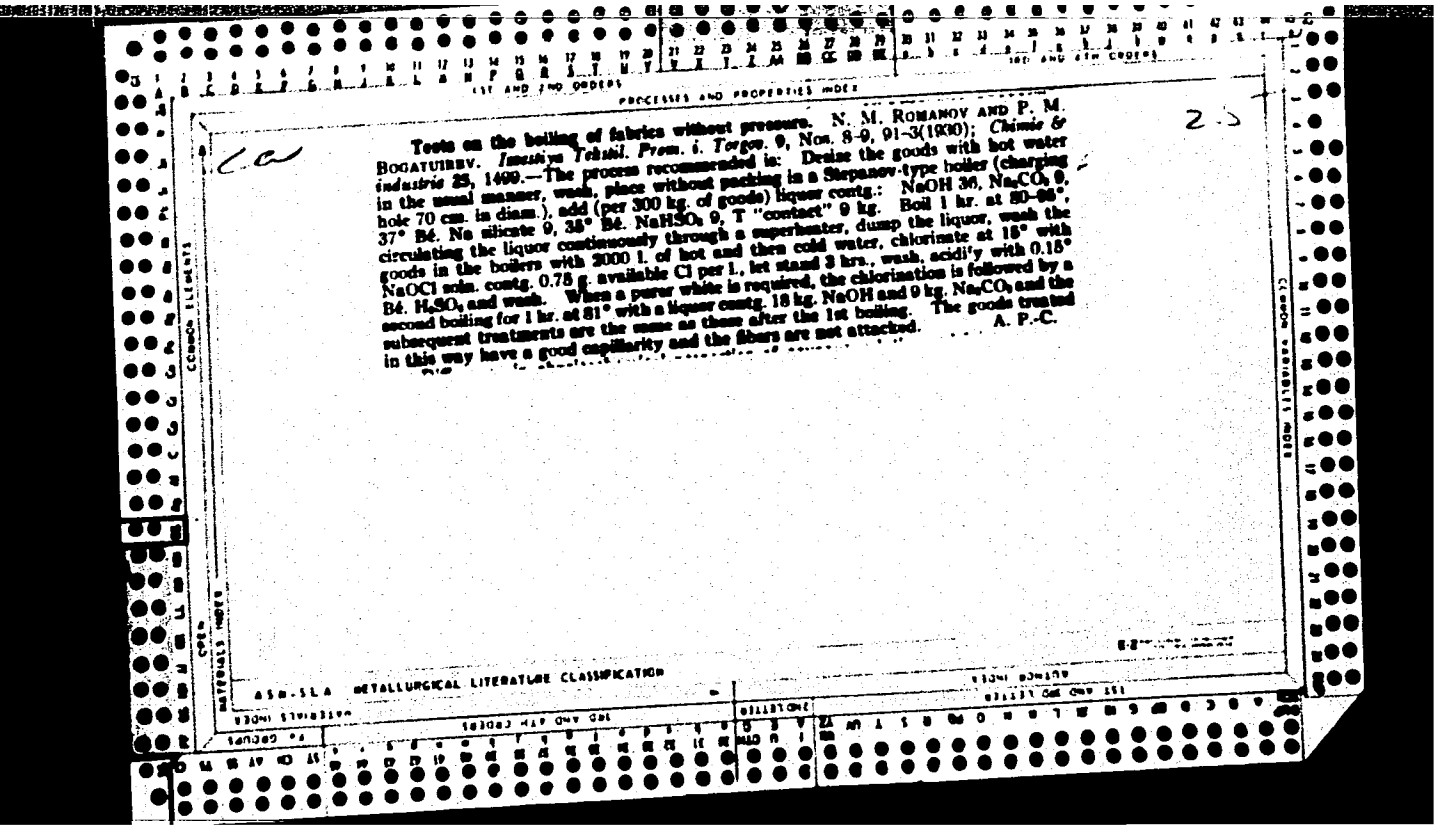
TSVIS, Yuriy Vladimirovich, doktor tekhn. nauk; ROMANOV, N.F., kand. tekhn. nauk, retsenzent; MOROZOVA, M.N., inzh., red.; SMIRNOVA, G.V., tekhn. red.

