[illegible]NUS, G[illegible]rovi[illegible] [illegible] [illegible] [illegible]
[illegible] Kazak[illegible], [illegible]

[Lower Cambrian vulcanism of [illegible] [illegible] [illegible] Tuva. Novosibirsk, Izd-vo Sibirskogo otd-niia AN SSSR, [illegible] [illegible] p. (Akademiia nauk SSSR. Sibirskoe otdelenie. Institut geologii i geofiziki. Trudy, no.7). (MIRA [illegible])

1. Chlen-korrespondent AN SSSR (for Kuznetsov).
(Tuva Autonomous Province--[illegible])

KLIMENKO, B. I.; PINUS, I. S.

Automation of mold cooling. Analele metalurgie 15 no.4:172-174 O-D '61.

(Molding(Founding)) (Cooling) (Automation)

[illegible], [illegible]; [illegible], [illegible] LIKHIN N. [illegible]
[illegible], [illegible]
YA. [illegible], A. [illegible]

[illegible]

8(3) SOV/112-58-3-3827

Translation from Referativnyy zhurnal Elektrotekhnika, 1958, Nr 3, p 45 (USSR)

AUTHOR: Burak, P P, Zhilyayev, T. B and Pinus, N Kh

TITLE: High-Voltage Switchgear Assemblies
(Komplektnyye visokovol'tnyye raspredelitel'nyye ustroystva)

PERIODICAL: V sb Raboty M-va elektrotekhn prom-sti SSSR po mekhaniz i avtomatiz nar kh-va Vol 1 M , 1956 pp 123-127

ABSTRACT: Zaporozhskiy transformatornyy zavod (Zaporozh'ye Transformer Manufacturing Plant) has organized the production of switchgear assemblies consisting of enclosed metal welded cubicles of the following types (1) indoor type KR10-U4, up to 10 kv rated current 200 amp, double-side servicing with a VMG-133 oil circuit-breaker having a rupturing capacity of 350 Mva (2) outdoor type KRN-10 up to 10 kv rated current 200 amp, with a type VMB-10 oil circuit-breaker weight-operated by a PGM-10 mechanism and with mechanical automatic reclosure, (3) indoor type ZKVS, up to 10 kv rated

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8(3)

High-Voltage Switchgear Assemblies

current 1,500 amp, with a type MGG-10 circuit-breaker, with a solenoid-type PE2 operating mechanism mounted in front of the cubicle; (4) a type 2KVE6 cubicle for three-phase rated current 200 amp and 6 kv. Size and weight for each type cubicle are: KR10-U4, 1,000 x 1,700 x 2,330 mm, 1,200 kg; KRN-10, 1,000 x 1,200 x 2,700 mm, 960 kg; ZKVS, 1,370 x 2,690 x 2,785 mm, 3,500 kg; 2KVE6, 700 x 900 x 1,900 mm, 520 kg.

I.S.Sh.

Card 2/2

PINUS N.Z.

4

1

77-87 551.524.7:551.551:551.506.7(473)

*Pinus, N. Z. K voprosu ob eksperimental'nom issledovanii poryvistosti vozdushnykh potokov v [illegible] [illegible]. [Experimental investigation of gusts in the free atmosphere.] *Meteorologiia i Gidrologiia*, 1946 (4):14-21. 5 figs., 4 tables. DWB, English translation available. DWB—The occurrence of turbulence in various cloud types, in inversion layers, between two inversion layers and in the ground inversion layer is shown in frequency tables based on data from 3,187 P-5 airplane flights made over Moscow, March 1934–April 1945. Turbulence in the ground inversion layer took place near sunrise when the process of destruction of the inversion was being accelerated. The degree of turbulence observed on flights involving temperature inversions is given along with associated temperatures and temperature gradients at various heights. (Same item as 3K-84, Nov. 1952 and 5H-27, Aug. 1954, *MAB*.) *Subject Headings:* 1. Inversion effects on turbulence 2. Airplane observation (Aerol) data 3. Moscow, U.S.S.R.—*R.S.O.*

660

PINUS, N. Z.

35209. Ob Eksperimental'nom Issledovanii Vertikal'nykh Dvizheniy Vozdukha V Svobodnoy Atmosfere. Trudy Tsentr. Aerol. Observatorii, VYP. 5, 1949, s. 58-69

SO: Letopis' Zhurnal'nykh Statey, Vol. 48, Moskva, 1949

Book [illegible]

Authors: [illegible]

Full Title: [illegible]

Transliterated Title: Aerologiya [illegible]

Publishing Data

Originating Agency: None

Publishing House: Hydrometeorological [illegible]

Date: 1961 No. pp.: [illegible] No. of copies: [illegible]

Editorial Staff

Editor: [illegible] Tech. Ed.: [illegible]

Editor-in-Chief: [illegible] Appraiser: [illegible]

Text Data

Coverage: The book is a [illegible] work, [illegible] the vol[illegible] references. [illegible] covers [illegible] conventional [illegible] well-known [illegible] of aerolo[gical] [illegible], and stresses the [illegible] point of view. It is interesting because in addition [illegible] new types [illegible] some [illegible] of [illegible] observations. In the [illegible] the table of contents [illegible] new items [illegible]

Preface

Ch. I Introduction

Subject ... Short review ... organization of systematic aerological ... development ...

Ch. II Investigation of air currents. Method of pilot-balloons

A. Pilot-balloon observations from a Single Point

Basic outline of the pilot-balloon method. Determination of velocity of ascent of the balloon by the lifting power and the weight of the balloon. Its dependence on the change of ... density with altitude and the temperature. Practical methods of determining vertical velocity. Pilot-balloon ... Rule of ... artsumov ... Aerological Theodolites, their characteristics, their ... The theodolite of ... sov, ... Soviet-made ...

[illegible] [illegible] [illegible]

[illegible] – 3. [illegible]
[illegible]
Pilot balloons, [illegible]
[illegible] (x). [illegible]
Treatment of observations. [illegible]anov's [illegible]
[illegible] pilot balloon (.).
Treatment of observations [illegible].
Errors in observations [illegible].
. Pilot [illegible]
[illegible]
[illegible] balloon. [illegible]
velocity, [illegible]
observations, [illegible] of [illegible]
[illegible] of a base line. [illegible] for [illegible]
[illegible]
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[illegible] tions. [illegible] isk of
[illegible]omashevich [illegible].
. [illegible] meteorographs. Assembly. [illegible]s. [illegible]
principal characteristics and instruments. [illegible]
[illegible] temperature. [illegible]

[illegible]

[illegible]

[illegible] to Thermostatic heat inertia, Solar radiation, [illegible] in the air, and humidity. [illegible]. Measurement of [illegible] by meteorographs. Types of meteorographs. [illegible] Meteorograph [illegible]. [illegible] of [illegible], [illegible] with [illegible] the [illegible], [illegible] rometer.

[illegible] and Stratostats [illegible]

A. Kites [illegible]
B. [illegible] Aerostats [illegible]
Lifting power. [illegible] Aerostat [illegible] meteorograph [illegible] -1 [illegible]
[illegible]
C. Free Spherical Balloons. [illegible]
D. Stratostat. Stratosphere spherical free balloons. Construction. Instruments [illegible]. Flight [illegible] Stratostat "[illegible]-1" [illegible]

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[illegible]

[illegible] of [illegible] [illegible] -

[illegible] types of [illegible].

Meteorograph of [illegible].

Meteorograph [illegible] (p. [illegible] and [illegible], 2[illegible]

[illegible] Airplane [illegible] of the atmosphere [illegible] -2[illegible]

Schedule and [illegible]

Equipment of Airplanes [illegible] meteorographs.

Meteorograph [illegible] [illegible]

[illegible]

[illegible]

[illegible] [illegible] -280

Ch.VIII Method of radiosondes [illegible]

Types of radiosondes: comb-[illegible]

[illegible] -2[illegible]1), [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] a". [illegible]

[illegible].

[illegible]

... of [illegible] ... ter.

[illegible] Methods of Investigation of Vertical ... and Turbulence ... Measurements of Vertical Currents from ... Pilot Balloons and from ... with a ... (Fig. ...). ... with an accelerometer ... Accelerometer ...

[illegible] XI Aerological Methods ... Instruments for Measuring the Thickness of ... [illegible]

[illegible] XII Rockets in the Investigation of the [illegible]

[illegible]

[illegible]
Instruments used in [illegible]

Supplement [illegible]
of Observations [illegible]
[illegible] in [illegible],
Aerostats, airplanes, [illegible]
Principles of [illegible] observations
with [illegible]

Literature [illegible]

Appendix [illegible]
tables, [illegible] [illegible]

Purpose: [illegible]
in the USSR in the hydrometeorological institutes.

Facilities: [illegible]

No. of Russian and [illegible]

Available: [illegible], Library of Congress

[illegible]

PINUS, N.Z.

