsalov, A. N. K voprosu o dnevnom khode davleniya. [Diurnal variation of pressure.] *Meteorologia i Gidrologia*, Leningrad, No 3:34-35, March 1956. 2 refs. DWD, DIC--On the basis of calculations of horizontal wind divergence for the central portion of the circulation anticyclone of European USSR, it was determined that during the second half of the day the wind divergence at the height of the anemometer is 2 m/sec per 100 km greater than during the second half of the night. This corresponds to the actually observed difference of about 1 mb/3 hrs. *Subject Headings:* 1. Diurnal pressure variations 2. Wind divergence 3. Anticyclones 4. U.S.S.R.--I.L.D.

MERTSALOV, A.N.

Role of divergence and convergence of wind in the change of cyclonic
and anticyclonic processes. Meteor. i gidrol. no.4:62-65 Ap '56.

(WIRA 9:8)

(Winds)

MERTSALOV, A.N.

Shift of pressure formations on the earth's surface. Meteor.i
gidrol. no.10:14-20 0 '56. (MLRA 9:12)

(Atmospheric pressure)

Translation from: Referativnyy zhurnal. Mekhanika 1957, Nr 7 p 94 (USSR) SOV/124 57 7 8071

AUTHOR: Mertsalov, A. N.

TITLE: A Qualitative Determination of Ordered Vertical Motions of Air Through a Pressure Field (Kachestvennoye opredeleniye uporyadochennykh vertikal'nykh dvizheniy vozdukha po baricheskomu polyu)

PERIODICAL: Tr. Tsentr. in-ta prognozov. 1956. Nr 45 (72) pp 59-64

ABSTRACT: Referring to a paper by B. D. Uspenskiy (RZhMekh 1956 abstract 1561) the author proposes the relationship

$$D = - \frac{1}{f} \left(\frac{\delta \Omega}{\delta t} + w \frac{\partial \Omega}{\partial z} \right) = - \frac{1}{f} \frac{d \Omega}{dt} \quad (1)$$

wherein: $D = \partial u / \partial x + \partial v / \partial y$ is the horizontal divergence of the wind velocity; x , y , and z are rectangular coordinates the axes x and y lying within the reference horizontal plane (situated at the given level), the axis z being directed upward; u , v and w are the corresponding wind velocity components; $f = 2 \omega \sin \phi$ is the Coriolis parameter (ω being the angular velocity of rotation of the earth and ϕ the geographic latitude); $\Omega = \partial v / \partial x - \partial u / \partial y$

Card 1/2

A Qualitative Determination of Ordered Vertical Motions of Air Through (cont.) SOV/124-57 7 8071

is the vertical vorticity component at the reference level; $\delta \Omega / \delta t$ is the variation of the vorticity with time at the reference level; $d \Omega / dt$ is the vorticity variation with time referred to a moving particle, with allowance made for the displacement of the particle from one level to another. Assuming the motion of the air to be geostrophic, the author rewrites his formula (1) in the form:

$$D = - \frac{b}{f^2} \left(\frac{\delta \Delta H}{\delta t} + w \frac{\partial \Delta H}{\partial z} \right) = - \frac{b}{f^2} \frac{d \Delta H}{dt} \quad (2)$$

wherein b is a certain constant (approximately constant) H is the absolute geopotential, and $\Delta = \partial^2 / \partial x^2 + \partial^2 / \partial y^2$. In addition, from formula (2) which is written in terms of the natural coordinates, the author draws qualitative conclusions. Sh. A. Musayelyan

Card 2/2

MERTSALOV, A N

PHASE I BOOK EXPLOITATION

360

Moscow. Tsentral'nyy institut prognozov

Voprosy sinopticheskoy meteorologii (Problems in Synoptic Meteorology)
Leningrad, Gidrometeoizdat, 1957. 129 p (Series: Its Trudy,
vyp. 52) 1,100 copies printed.

Sponsoring Agency: Glavnoye upravleniye gidrometeorologicheskoy
sluzhby pri Sovete Ministrov SSSR

Ed. (Title page): Tomashevich, L. V.; Ed. (inside book):
Pisarevskaya, V. D.; Tech. Ed.: Soloveychik, A. A.