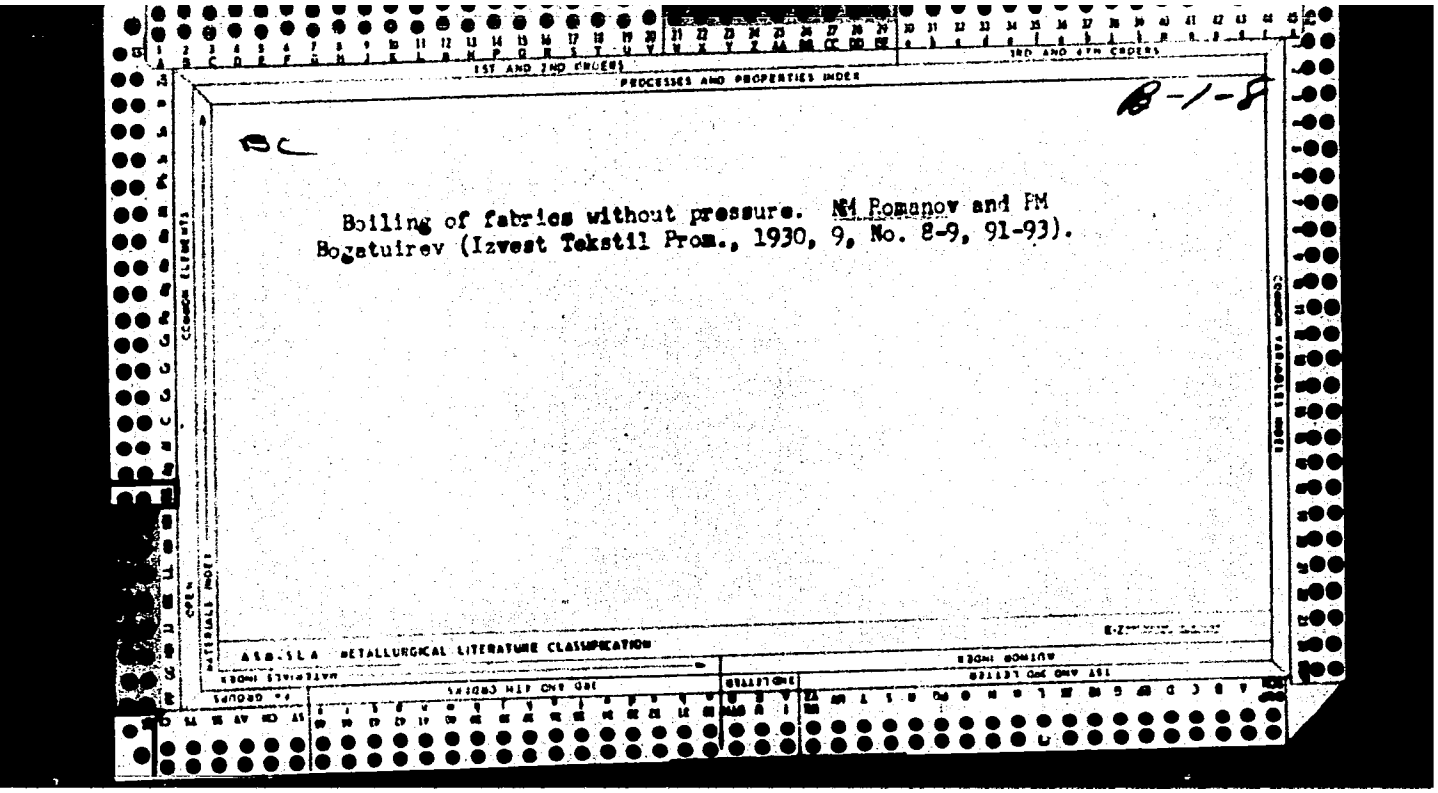
[Profiling generating hobs] Profilirovanie rezhushchego obkatnogo instrumenta. Moskva, Mashgiz, 1961. 155 p. (MIRA 15:1)
(Metal-cutting tools)



PROCESSES AND PROPERTIES INDEX

Tests on the boiling of fabrics without pressure. N. M. ROMANOV AND P. M. BOGATUIREV. *Izvestiya Tekstil. Prom. i. Torgov.* 9, Nos. 8-9, 91-3(1930); *Chimie & industrie* 25, 1499.—The process recommended is: Desize the goods with hot water in the usual manner, wash, place without packing in a Stepanov-type boiler (charging hole 70 cm. in diam.), add (per 300 kg. of goods) liquor contg.: NaOH 36, Na_2CO_3 9, 37° Bé. Na silicate 9, 38° Bé. $NaHSO_3$ 9, T "contact" 9 kg. Boil 1 hr. at 80–90°, circulating the liquor continuously through a superheater, dump the liquor, wash the goods in the boilers with 2000 l. of hot and then cold water, chlorinate at 18° with NaOCl soln. contg. 0.75 g. available Cl per l., let stand 3 hrs., wash, acidify with 0.15° Bé. H_2SO_4 and wash. When a purer white is required, the chlorination is followed by a second boiling for 1 hr. at 81° with a liquor contg. 18 kg. NaOH and 9 kg. Na_2CO_3 and the subsequent treatments are the same as those after the 1st boiling. The goods treated in this way have a good capillarity and the fibers are not attacked. A. P.-C.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



B-1-8

BC

Boiling of fabrics without pressure. M.I. Romanov and P.M. Bogatuirev (Izvest Tekstil Prom., 1930, 9, No. 8-9, 91-93).