Special features of vertical motion of air in the free atmosphere.
Trudy TSAO no.6:156-173 '52. (MIRA 11:6)
(Air) (Aeronautics in meteorology)

OBUKHOV, A.M.; PINUS, N.Z.; KRECHMER, S.N.

Results of experimental investigations of microturbulence in the free atmosphere. Trudy TSAO no.6:174-183 '52. (MIRA 11:6)
(Atmospheric turbulence) (Aeronautics in meteorology)

PINUS, I. Z.

IA 237T76

USSR/Geophysics - Aerology Dec 52

"Review of A. B. Kalinovskiy and I. Z. Pinus's Book, 'Aerology'," Prof V. A. Belinskiy, Dr Phys-Math Sci, Moscow

"Meteorol i Gidrol" No 12, pp 57-61

Book was published by the Hydromet Press, Leningrad, 1951; authorized by Ministry of Higher Education as a textbook for hydromet students. Reviewer calls it a poor book.

237T76

Pinus, N.Z.

1073. Pinus, N. Z., On the atmospheric turbulence causing aeroplane bumping (in Russian), *Meteorol. i gidrologiya* no. 2, 32-37, 1955; *Ref. Zh. Mekh.* 1956, Rev. 6031.

Some results are stated on the theoretical and experimental investigations, carried out in the U.S.S.R. and abroad, on this problem. Turbulence causing bumping is presented as an interchange in space of convecting, ascending, and descending currents of air, acting at short intervals of time. As a measure of disturbance, the horizontal extension of a portion of the atmosphere is taken in which the vertical movements retain their direction. The horizontal extension of the disturbed layers varies from a few kilometers to tens and sometimes hundreds of kilometers; the most characteristic extension is 80-100 km. The vertical extension of these layers in the lower half of the troposphere in 76% of the cases does not exceed 800 m, in the upper half of the troposphere it does not exceed 1000 m, on average. In general, however, the probability of bumping in the upper troposphere is reckoned around 10%. In these conditions, flights at high altitudes with overloads at $\Delta n = \pm 2g$ are extremely unpleasant, and at $\Delta n > 0.5g$ give rise to serious difficulties in pilotage. The probability of moderate and strong bumping is likely to be in the atmospheric layer up to 1 to 2 km from the ground, then it decreases with increase in height and again increases somewhat in the upper troposphere. Turbulence, producing bumping, is more likely to be met with in spaces

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PINUS, N. Z.

with a developed convectional activity, in a zone of cold fronts, in the rear ends of cyclones, and also under layers of inversion point temperature. It is most likely to be encountered in that part

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of altitudinal frontal zone where convergences of air currents are observable and also when nearer to the region of low pressure.

In the upper troposphere, bumping ordinarily is met with in the layer 1-2 km below the tropopause, especially when tilt is considerable (of the order 1/80).

I. G. Pchelko, USSR

Courtesy Referativnyi Zhurnal

Translation, courtesy Ministry of Supply, England

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RHR

PINUS, N.Z.

Meeting in Brussels of the special committee on conducting the Third International Geophysical Year. Meteor. i gidrol. no.1:59-60 Ja '56. (Geophysics) (MIRA 9:6)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920019-2"

PINUS, N.Z.

Estimating atmospheric turbulency on the basis of the intensity of bumping in high-speed airplanes. Meteor.i gidrol. no.10:33-37 O '56. (MLRA 9:12)

(Atmospheric turbulence)

KHRGIAN, A.Kh.; BOROVIKOV, A.M.; DZERDZEYEVSKIY, B.L.; DYUBYUK, A.F.; ZVEREV, A.S.; ZOLOTAREV, M.A.; KRICHAK, O.G.; KLEMIN, I.A.; PINUS, N.Z.; SELEZNEVA, Ye.S.; YASNOGORODSKAYA, M.M., red.; [redacted], tekhn.red.

[Cloud atlas] Atlas oblakov. Leningrad, Gidrometeor.izd-vo, 1957. 45 p. (MIRA 12:9)

1. Russia (1923- U.S.S.R.) Glavnoye upravleniye gidrometeorologicheskoy sluzhby.
(Clouds)

DEVYATOVA, Valentina Aleksandrovna; PINUS, N.Z., otvetstvennyy redaktor; VLASOVA, Yu.V., redaktor; BRAYNINA, N.I., tekhnicheskiy redaktor.

[Microaerological studies of the lower kilometric layer of the atmosphere] Mikroaerologicheskie issledovaniia nizhnego kilometrovogo sloia atmosfery. Leningrad, Gidrometeor.izd-vo, 1957, 143 p. (MLRA 10:5)

(Atmosphere)

49-3-11/16

AUTHOR: Pinus, N. Z.

TITLE: Atmospheric turbulence commensurate with the dimensions of aircraft. (Atmosfernaya turbulentnost', soizmerimaya s razmerami samoletov).

PERIODICAL: "Izvestiya Akademii Nauk, Seriya Geofizicheskaya" (Bulletin of the Ac.Sc., Geophysics Series), 19.., No. ., pp. 39.-400 (U.S.S.R.)

ABSTRACT: In recent years a considerable amount of work has been done on investigating the conditions of bumpiness of aircraft in the troposphere, particularly in conjunction with the discovery of the jet streams, Dzhordzhio, V.A. (1). These investigations led to the conception of the spectral character of atmospheric turbulence discussed by Kolmogorov, A. N. (2), Obukhov, A.M. (3) and Yudin, M.I. (4). In this paper the author relates the stresses acting on an aircraft (caused by bumpiness) to the flow of air masses, represented by ρw, where ρ density of air, w - velocity of vertical gust. He found that the values of the root-mean-square ρw are included in the range of 0.1 to 2.5 kg/m²sec. ρw Density, and thus ρw and turbulence, decrease at higher altitudes. From numerous experimental flights it was found that frequency of bumpiness is: in the lower troposphere 25-30%, in the middle troposphere 5-10%.

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49-3-12/[illegible]

Atmospheric turbulence commensurate with the dimensions of aircraft. (Cont.)

in the upper troposphere 15-20%. Development of clear air turbulence depends on gradients in both the temperature and wind velocity fields. This makes it possible to introduce Richardson's number Ri which includes the adiabatic vertical temperature gradient γ_a, the recorded temperature gradient γ, and the vertical gradient of the mean wind velocity β. Experiments showed that bumpiness occurs when Ri $\leqslant$ 4; when Ri $\leqslant$ 0.5 bumpiness is moderate and strong; when Ri > 4 bumpiness is very slight. The author correlated 366 $\sigma_{\varphi w}$ values with corresponding Ri values. Decreasing values of Ri correspond to a greater range of $\sigma_{\varphi w}$ values, i.e. to a greater turbulence likely to act on an aircraft. Another 2330 observations are related to the broad synoptic picture. Bumpiness is related to the pressure field at vari us altitudes. Bumpiness is most probable at convergent cyclonic contour curvature and is greater in the troposphere (57.4%) than at higher altitudes ([illegible]%). In anticyclonic convergent fields average bumpiness is [illegible].5%; in divergent flow it is 15.[illegible]% for cyclonic and [illegible].8% for anticyclonic contour curvatures. Frequency of bumpiness is

Card 2/3

Atmospheric turbulence commensurate with the dimensions of aircraft. (Cont.)

greater for cold than for warm advection; for cyclonic contour curvatures the first is on the average [illegible] % and the second 19.9%. These data, given in the form of tables, make it possible to forecast turbulence by a semi-empirical method. Probability of turbulence is computed from pressure charts along the route and from tables given in the paper. Then, from measurements in the high atmosphere, Ri is determined for different sectors of the route, which renders forecast more precise. Instead of calculating Ri, observed γ and β values can be used in conjunction with a graph (Fig.2, p.[illegible]) in which constant value Ri curves, limiting various bumpiness zones, are plotted in β and γ coordinates.

Acknowledgment is made to L. A. Yumashev for his assistance in obtaining data on the bumpiness of high speed aircraft.

There are 4 tables, [illegible] graphs and 1[illegible] references, [illegible] of which are Slavic.

SUBMITTED: August 23, 1950.

ASSOCIATION: Central Aerological Observatory. (Tsentral'naya Aerologicheskaya Observatoriya).

86-8-15 22

AUTHOR: Pinus, N. Z., Doctor of Physics-Mathematical Sciences

TITLE: The International Geophysical Year (Mezhdunarodnyy geofizicheskiy god)

PERIODICAL: Vestnik Vozdushnogo Flota, 1957, Nr 8, pp. 72-7[illegible] (USSR)

ABSTRACT: On the request of some readers of the Herald of the Air Fleet the author of this article gives information about the works planned for the Third International Geophysical Year. In the beginning of this article he explains why the Geophysical Year was organized for 1957-1958 instead of for 1982-1983. He gives a bit of information about the two previous geophysical years held in 1882-1883 and in 1932-1933. Further, he discusses also that part of the program which is of vital importance to aviation. He starts with the problem "The Study of Wind Conditions at Altitudes". This problem includes the study of the circulation of the atmosphere over various latitudes, in particular, over Antarctica, and the making of altitude weather maps. He points out how important for aviation are the air streams in the upper layer of the troposphere and in the lower layer of stratosphere. He mentions the results of research conducted with balloons in Japan in 1956.