PURPOSE: The collection of articles is intended for employees of
the meteorological service as well as for those interested in
the activities of the Central Institute of Forecasting.

COVERAGE: The collection of articles analyzes the causes of incorrect
short-term weather predictions and explains the nature of the
errors.

Card 1/8

Problems in Synoptic Meteorology

360

TABLE OF
CONTENTS:

Isayeva, Ye. N. Nature of Errors in Weather Forecasting
in the Summer of 1954

3

In 1954, weather forecasting in Moskovskaya Oblast' fell short of expectations, being correct to only 73.5 percent as against a 72 percent average for the entire year. The author examines each individual cause of error and concludes that precipitation, temperature, and especially errors in forecasting the baric field of a low gradient were the deciding factors in faulty predictions. The author explains how incorrect analysis of air stratification or one of developing fronts affects the forecasting. There are 3 tables and no references.

Bachurina, A. A. Analysis of the Incorrect Weather Forecast
for May 31, 1954.

9

Card 2/8

Problems in Synoptic Meteorology

360

The forecast for this particular date was rain at night and cool during the day. The prediction was based on the observed cyclogenesis by night (and early in the morning) on May 30. The enclosed maps show: 1) weather conditions at 3 o'clock a.m. on May 30 2) thermal and baric conditions at 6 o'clock a.m. on May 30 3) forecast for 3 o'clock a.m. for May 31 4) actual weather situation at 3 o'clock a.m. on May 31. The prediction failed: there was no rain by night and the temperature on May 31 was 22° C. The error was due to incorrect forecasting of baric pressure; this is illustrated by two additional maps. There are 5 maps and no references.

Mertsalov, A. N. Two Cases of Convective Rain

15

The article discusses two cases of erroneous weather prediction in Moskovskaya oblast' for July 29 and 30, 1954 due to convective rain. On July 28 in the evening, the prediction for the following day was no rain. This prediction was repeated the next morning. Nevertheless, it rained heavily with precipitation
Card 3/8

Problems in Synoptic Meteorology

360

mounting to 35.2 mm. The prognostics for July 30 read: scattered showers. In fact, it rained throughout the entire Moskovskaya oblast' with precipitation ranging from 8 to 18.9 mm. As a cyclone was moving westward covering the whole oblast, the rainfall was caused by convective instability. Because of an incorrect diagnosis of the baric field on the eve of the rainfall, the movement of the cyclone was not predicted in the forecast. There are 12 synoptic maps illustrating the above two cases and 3 Soviet references.

Isayeva, Ye. N. Analysis of the Erroneous Weather Forecast for July 28, 1954

31

The forecast for Moskovskaya oblast' for this date was rain. The error was caused by incorrect prediction of the movement of a cyclone approaching Moscow from the Baltic area. Two maps show the baric pressure near the surface and the thermal and baric situations on the morning of July 27. The author explains the mistake made in the analysis of this situation and shows how and why the expected cyclone by-passed Moscow. There are two synoptic maps, 1 table and no references.
Card 4/8

Problems in Synoptic Meteorology

360

Tomashevich, L. V. Analysis of the Erroneous Weather Forecast for May 2, 1954

35

The Moscow forecast for this date, confirmed on the morning of May 2nd read: partially cloudy, no rain, with daily temperature of 20 to 22°C. The error was caused by an unexpected retardation in the movement of two warm fronts from the South, which produced rain and with it a drop in temperature to 10°C. There are 3 synoptic maps and 2 Soviet references.

Bachurina, A. A. Analysis of the Incorrect Weather Forecast for June 26, 1954

40

The Moscow forecast for this date read: some cloudiness, no rain, daily temperature from 22 to 27°C. This was confirmed on the morning of June 26th. The error was due to incorrect evaluation of the factors causing precipitation. The capital was hit by torrential rains and the rain was persistent. Evolution of the zone of rain progressed from the direction of Card 5/8

Problems in Synoptic Meteorology

360

Smolensk but this had not been foreseen by the forecast service. There are 6 figures, 2 tables and no references.