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86-8-15/22

The International Geophysical Year (Cont.)

Some data on those streams is given by the author. The next problem he discusses is: "Investigation of the Composition of Air". He tells about the composition of air up to a height of 80-90 kilometers, which is known from completed investigations, and about the composition of air at higher altitudes, which follows from theoretical considerations. He mentions that the practical advantage of the dissociation of oxygen molecules into atoms in the upper layers of the atmosphere is the liberation of the energy which can be utilized for the engines of the flying devices. This problem, as he points out, has already been placed on the daily program. During the International Geophysical Year attention will be paid to the study of the ozon. For this purpose a net of stations will be organized over the USSR, Italy, England, India, Pakistan, Germany, and other countries, and special instruments sent to high altitudes by means of rockets will be employed for this purpose. Then the author discusses the problem: "Temperature and Density of Air Observations at High Altitudes". By means of rockets the temperatures at high altitudes will be checked and their change in space with

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86-8-15 22

The International Geophysical Year (Cont.)

time will be investigated. Earth satellites, the damping of radiowaves, the distribution of the density of electrons over the altitudes, and the spectrum of northern lights will also be used for this purpose. He points out that the measuring of both the pressure and density of air is of great value to jet propelled aviation. Finally, he discusses the problem: "Investigation of the Ionosphere". Thorough investigations of the relation existing between the conditions of the atmosphere and the solar activity are intended. The scientists will try to find the connection between the electrical properites and the other parameters of the ionosphere. This is important in weather forecasting work and radiotransmission at low and high altitudes. The author emphasizes the importance of aviation in helping the scientists to solve a part of the common scientific problems as well as a series of problems directly linked, not only with the aviation of the future, but also of today.

AVAILABLE: Library of Congress.

Card 3/3

BELYAYEV, V.P.; BELTADZE, T.G.; LITOVCHENKO, V.P.; LITVINOVA, V.D.; LOMINADZE, V.P.; PINUS, N.Z.; SOFIYEV, Ye.M.; SHUR, G.N.

Some results of experimental investigations of atmospheric turbulence using radiosondes. Trudy TSAO no.54:4-52 '64.
(MIRA 17:.)

PINUS, N.Z.; SHMETER, S.M.

Some characteristics of atmospheric turbulence over mountain regions. Trudy TSAO no.24:3-11 '58. (MIRA 12:1)

(Atmospheric turbulence)

3,5140

S/124/...
D...

AUTHORS: Pinus, N. Z., and Shmeter, S. M.

TITLE: Results of investigation ... in the Central Aerological Observatory

PERIODICAL: Referativnyy zhurnal, ... abstract 1B... (Tr. ...), 1..., no. ...

TEXT: The results are presented of investigations of wind changes at various altitudes, structure of air streams, turbulent oscillations of various sizes, upward motion over plain and mountainous regions and stream regions, performed by the Central Aerological Observatory together with other scientific and experimental establishments during the last few years. ... the following ... given ... sions appearing in the work, the ... (1) Mean quadratic variance of the horizontal component of the wind velocity vector over the time intervals up to ... hours ...

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Results of [illegible] vesti[illegible]... [illegible] D. [illegible]

higher (a) in the colder half-year; (b) [illegible] in comparison with the South of the USSR. The maximum [illegible] the [illegible] (c) Velocity [illegible] of [illegible] ver[illegible] tary values of w reached [illegible] cm/sec in [illegible] The character of distribution of w with the [illegible] the general synoptic [illegible] and [illegible] number and magnitude of the [illegible] crease [illegible] intensity of turbulence. Zones [illegible] appear [illegible] most often are in [illegible] of a [illegible] (d) Advection of cold favors the development [illegible] oscillations of dimensions [illegible] (f) Rough air in the vicinity [illegible] determined by the [illegible]
[Abstracter's note: [illegible]]

C[illegible]

PAKHOMOV, Leonid Afanas'yevich; PINUS, Naum Zinov'yevich; SHMETER, Solomon Moiseyevich; KORNILENKO, V.S., red.; ZARKH, I.M., tekhn.red.

[Aerological research on the variability of the atmospheric refraction coefficient for ultrashort radio waves] Aerologicheskie issledovaniia izmenchivosti koeffitsienta prelomleniia atmosfery dlia ul'trakorotkikh radiovoln. Moskva, Gidrometeor. izd-vo, 1960. 101 p. (MIRA 14:1)
(Microwaves) (Refraction)

PHASE I BOOK EXPLOITATION SOV/4512

Tsentral'naya aerologicheskaya observatoriya

Atmosfernaya turbulentnost' (Atmospheric Turbulence) Moscow, Gidrometeoizdat (Otd-niye), 1960. 102 p. (Its: Trudy, vyp. 34) 750 copies printed.

Sponsoring Agency: Glavnoye upravleniye gidrometeorologicheskoy sluzhby pri Sovete Ministrov SSSR.

Ed.: S.M. Shmeter, Candidate of Physics and Mathematics; Ed.: M.I. Sorokina; Tech. Ed.: I.M. Zarkh.

PURPOSE: This issue of the Transactions of the Central Aerological Observatory is intended for meteorologists. It may also be useful to aviation personnel.

COVERAGE: The articles in this collection contain the results of experimental research on turbulence in the troposphere and lower stratosphere. Individual articles deal with methods used in experimental investigation of atmospheric turbulence by studying its effect on aircraft and free ballons. No personalities are given. References follow each article.

Card 1/2

GOL'TSMAN, M.I.; FROLOV, V.V.; PINUS, N.Z., red.; KAPLINSKAYA, L.B., red.; DROZHZHINA, L.P., tekhn.red.

[Structural characteristics of the atmosphere over the Arctic; results of the Flying Meterological Observatory] Strukturnye kahrakteristiki atmosfery nad Arktikoi; rezul'taty rabot letaiushchei meterologicheskoi observatorii. Leningrad, Izd-vo "Morskoi Transport," 1960. 147 p. (Leningrad. Arkticheskii nauchno-issledovatel'skii institut. Trudy, no.238). (MIRA 14:1)

(Arctic regions--Meteorology--Observations)

KALINOVSKIY, Aleksandr Boleslavovich; PINUS, Naum Zinov'yevich. Prinimal uchastiye SHMETER, S.M.; STEPANENKO, V.D., otv. red.; ZABRODSKIY, G.M., otv. red.; VLASOVA, Yu.V., red.; BRAYNINA, M.I., tekhn. red.

[Aerology] Aerologiia. Leningrad, Gidrometeor. izd-vo. Pt.1. [Methods of aerological measurements] Metody aerologicheskikh izmerenii. 1961. 517 p. (MIRA 15:2)
(Meteorology—Observations)

PI[illegible]S, [illegible].Z.

Tropopause and the lev[illegible] [illegible] wind velocity. Meteor. i gidr. [illegible] n .3:[illegible]-10 Mr '51. (MGA [illegible])

(Atmospheric t[illegible]) (Winds)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920019-2"

PHASE I BOOK EXPLOITATION SOV/6115

Pinus, N. Z., ed.

Atmosfernaya turbulentnost', vyzyvayushchaya boltanku samoletov (Atmospheric Turbulence Causing Airplane Bumps). Moscow, Gidrometeoizdat, 1962. 166 p. Errata slip inserted. 1400 copies printed.

Sponsoring Agency: Glavnoye upravleniye gidrometeorologicheskoy sluzhby pri Sovete Ministrov SSSR. Tsentral'naya aerologicheskaya observatoriya. Ed.: L. V. Blinnikov; Tech. Ed.: I. M. Zarkh.

PURPOSE: The book is intended for meteorological and aerodynamics specialists and for persons connected with the organization and supervision of aircraft flights.

COVERAGE: This book describes the effect of turbulent air on the stability of an aircraft in flight.

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Atmospheric Turbulence Causing Airplane Bumps SOV/6115

TABLE OF CONTENTS [Abridged]:

PART I. PINUS, N. Z., AND S. M. SHMETER. TURBULENT AIR AFFECTING AIRCRAFT FLIGHT

Card 2/4

Card 3/4

Atmospheric Turbulence Causing Airplane Bumps

SOV/6115

Bibliography

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AVAILABLE: Library of Congress

SUBJECT: Aerospace

Card 4/4

AD/dk/jw
1/6/63

PINUS, N.Z.; LITVINOVA, V.D.

Intensity of turbulence in clouds. Izv. AN SSSR. Ser. geofiz. no.1:126-129 Ja '62. (MIRA 15:2)

1. TSentral'naya aerologicheskaye observatoriya.
(Atmospheric turbulence)
(Clouds)

PINUS, N.Z.

Characteristics of wind reversal in the lower atmosphere. Geofiz.-biul. no.12:57-60 '62. (MIRA 16:5)

(Atmosphere) (Wind)

PINUS , N.Z.

Structure of the wind velocity field in the upper troposphere and lower stratosphere. Meteor. i gidrol. no.4:7-13 Ap '6[illegible]. (MIRA 1[illegible])

(Winds)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920019-2"

PINUS, N.Z.

Statistical characteristics of the horizontal component of the speed of wind at altitudes of 6 to 12 km. Izv. AN SSSR. Ser. geofiz. no.1:177-182 Ja '63. (MIRA 16:2)

1. TSentral'naya aerologicheskaya observatoriya.
(Winds)

P.Nus, N Z

AID Nr. 981-3 3 June

CONFERENCE AT CENTRAL AEROLOGICAL OBSERVATORY (USSR)

Meteorologiya i gidrologiya, no. 3, 1963, 69. S/050/63/000/004/002/002

The following are among the reports presented at a recent session of the Scientific Council of the Central Aerological Observatory 1) N. Z. Pinus -- an experimental investigation of the wind field at altitudes of 7 to 11 km, certain peculiarities of the mesostructure of the wind field, and the statistical characteristics of horizontal and veritical wind fluctuations in the jet stream zone in different regions of the European USSR and Siberia; 2) S. M. Shmeter -- the process of cumulonimbus cloud development and a proposed model of the structure of the fields of meteorological elements near the upper third of such clouds at different stages of development; 3) V. D. Reshetov -- the use of hydrodynamic equations for determining the interdependence of ageostrophic, nonstatic, and nonstationary atmospheric motions and a more

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AID Nr. 981-3 3 June

CONFERENCE AT CENTRAL AEROLOGICAL [Cont'd] S/050/63/000/004/002/002

accurate form proposed for writing such equations; 4) I. F. Kvaratskheliya -- conditions for the formation of sharp changes of vertical wind shear in the upper half of the troposphere over the Transcaucasus, 5) A. I. Ivanovskiy and A. I. Repnev -- the hydrodynamics of the upper atmosphere, taking into account the chemical reactions occurring under solar influence, 6) V. V. Kostarev, A. M. Borovikov, and A. B. Shupyatskiy -- certain radar criteria for identifying the hail content of clouds and criteria for evaluating the effect of cloud modification; and 7) A. G. Gorelik -- certain results of radar investigations of the wind field at altitudes of 50 to 700 m. [ET]

Card 2/2

L 10604-63 EWT(1)/BDS AFFTC/ASD/ESD-3/APGC Pi-4 RB

ACCESSION NR: AP3001401 S/0020/63/150/004/0788/0790

62
61

AUTHOR: Pinus, N. Z.

TITLE: Vertical movements in thunderclouds

SOURCE: AN SSSR. Doklady, v. 150, no. 4, 1963, 788-790

TOPIC TAGS: vertical movements in thunderclouds, TU-104, turbulence parameters in cumulus-rain clouds

ABSTRACT: The first part of the article describes the experiments which were carried out with the TU-104 aircraft for testing the turbulence of cumulus and cumulus-rain clouds. Authors then state that there is at present an experimental material which has been developed and stockpiled with whose use it is possible to construct an averaged-out pattern of the distribution of the turbulence parameters in cumulus-rain clouds. This material is quite useful for an actual control of the clouds and in the choice of aircraft flight paths as well as for safety of flights. Two figures are contained in the article depicting the vertical movement of air in cumulus-rain clouds and the distribution of turbulent perturbations in these clouds. The remainder of the article deals with a discussion of these two figures. Orig. art. has: 2 figures and 3 equations.

Card 1/2

L 20598-66 EWT(1)/FCC GW

ACC NR: AP6010414 SOURCE CODE: UR/0050/66/000/004/0003/0011

28
13

AUTHOR: Pinus, N. Z. (Professor)

ORG: Central Aerological Observatory (Tsentral'naya zerologicheskaya observatoriya)

TITLE: Energy spectra of wind-velocity fluctuations in the free atmosphere

SOURCE: Meteorologiya i gidrologiya, no. 4, 1966, 3-11

TOPIC TAGS: wind velocity spectrum, free atmosphere, atmospheric turbulence

ABSTRACT: A wide spectrum of atmospheric turbulence in the free atmosphere is discussed in this article. In 1964, personnel of the Central Aerological Observatory began measuring the fluctuations of the horizontal component of the wind velocity using a thermoanemometer installed in an airplane, which permitted extending the fluctuation spectrum to several tens of meters over a fairly wide frequency range. Taylor's hypothesis of "frozen" turbulence is used in this work. Rawinsonde measurements were made four times a day (1964—1965), a series of 2-hr observations was run for 2-week periods (1960—1961) at Moscow, and data were measured from aircraft using a Doppler navigated system and a thermoanenometer. Only data for January, for which a series of frequent rawinsonde observations was available, were considered. Autocorrelation functions were calculated on an electronic computer, and the results are presented in graphs of the spectral density of fluctuations in the horizontal wind velocity at the 500-, 300-, and 200-mb levels. The low-frequency part of the

 UDC: 551.557:551.511.6

L 20593-66
ACC NR: AP6010414

0

spectra (a) was obtained from rawinsonde data; the medium-frequency (b) and the high-frequency part (c) were obtained from thermoanemometer measurements made from aircraft. Since the -5/3 Kolmogorov--Obukhov law holds, on the average, for (a) and (b), the implication is that the frequency range for the one-dimensional turbulence spectrum from 10^{-3} to about 10^{0} rad/km is assocaited with the so-called inertial interval in which the turbulent energy flux is generally constant over the interval. In each case, the energy level in this frequency range depends on the intensity of the source associated with secondary instability in that in the free atmosphere, the effects of incoming and outgoing energy fluxes can be superposed in various frequency intervals on the continuous spectrum of atmospheric turbulence because of losses in stability of the basic flux: a) periodic fluctuations in wind velocities with random amplitudes and phases; b) thermal stability (outgoing fluxes) or instability (incoming fluxes) of the atmosphere in the range from 10^{-1} to 10^{1} rad/km; and c) losses in gravitational wave stability in a thermally stable atmosphere with high vertical wind-velocity gradients. Account must be taken of the superposition of influxes of energy due to loss of wave stability and generation of turbulence in zones downwind form orographic obstacles. At the 500-, 300-, and 200-mb levels, the turbulent energy dropped sharply

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L 20598-66

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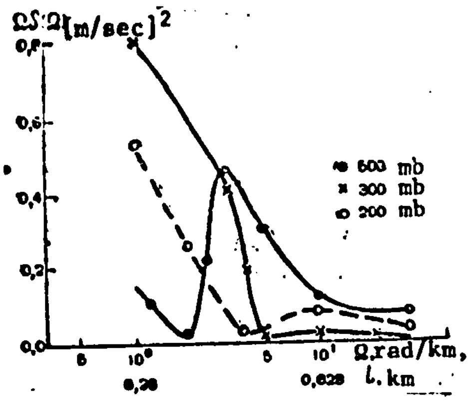

Fig. 1. Energy spectra of pulsations in the horizontal component of the wind velocity on 500-, 300-, and 200-mb levels

in the frequency range from 10^{-3} to 10^{-2} rad/km, but varied little and became insignificant at high frequencies of 10^{-1} to 3×10^{1} rad/km (see Fig. 1). Orig. art. has: 7 formulas and 5 figures. [EO]

SUB CODE: 04/ SUBM DATE: 20Dec65/ ORIG REF: 008/ OTH REF: 005/ ATD PRESS: 4224

Card 3/3 BK

L 25575-66 EWT(1)/FCC GW

ACC NR: AM6006946 Monograph UR/

Pinus, Naum Zinov'yevich; Shmeter, Solomon Moiseyevich

Aerology. pt. 2: Physics of the free atmosphere (Aerologiya. ch. 2: Fizika svobodnoy atmosfery) Leningrad, Gidrometeoizdat, 1965. 230 p. illus., biblio. 5000 copies printed.

TOPIC TAGS: atmospheric physics, atmospheric circulation, cloud cover, aerothermodynamics, aeromechanics

PURPOSE AND COVERAGE: This monograph is Part II of the textbook by A. B. Kalinovskiy and N. Z. Pinus, entitled Aerology, Physics of the free atmosphere, which gives a systematic outline of contemporary data on the composition of air and its changes with altitude, on radiation and the heat balance of the upper atmosphere, on space and time changes of atmospheric pressure and air density, on the dynamics of the atmosphere and turbulent motion, on clouds at various altitudes and on cloud modification methods. The book is intended as a textbook for students of hydrometeorological institutes and universities. It will also be useful to specialists in the field of atmospheric physics, aviation, rocketry, etc.