Gorodova, M. I. Storm on July 4, 1954

47

The storm was not predicted in the morning forecast for Moscow. The synoptic map for this day was made at 3 o'clock in the morning. Although a slowly moving anticyclone was expected to reach the area of Moscow some time in the afternoon, no immediate rain was predicted. Nevertheless, the storm came at 5:30 a.m. and lasted until 11 a.m. The storm resulted from instability produced by the advection of saturated air, while the adiabatic gradient created conditions for convective rain. There are 7 drawings, 2 tables and 3 Soviet references.

Card 6/8

Problems in Synoptic Meteorology

360

Cherkasskaya, V. M. Torrential Rains in the Ridge of High Pressure on August 12 and 13, 1954

57

For August 13th the Moscow forecast read: no precipitation. However, the whole oblast was hit in the evening by torrential rains amounting to 30 mm in the capital. The prediction was based on the position of isallohypsal lines and on the calculation of the movement of a depression, the axis of which expected to be east of Moscow towards evening. The convective instability was created by adiabatic decrease in temperature at 500 millibar level and by the advection of colder air at a 700-850 millibar level. There are 8 figures and 1 Soviet reference.

Neronova, L. M. Distribution of Summer Precipitation in Moskovskaya Oblast'

67

Since the majority of incorrect weather predictions in 1954 in Moskovskaya oblast' concerned precipitation, the author
Card 7/8

Problems in Sinoptic Meteorology

360

analyzes the total distribution of rainfall throughout the entire oblast from the point of view of both intensity and occurrence. The author refers to previous attempts by I.I. Kasatkin to sum up the distribution of rainfall in the area of Moscow. The article includes a map of all meteorological stations in the oblast and draws general conclusions as to the amount of rainfall from both frontal zones and air masses. In the appendix there are tables showing maxima of precipitation under various synoptic situations (ridge, cold front, anticyclone, depression, etc.) and a listing of average monthly rainfall observed at each station. There are 9 maps, 16 tables, and 6 Soviet references in the text and 5 tables in the appendix.

AVAILABLE: Library of Congress (QC851.M64V.52)

Card 8/8

MM/vm

June 26, 1958

MERTSALOV, A. N.

Two cases of convective precipitations. Trudy TSIP no. 52:15-30
'57. (MLBA 10:8)

(Precipitation (Meteorology))

MERTSALOV, A. N.

AUTHOR: Mertsalov, A. N. 50-2-18/22

TITLE: Nomograph for the Computation of Divergence and Turbulence of the Wind Velocity (Nomogramma dlya rascheta divergentsii i vikhrya skorosti vetra).

PERIODICAL: Meteorologiya i Gidrologiya, 1958, Nr 2, pp. 48-51 (USSR).

ABSTRACT: A nomograph is given in the "handbook" and a method for the determination of the horizontal divergence is pointed out. This method is carried out according to the data given on the map of the barometric topography of pilot balloons. According to this method it is necessary to find for the wind divergence the dimensions of the corresponding component of the wind in the points given in the nomograph. As it is mentioned in the paper, it is necessary to carry out carefully the computations for the determination of the wind divergence, and the explicitation of as great as possible a number of pilot balloon positions on the axes as well as outside of them is pointed out. If these conditions are not satisfied in the computations, the result will be dubious. A nomograph (figure 2) is given for the detection of the divergence of the wind which is based upon the radial component and wind divergence. The application

Card 1/2

Nomograph for the Computation of Divergence and Turbulence
of the Wind Velocity.

50-2-18/22

of this nomograph eliminates the errors in the detection of the wind divergence mentioned in the paper. The suggested nomograph takes especially into account the distance from the point for which the wind divergence is determined up to the position of the pilot balloon. In order to be more objective in the selection of the pilot balloon positions, the determinations recommended in the paper are to be made separately for 8 districts in relation to one another and to the point for which the wind divergence is determined, as it is shown in figure 3. The problem of a rational classification of these districts and contours demands an additional explanation. There are 3 figures and 1 Slavic reference.