TABLE OF CONTENTS [abridged]:

Card 1/2 UDC: 551.510.536

L 25575-66

ACC NR: AM6006946

SUB CODE: 04/ SUBM DATE: 01Sep65/ ORIG REF: 172/ OTH REF: 039

Card 2/2 FW

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920019-2"

CHISTYAK..., A. ..., ...A, M.V.; ORLOVA, Ye.M.; GLAZOVA, O.P.; ... .A., ...Ye.; ABRAMOVICH, K.G.; POPOVA, T.P.; MATVEYEV, L.T.; KACHURINA, A.A.; LEBEDEVA, N.V.; PESKOV, B.Ye.; ROMANOV, N.N.; VOLEVAKHA, N.M.; PCHELKO, I.G.; PETRENKO, N.V.; KOSHELENKO, I.V.; PINUS, N.Z.; SHMETER, S.M.; ...AYEVA, T.F.; MININA, L.S.; BEL'SKAYA, N.N., nauchn. red.; ZVEREVA, N.I., nauchn. red.; K...SKAYA, ..., nauchn. red.; MERTSALOVA, A.N., nauchn. red.; ..., L.V., nauchn. red.; AGATOVSKIY, N.V., otv. red.; ...VSKAYA, A.I., ...

[Manu... ...-range weather ...] Rukovodstvo po k... ...shnym prognozam pogo... ... Gidro-meteo... Izd... ...

1. Moscow. TSentral'nyy institut ...

L 3534-66 EWT(1)/FCC GW

ACCESSION NR: AT5022878 UR/2789/65/000/063/0037/0045
551.551,551.557

AUTHORS: Kozlov, V. I.; Pinus, N. Z. (Doctor of physico-mathematical sciences); Shcherbakova, L. V.

TITLE: Certain statistical characteristics of wind velocity fluctuations in the tropopause

SOURCE: Tsentral'naya aerologicheskaya observatoriya. Trudy, no. 63, 1965. Voprosy dinamiki atmosfery (Problems of atmospheric dynamics), 37-45

TOPIC TAGS: tropopause, troposphere, wind, jet stream, meteorological phenomenon, meteorology, aerodynamic characteristic, Richardson number

ABSTRACT: The experimental data of 62 series of experiments on the wind velocity in a 1-km wide layer 10-12 km above the earth's surface were subjected to a statistical analysis carried out with the aid of an electronic computer. Correlation and spectral function for the wind velocity fluctuations were determined and are presented graphically (see Fig. 1 on the Enclosure). Mathematical approximations to the above function are presented. The autocorrelation

L 3534-66

ACCESSION NR: AT5022878

function was found to be adequately represented by

$$R(\Delta H)=e^{-\alpha\Delta H}\cos\varphi\Delta H,$$

where H is the height in km and α and ϕ are correlation parameters. Values of α and ϕ are tabulated. The correlation function along the x-direction in the horizontal plane is given by

$$R(\Delta x)=R_0\exp-\alpha\Delta x$$

The normalised spectral density derived from the autocorrelation function is given by

$$S(\Omega)=\frac{1}{\pi}\int_0^\infty R(\Delta H)\cos\Omega\Delta H\,d(\Delta H),\qquad S(\Omega)=\frac{\alpha}{\pi}\frac{\Omega^2+\alpha^2+\varphi^2}{(\Omega^2-\varphi^2-\alpha^2)^2+4\alpha^2\Omega^2},$$

where Ω is the angular frequency in rad/min. The relation between the correlation and spectral characteristics of the wind velocity field and the degree of atmospheric turbulence was investigated in terms of Richardson's equation

$$Ri=\frac{g}{T}\frac{\gamma_a-\gamma}{\beta^2}$$

where Ri is the Richardson Number, g - acceleration due to gravity, T - the absolute temperature, β - the mean wind velocity, γ_a and γ the adiabatic and

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L 3534-66

ACCESSION NR: AT5022878

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observed vertical thermal gradients respectively. It was found that the dispersion of pulsating velocities increased with decrease in the Ri number and that the frequency distribution of the former was such that the maximum in spectral density of the energy of turbulence was shifted to higher frequencies. Curves of $\sigma^2(u')$, the dispersion of pulsation wind velocities as a function of γ and β, are presented graphically. Two specific examples of turbulence distribution observed on 28 September 1955 are discussed. It is concluded that in these two instances the turbulence had a particularly complex character. Orig. art. has: 5 tables, 7 graphs, and 7 equations.

ASSOCIATION: Tsentral'naya aerologicheskaya observatoriya (Central Aeroclimatological Observatory)

SUBMITTED: 00 ENCL: 01 SUB CODE: ES

NO REF SOV: 002 OTHER: 000

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L 3534-66

ACCESSION NR: AT5022878

ENCLOSURE: 01

Fig. 1. Empirical autocorrelation functions: 1) 5.5-6.5 km, 28/IX, 1955; 2) 1.5-2.5 km, 28/IX, 1955; 3) 8.5-9.5 km, 25/I, 1954

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L 3533-66 EWT(1)/FCC GW

ACCESSION NR: AT5022879 UR/2789/65/000/063/0046/0050
551.557

44,55 48 45 B+1 44,55

AUTHORS: Pinus, N. Z. (Doctor of physico-mathematical sciences); Litvinova, V. D.

TITLE: On the structure of the wind velocity field in the region of jet streams

12,44,55

SOURCE: Tsentral'naya aerologicheskaya observatoriya. Trudy, no. 63, 1965. Voprosy dinamiki atmosfery (Problems of atmospheric dynamics), 46-50

TOPIC TAGS: jet stream, wind, meteorological chart, meteorological phenomenon, meteorology, aerodynamic characteristic

ABSTRACT: An expression for the mean vertical and horizontal jet stream velocity profile has been derived,

$$U_z = U_0 e^{-\alpha(z-z_0)}, \quad U_y = U_0 e^{-\beta y},$$

where U_0 is the maximum wind velocity at height z_0, U_z and U_y the wind velocity at height z and distance y from the center of the jet stream respectively, and α and β are constants. The expressions were derived from the experimental data of N. Z. Pinus (Nekotoryye rezul'taty issledovaniy mezo- i mikrostruktury

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L 3533-66

ACCESSION NR: AT5022879

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polya vetra' na vysotakh 6-12 km. Trudy TsAO, vyp. 54, 1964). The equations were applied to the data of Pinus (see reference above) and to the data of R. M. Endlich and G. S. McLean (The structure of the jet stream core. I. meteorol., vol. 14, 540-560, 1957) as shown in Fig. 1 on the Enclosure. Values for the constants α and β at various points in the jet stream are tabulated. It is concluded that the derived expressions give a good representation of the vertical and horizontal cross sections of jet streams. Orig. art. has: 2 tables, 3 graphs, and 3 equations.

ASSOCIATION: Tsentral'naya aerologicheskaya observatoriya (Central Aerological Observatory) 44,55

SUBMITTED: 00 ENCL: 01 SUB CODE: ES

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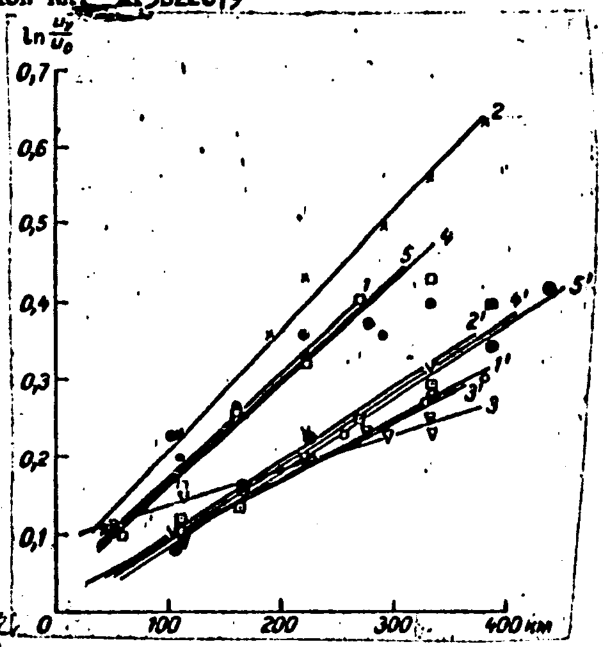

Fig. 1. Horizontal wind velocity profiles in semilogarithmic coordinates.

1- average profile, 2- velocity in excess of 240 km/h, 3- at 300 m from the jet axis, 4- at a distance d 300 m above jet axis, 5- in a layer 300-3000m under the jet axis. Primed number refers to anticyclonic side of stream, unprimed number to cyclonic side of stream.

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L 3532-66 EWT(1)/FCC GW

ACCESSION NR: AT5022880 UR/2789/65/000/063/0051/0055
551.551

AUTHOR: Pinus, N. Z. (Doctor of physico-mathematical sciences)

TITLE: Certain peculiarities of the development of turbulence above a plain terrain

SOURCE: Tsentral'naya aerologicheskaya observatoriya. Trudy, no. 63, 1965. Voprosy dinamiki atmosfery (Problems of atmospheric dynamics), 51-55

TOPIC TAGS: wind, meteorological chart, meteorological phenomenon, meteorology, aerodynamic characteristic

ABSTRACT: Results of airborne measurements of turbulence over a region southwest of Krasnodar conducted on the 2nd of November, 1963 are presented. The results are given graphically in terms of the coefficient of turbulence K (see Fig. 1 on the Enclosure). The latter was derived from the experimental data by a method developed by the author and described in an earlier paper (Nekotoryye osobennosti razvitiya turbulentnosti nad ravninnoy mestnost'yu. Trudy GGO, vyp. 173, 1965). It is concluded that the principal turbulence peak depends directly on the nature

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ACCESSION NR: AT5022880

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of the terrain and is found at greater heights for stable thermal stratifications and strong winds than for unstable thermal stratifications and light winds. Orig. art. has: 2 graphs.

ASSOCIATION: Tsentral'naya aerologicheskaya observatoriya (Central Aerological Observatory) 44,55

SUBMITTED: 00 ENCL: 01 SUB CODE: ES

NO REF SOV: 002 OTHER: 000

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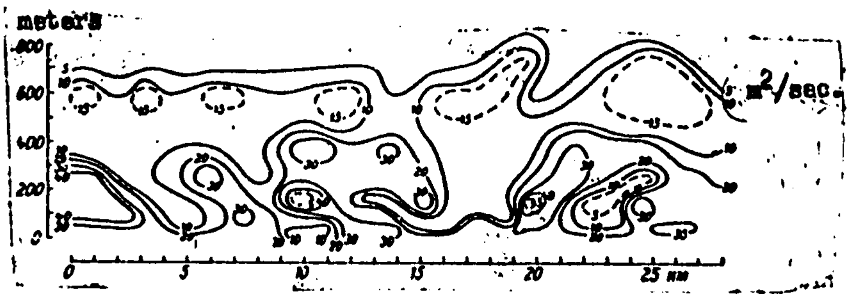

Fig. 1. Vertical cross section of the atmospheric turbulence field. November 2, 1963. (Numbers on the graph refer to values of K, the coefficient of turbulence)

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~~L 3540-66 EWT(d)/EWT(1)/EEC(k)-2/FCC/EWP(1) IJP(c) BB/GG/GW~~

ACCESSION NR: AT5022882 UR/2789/65/000/063/0077/0084

551.508

AUTHORS: Vinnichenko, N. K.; Pinus, N. Z. (Doctor of physico-mathematical sciences); Chernyah, V. I.; Shur, G. N.

TITLE: Principles of automatic treatment of aeroplane meteoinformation

SOURCE: Tsentral'naya aerologicheskaya observatoriya. Trudy, no. 63, 1965. Voprosy dinamiki atmosfery (Problems of atmospheric dynamics), 77-84

TOPIC TAGS: airborne data processor, airborne equipment, meteorological phenomenon, meteorology, infrasonic spectrometry

ABSTRACT: To expedite the analysis of meteorological information gathered by an aeroplane, the authors developed an integrated method for treating such data, employing digital and analog computers, an electronic analyzer of stationary random processes, and an infrasonic spectrometer. Block-diagrams for the treatment of slowly varying meteoparameters and pulsating parameters are presented. (see Fig. 1 on the Enclosure). It is concluded that with the aid of the digital computer it should be possible to make certain selections and to perform the

L 3540-66

ACCESSION NR: AT5022882

3

interpolation and extrapolation of the gathered experimental data. Orig. art. has: 2 graphs.

ASSOCIATION: Tsentral'naya aerologicheskaya observatoriya (Central Aerological Observatory) 44,55

SUBMITTED: 00 ENCL: 01 SUB CODE: ES

NO REF SOV: 008 OTHER: 000

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ENCLOSURE: 01

L 3540-66
ACCESSION NR: AT5022882

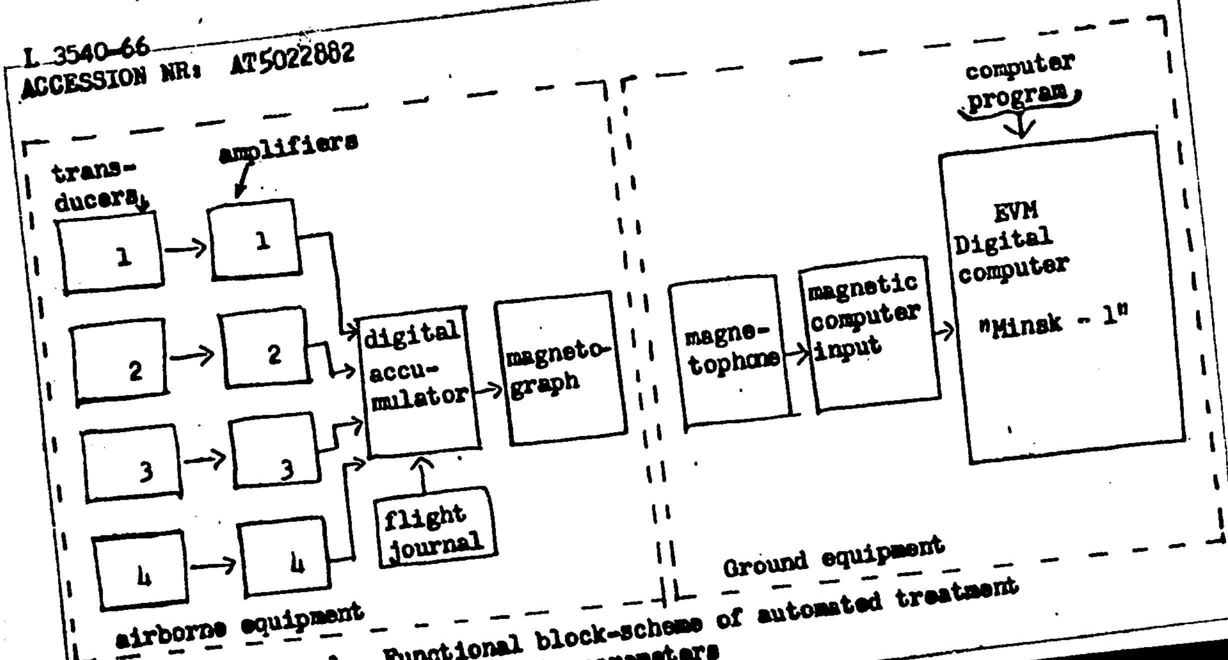

Fig. 1. Functional block-scheme of automated treatment of slowly varying meteoparameters

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L 2562-66 EWT(d)/EWT(l)/EWT(m)/EWP(w)/FCC EM/GW UR/2531/65/000/171/0110/0115

ACCESSION NR: AT5024890 41 38 B+1

AUTHOR: Pinus, N. Z. 44,55

TITLE: Some characteristics of turbulence development above the plains

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. 44,55 Trudy, no. 171, 1965. Resul'taty issledovaniya atmosfernoy turbulentnosti na vertoletnykh trassakh (Results of the investigation of atmospheric turbulence on helicopter routes), 110-115

TOPIC TAGS: aeronautic meteorology, atmospheric turbulence, 12,44,55 atmospheric thermodynamics/ LI 2 aircraft

ABSTRACT: Results of aircraft investigations of the atmospheric turbulence above the plains southwest of Zaporozh'ye are reported. The airplane LI-2, equipped with an electrometeorograph registering pressure, temperature, and humidity of the air, and fitted with instruments for measuring airplane overloads, bank angles, etc. was used. After gaining a proper elevation, it flew along horizontally for 7-8 min (25 km). Such horizontal traverses were flown at 50, 100, 150, 250, 350, 500, 700, 1000, 1500, and 2500 m above the earth's surface. The measurements thus

L 2562-66

ACCESSION NR: AT5024890

obtained yielded data for calculating the thermodynamic state and degree of turbulence of the atmosphere. The latter was evaluated using the coefficient of the vertical turbulence exchange, according to the structural-kinematic equation of Lyapin-Dubov, perfected by A. S. Dubov (Opredeleniye koeffitsiyenta turbulentnogo obmena po uskoreniyu samoleta. Trudy GGO, vyp. 98, 1959) and M. A. German (O turbulentnom obmene v oblakakh. Meteorologiya i gidrologiya, No. 10, 1963) to the form

$$k = \frac{b\tau|\overline{\Delta n}|}{2\Delta\eta},$$

where $|\overline{\Delta n}|$ is the average absolute magnitude of the vertical plane transfer (in fractions of the gravity acceleration g), τ - average preservation time of the direction sign of transfer; $\Delta = \frac{\rho_z}{\rho_0}$ - ratio of the air density on the flight level (ρ_z) to the density on the earth surface (ρ_0); b - coefficient, dependent upon the flight-technical data and speed of the airplane and η - correction factor accounting for the airplane transfer function. It was found that turbulence intensity and vertical profile of the exchange coefficient are functions of the distance from the earth's surface and of thermal atmospheric stratification. The turbulence field has "nuclear" structure, so that the local profiles of the

L 2562-66
ACCESSION NR: AT5024890

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turbulence coefficient may differ sharply from the average profile for the horizontal traverses studied (25 km). This is illustrated in Fig. 1 on the Enclosure. Orig. art. has: 5 figures and 3 formulas.