AVAILABLE: Library of Congress

Card 2/2

MERTSALOV, A.N.

Analyzing unjustified weather forecasts. Trudy TSIP no. 69:3-65
'58. (MIRA 11:6)

(Weather forecasting)

(7)
AUTHOR:

Mertsalov, A. N.

TITLE:

On the Problem of the Correlation between the Divergence of the Wind, the Change of Pressure, and the Change of Density (A vertical section in several sections).
divergentsiye vetra, izmeneniye vishernogo i nizhnego davleniya

PERIODICAL:

Meteorologiya i glikologiya, 1961, no. 1, p. 1-10.

ABSTRACT:

The eddy of velocity means here the values of the vertical component of the whole eddy of the wind velocity, i. e. $\Omega = \frac{\partial v}{\partial x} - \frac{\partial u}{\partial y}$. - The paradox in the problem of the correlation between divergence-convergence of the wind and the change of pressure is pointed out, and without obtaining a full solution to this problem, the following presumption is put forward: as before, the convergence of the wind has to be regarded as one of the causes for the rise in pressure, and the divergence of the wind as one of the causes for the decrease in pressure. Another direct cause for the change of pressure is the advection of density. The divergence-convergence of the wind is the one averaged along the whole vertical air column. -

Card 1/4

On the Problem of the Correlation Between the 107/50-51-1-1/10
Divergence of the Wind, the Change of the Rate of Velocity, and of the
Change of Pressure

The fact that with the existence of a wind divergence on the 700 mb-level (and probably also on the 500 mb-level) the pressure rises most frequently, while with the existence of wind convergence on this level a pressure drop prevails, proves only an interesting feature of the atmospheric processes, and a feature in the distribution of the vertical divergence-convergence of the wind with respect to altitude. In most cases - if a wind convergence is observed on the 700 mb-surface - there is a stronger wind divergence in other (usually higher) layers, or there is a cold advection prevailing. Thus, the wind convergence on the 700 mb-level is not the cause, but only a formal symptom for the pressure drop. In the same way, a wind divergence on the 700 mb-level is mostly accompanied by a stronger convergence, or a prevailing cold advection in the other layers, and is therefore a symptom for the rise in pressure. - The hypothesis on the unequal signs of the wind divergence in different layers of the atmosphere could be opposed to the concept given here. For, under this concept, the characters of circulation in

Card 2/4

On the Problem of the Correlation Between the Divergence of the Wind, the Change of the Eddy of Velocity and of the Pressure of Pressure

different layers of the atmosphere would have to be in opposite directions. It is shown here that it is possible that a circulation with equal sign occurs in a very thick layer of the atmosphere with a different sign of the wind divergence at different altitudes. Formula (1) is given for a layer in which the advection of the eddy of velocity is missing on the vertical axis Z . It is then assumed that, at a certain point of time, the eddy of velocity changes linearly with height, and the solution of (1) is found in form of formula (2). Formula (3) is then given for the partial differential quotient of the eddy of velocity with time. - Figure 1 shows the distribution of the convergence-divergence of the wind by height, which causes no change of pressure but the propagation of cyclonic circulation into higher layers. Formulas (2) or (3) show that in this case the cyclonic circulation may appear with time over all altitudes higher than point A, in spite of the wind divergence at these altitudes. This may also occur in those cases where, at the initial point of time, the vertical gradient of the eddy of velocity is missing, if the

Card 3/4

On the Problem of the Correlation Between the Divergence of the Wind, the Change of the Eddy of Velocity, and of the Change of Pressure

SCV/SC-80-117421

this moment the motion above, and also a little below, is anticyclonic. Figure 2 shows two cases of distribution of the convergence-divergence of the wind by height, which cause a rise in pressure and a propagation of the cyclonic circulation. The cyclonic circulation spreads comparatively very fast into the upper layers, which can be proved by formulas (2) and (3). There are 2 figures and 4 Soviet references.

Card 4/4

MERTSALOV, A.N.

Calculating regular vertical motions of air. Trudy TSIP no.83:
3-6 '59. (MIRA 12:5)

(Weather forecasting)