ASSOCIATION: TsAO
44.55

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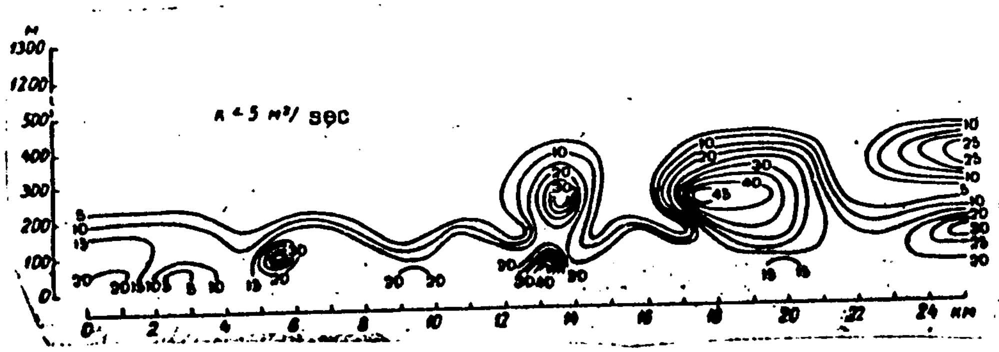

Fig. 1. Vertical profile of the field of atmospheric turbulence, April 21, 1962

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L 44350-65 EWT(1)/FCC GW UR/0362/65/001/003/0266/0274

ACCESSION NR: AP5010224

15
14
B

AUTHOR: Pinus, N. Z.

TITLE: Some features of turbulence development above plains

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 1, no. 3, 1965, 266-274

TOPIC TAGS: atmospheric turbulence, aerological sounding, cloud/ LI 2 airplane

ABSTRACT: The results of aerial studies on atmospheric turbulence for different thermal stratification distribution and for relatively strong winds above plains are presented. Small areas were flown in a short period, the time averaging 7-8 minutes, at different levels, the difference in height ranging from 50 to 100 m, and the total height ranging up to 2-2.5 km. The horizontal extent of a single area amounted to about 25 km. The flights were made in an LI-2 airplane, equipped with an electrical meteorograph for recording pressure, temperature, and moisture content of the air, and also with instruments for recording overloading of the plane and changes in pitch and list. The turbulence coefficient was used to estimate turbulence, and the intermittent structure of the turbulence field was determined. It was found that the turbulent zones range from 50-100 m to 300-500 m in a vertical direction and from 1-2 to 4-5 km in a horizontal direction. The field of turbulent movement in the lower 300-400 m of atmosphere is especially complex, and a great

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L 44350-65

ACCESSION NR: AP5010224

number of local foci may be observed, the intensities reaching and exceeding 30-40 m^2/second. At a height of approximately 400-500 m turbulence weakened over almost all of each area flown, but it then increased in the subinversion layer, where localizations of stronger turbulence were observed. The alternation of these foci of turbulence may be due to a loss of stability of wave disturbances forming at the boundary of the inversion layer. From the character of the turbulence-coefficient isopleth, it is concluded that the distribution of turbulence results from a static process. Orig. art. has: 7 figures and 3 formulas.

ASSOCIATION: Tsentral'naya aerologicheskaya observatoriya (Central Aerological Observatory)

SUBMITTED: 12May64 ENCL: 00 SUB CODE: ES

NO REF SOV: 003 OTHER: 000

Card 2/2

L 10399-65 EWT(1)/FCC AEDC(a)/ASD(f)-2/ESD(t) GW

ACCESSION NR: AT4045512 S/2789/64/000/053/0021/0034

AUTHOR: Pinus, N. Z. B

TITLE: Some results of investigations of the meso- and microstructure of the wind field at heights of 6-12 km

SOURCE: Tsentral'naya aerologicheskaya observatoriya. Trudy*, no. 53, 1964. Dinamika atmosfery* (Atmospheric dynamics), 21-34

TOPIC TAGS: jet stream, atmospheric dynamics, aerology, atmospheric wind field, atmospheric turbulence, tropospheric wind field, wind field mesostructure, horizontal wind gradient, vertical wind gradient

ABSTRACT: In 1959-1960 the Tsentral'naya aerologicheskaya observatoriya (Central Aerological Observatory), in collaboration with the GosNII GVF (State Scientific Research Institute of the Civil Air Fleet), conducted investigations of atmospheric turbulence; these studies, continued in 1961-1962, emphasized the structure of the wind field in the upper troposphere when jet streams are present. Studies were made using a TU-104 aircraft equipped with instruments for measing a wide range of atmospheric parameters and a Doppler navigation

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ACCESSION NR: AT4045512

system. This article describes in detail the measurement of wind velocity and direction aboard the aircraft, the mesostructure of the wind field at heights of 6-12 km, and the structural characteristics determined for the horizontal component of wind velocity. In addition, the author gives data on the accuracy of these measurements. Among the problems emphasized in the paper is the dependence of the exponent n and the coefficient A on the degree of thermal stability of the atmosphere. (Reference is made to the well-known Kolmogorov-Obukhov theory, where, in the expression $\sigma^2 (\Delta u) = A(\Delta x)^n$, n = 2/3, and A characterizes the rate of energy dissipation from large to smaller fluctuations.) Fig. 1a of the Enclosure shows curves characterizing the dependence of n on the value of the vertical temperature gradient γ, reflecting the degree of thermal stability of the atmosphere. The figure shows that in the region where n > 0.8, the value of n decreases sharply with an increase in the vertical temperature gradient. This decrease also occurs in the region where n < 0.8 but it is considerably less sharp. Fig. 1b of the Enclosure shows the dependence of the coefficient A(ε) on the degree of thermal stability of the atmosphere (ε is the rate of dissipation of turbulent energy). With an increase in the vertical temperature gradient γ there is an

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L 10399-65
ACCESSION NR: AT4045512

increase in the value of A(ε); that is, there is an increase in the rate of energy dissipation. This increase is observed in the entire region of the observed values of vertical temperature gradients when the structure of the wind field is described by the "2/3 law." Only when the gradients are greater than 0.06—0.7/100 m will the exponent n be greater than 0.8. The dependence of n and A(ε) on atmospheric thermal stratification is therefore, also confirmed for heights of 6-12 km. "The author wishes to thank M. N. Kulik, A. F. Yepishev, N. A. Titov, and V. S. Aleksandrov for assistance given during the organization and execution of the flight experiments." Orig. art. has: 4 formulas, 9 figures, and 2 tables.

ASSOCIATION: none

SUBMITTED: 00 ATD PRESS: 3119 ENCL: 01

SUB CODE: ES NO REF SOV: 012 OTHER: 001

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ENCLOSURE: 01

L 10399-65
ACCESSION NR: AT4045512

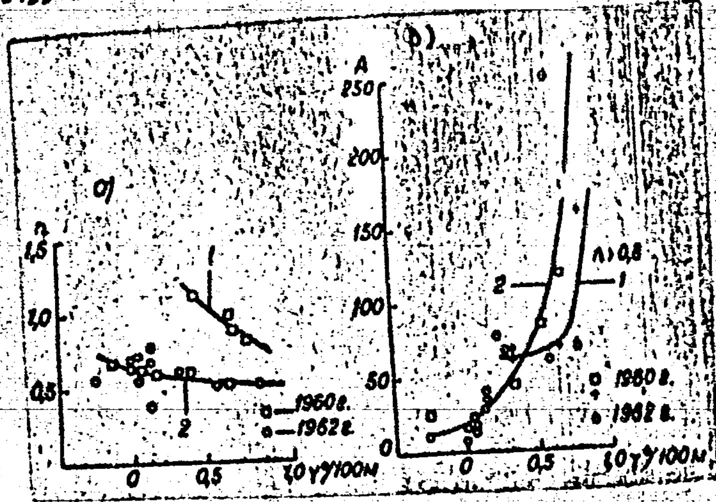

Fig. 1. Dependence of the exponent n (a) and the parameter A (b) on the vertical temperature gradient: 1) n > 0.8; 2) n < 0.5.

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L 10716-65 EWT(1)/FCC ESD(t) GW

ACCESSION NR: AT4045513 S/2789/64/000/053/0035/0042

AUTHOR: Pinus, N. Z.; Shcherbakova, L. V.

TITLE: Spectral characteristics of fluctuations of wind velocity in the lower half of the troposphere

SOURCE: Tsentral'naya aerologicheskaya observatoriya. Trudy*, no. 53, 1964. Dinamika atmosfery* (Atmospheric dynamics), 35-42

TOPIC TAGS: wind velocity, wind, wind velocity fluctuation, troposphere, atmospheric stratification

ABSTRACT: This article presents the results of a statistical analysis of data obtained by balloon observations in which fluctuations of the horizontal component of wind velocity were recorded in the atmosphere to heights of 6 km. The captive balloons had a special anemograph with a sensor in the form of a Venturi tube. The balloons were held at various levels above the ground, first at 100 m and then each 500 m thereafter to a height of 3 km and then each 1,000 m. The time occupied at each level was 5-20 minutes. The balloon also carried a meteorograph for measuring and recording atmospheric pressure, temperature and humidity. These data were used in statistical investigations of the horizontal component of wind velocity. Disturbance of the wind velocity field was evaluated using the dimensionless

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parameter

$$\Psi = \frac{\sqrt{\overline{u'^2}}}{\overline{u}}, \qquad (1)$$

where $\overline{U}$ is the mean wind velocity at a particular level. The value of Ψ, plotted in logarithmic coordinates, was found to decrease linearly with height

$$\psi = 5,2H^{-0,0}, \qquad (2)$$

In the lower 500-m layer of the atmosphere, when there are relatively small values of the vertical gradient of mean wind velocity, Ψ increases with an increase in the vertical temperature gradient, the increase being particular sharp when the vertical temperature gradient is greater than 1°/100 m. Fig. 1 of the Enclosure shows examples of empirical normalized correlation functions for three heights as shown by observations of fluctuations of the horizontal component of wind velocity. This figure shows that the character of the correlation functions is essentially dependent on the thermal stratification of the atmosphere. In particular, the greater the vertical temperature gradient, the greater is the correlation radius. This can also be seen in Fig. 2 of the Enclosure. In the region of frequencies $\Omega = 10^{-1}-10^{-3}$ rad/m, all the normalized spectral densities are linearly dependent on Ω. This corresponds to a power-law dependence of spectral

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density on frequency which can be approximated by the function

$$S(\Omega)=A\Omega^{-k}. \quad (3)$$

It can be concluded from Figures 1 and 2 that with an increase in the vertical temperature gradient there is an intensification of turbulence, an increase in the correlation radius and a displacement of the spectrum of fluctuations of the horizontal component of wind velocity into the region of high frequencies. The averaged spectral densities for the atmospheric layers 4.5-5.5 km and 6.5-7.5 km were both found to decrease linearly with increasing Ω. "The authors wish to thank R. O. Tyrdel'skaya for assistance in selecting the initial balloon observation data." Orig. art. has: 10 formulas, 6 figures and 4 tables.

ASSOCIATION: Tsentral'naya aerologicheskaya observatoriya (Central Aerological Observatory)

SUBMITTED: 00 ENCL: 02 SUB CODE: ES

NO REF SOV: 005 OTHER: 000

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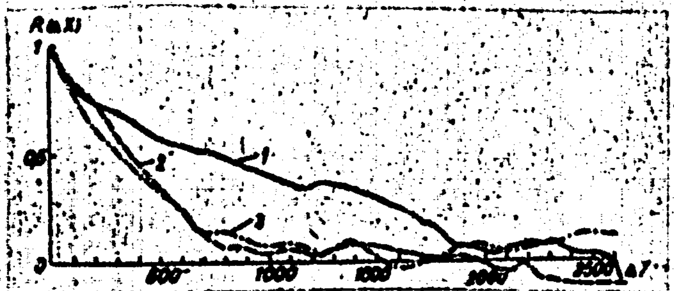

Fig. 1. Empirical correlation functions of fluctuations of the horizontal component of wind velocity. 23 September, 1955. 1 - 1,220 m, 2 - 2,060 m, 3 - 2,450 m.

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ENCLOSURE: 02

Fig. 2. Empirical correlation functions of fluctuations of the horizontal component of wind velocity. 23 June, 1955. 1 - 950 m, 2 - 1,080 m.

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PINUS, F. P.

Croup

Bronchoscopy in descending croup. Vest. oto-rin. 14, No. 2, 1952

Monthly List of Russian Accessions, Library of Congress, June 1952. Unclassified.

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PINUS, R. B.

Bronchoscope and Bronchoscopy

Bronchoscopy in descinding croup Vest. oto-rin. 14, No. 2, 1952.

Monthly List of Russian Accessions, Library of Congress, June 1952, Unclassified.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001340920019-2"

PI[illegible]S, V.

Sibirskii zhe ez[illegible]o[illegible] [illegible] [Railroad transportation in Siberia in the [illegible] five-year plan] ([illegible] p. 37-5[illegible])

Contents-Freight turnover on the Altai railway branch; comparative freight traffic on [illegible]-Semipalatinsk and Barnaul-[illegible] line in [illegible], 19[illegible] and [illegible]. DLC: HC4[illegible].A15[illegible]

SO: Soviet Transportation and Communication, A Bibliography, Library of Congress, Reference Department, Washington, 1952, Unclassified.

PINUS, V.

Sibirskii zheleznodorozhnyi transport vo 2-i piatiletke. /Railroad transportation in Siberia during the second five-year plan/. (Sots. khoz-vo Zapadnoi Sibiri, 193?, no. 4, p. ?2-26) DLC: HC4??.A.36

Rasshirenie i rekonstruktsiia zheleznodorozhnoi seti Kazakstana vo vtorom piatiletii. /Expansion and reconstruction of the railway network of Kazakstan in the second five-year plan/. (Narodnoe khoz-vo Kazakstana, 193?, no. 6-7, p. 10-23) DLC: HC488.K?N?

SO: Soviet Transportation and Communication, A Bibliography, Library of Congress, Reference Department, Washington, 1952, Unclassified.

PINUS, V.B.

Tool for finishing samples of refractory shapes. Ogneupory 21 no.3:139 '56. (MLRA 9:8)

(Refractory materials)

375

AUTHOR: Pinus, Ya. S., Eng. (Kuznetsk Metallurgical Combine).

TITLE: Comments on the paper "Automation of open hearth furnaces on the Zaporozhstal' Works" by B.V.Kioresko, V.F.Gusev, A.L.Turubiner, G.A.Molotkov and A.I.Savin. (Otkliki na stal'yu "Avtomatizatsiya martenovskikh pechiy zaroda Azovstal'").

PERIODICAL: "Stal'" (Steel), 1957, No.4, pp.369-370 (U.S.S.R.)

ABSTRACT: The use in the Azovstal' works of a constant excess of air and constant proportion of blast furnace gas during the whole heat as well as the rate of heat supply during various melting periods are criticised. It is stated in conclusion that a typical scheme for the control of heating should fulfil the following requirements: 1) air-tight valves on the air delivery line; 2) control of air supply to the furnace on the basis of analysis of waste gas;) control of the supply of blast furnace gas according to the nature of the melting period; 4) automatic changes of supply of fuel for various melting periods according to the thermal state of the furnace; and) separate supply of gases to the mixing valve. There is one table and 2 Russian references.

SAVOSTIN, D.Z., inzhener; PINUS, Ya.S., inzhener.

Using coke gas cut-off and throttle stabilization. Stal' 7
no.3:206-208 '47. (MLRA 9:1)

1.Kuznetskiy metallurgicheskiy kombinat.
(Smelting furnaces)

PINUS, Ya.S.

Drum revolution counters used in determining the strength of coke. Biul. TSNIICHM no.16:47-48 '57. (MIRA 11:5)

1. Kuznetskiy metallurgicheskiy kombinat.
(Coke--Testing)

KLIMENKO, B.I., inzh.; PINUS, Ya.S., inzh.

Automation of the cooling of ingot molds. Mekh. i avtom. proizv. 15 no. 5:9 My '61. (MIRA 14:5)

(Foundries—Equipment and supplies—Cooling)
(Automation)

PINUS, Ya.S., inzh.; SHOSTAK, V.A., inzh.

Automatic shifting of gas and air valves in coke ovens. Mekh.i avtom. proizv. 14 no.12:5-6 D '60. (MIRA 13:12)
(Coke ovens)

KLIMENKO, B. I., inzh., PINUS, Ya. S., inzh.

Mechanization and automation of the production of tapping hole and runner mixture. Mekh. i avtom. proizv. 14 no.8:33 Ag '60. (MIRA 13:8)

(Refractory materials)