NEBAROV, V.N.; ROMANOV, M.M.; SIMIGIN, P.A.; TSVETKOV, M.N., retsenzent; PESHEKHONOV, S.N., retsenzent; PLEMYANNIKOV, M.N., redaktor; MEDVEDEV, L.Ya., tekhnicheskiy redaktor

[Manual on equipment of cotton finishing plants] Spravochnik po oborudovaniiu otdelochnykh fabrik khlopchatobumazhnoi promyshlennosti. Moskva, Gos. nauchno-tekhn. izd-vo Ministerstva legkoi promyshl. SSSR, 1956. 467 p. (MLRA 10:3)

1. Moscow. TSentral'nyy nauchno-issledovatel'skiy institut khlopchatobumazhnoy promyshlennosti.
(Cotton machinery)

BAZANOV, Aleksey Grigor'yevich; ROMANOV, N.M., polkovnik, red.; KONOVALOVA, Ye.K., tekhn. red.

[Pedagogics; essays on the theory and practice of Soviet soldiers' education and training] Pedagogika; ocherki po teorii i praktike obucheniia i vospitaniia sovetskikh voinov. Izd.2., perer. Moskva, Voenizdat, 1964. 243 p. (MIRA 17:3)

YEMEL'YANOV, Aleksandr Grigor'yevich; Prinimali uchastiye: GRYZLOVA, Z.A.; SHEFTEL', R.M.; ROMANOV, N.M., retsenzent; VERBITSKAYA, Ye.M., red.; VINOGRADOVA, G.A., tekhn. red.

[Direct dyes and their use in the textile industry] Priamye krasiteli i ikh primenenie v tekstil'noi promyshlennosti. Moskva, Rostekhizdat, 1963. 229 p. (MIRA 16:7)
(Dyes and dyeing)
(Color in the textile industries)

ROMANOV, N. N.
USSR/Thermal Elec Power System 4501.0102 Nov 1947

"Progress of Soviet Thermal Installation," S. F. Kop'yev, Candidate Tech Sci, M. B. Perlin, N. N. Romanov, Engineers, 7 pp

"Elek Stantsii" Vol XVIII, No 11

Discusses progress being made in construction and operation of thermal stations. Includes comprehensive statistical data and diagrams, and data on individual named plants.

18G51

LC

ROMANOV, N.N.

Physical education should be part of the people's daily life. Zdorov'e 2 no.8:1-2 Ag '56. (MLRA 9:9)

1. Predsedatel' Komiteta po fizicheskoy kul'ture i sportu pri Sovete Ministrov SSSR.
(PHYSICAL EDUCATION AND TRAINING)

ROMANOV, N.N.

Toward the Spartakiada. Discussion with N.N. Romanov, chairman of the Committee on Physical Culture and Sports of the Council of Ministers of the U.S.S.R. Voen.znan. 31 no.6:1 Je '56. (MLRA 9:10)

1. Predsedatel' Komiteta po fizicheskoy kul'ture i sportu pri Sovete Ministrov SSSR.
(Military education) (Sports)

ROMANOV, N.N.

Strength and youth of a nation. Zdorov'e 3 no.2:3-4 F '57.
(MLRA 10:3)

1. Predsedatel' komiteta po fizicheskoy kul'ture i sportu pri Sovete Ministrov SSSR.
(MELBOURNE--OLYMPIC GAMES)

ACCESSION NR: AT4030523 S/0000/63/000/000/0004/0024

AUTHOR: Burkova, M. V.; Dzhordzhio, V. A.; Dzhurayev, A. D.; Neushkin, A. I.; Petrosyants, M. A.; Romanov, N. N.; Emm, Z. G.

TITLE: Some results of a study of turbulence experienced by TU-104 aircraft along the Tashkent-Moscow air route

SOURCE: Nauchnaya konferentsiya po aviatsionnoy meteorologii, Moscow, 1960. Materialy*. Moscow, Gidrometeoizdat, 1963, 4-24

TOPIC TAGS: meteorology, aircraft turbulence, atmospheric turbulence, tropopause, aviation meteorology

ABSTRACT: A study of aircraft turbulence along the Tashkent-Moscow air route was made on the basis of reports from crews of TU-104 aircraft during the years 1959 and 1960. The report is limited to the period autumn and early winter of 1959 and the spring of 1960 (248 flights, 597, 519 km). The most important content of the paper is the inclusion of a scale of intensity of turbulence for the TU-104 (8-unit scale), a morphological classification of turbulence for the TU-104 (10 classes) and a genetic classification of turbulence for the TU-104 (14 classes, with many sub-classes). Each of the units of the morphological and genetic classifications are described fully. It is emphasized that the character of turbulence experienced

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ACCESSION NR: AT4030523

is dependent on the type of aircraft; for example, the engines of the TU-104 are close together and the engines of the IL-18 are far apart, so that none of the classifications appropriate for TU-104 turbulence are applicable to the IL-18 or other aircraft. It is stressed that "lower" turbulence differs sharply from "upper" turbulence (8-10 km and above). Lower turbulence almost always is the result of the simultaneous effect of a number of factors and is chaotic; chaotic turbulence is relatively rare at the upper levels. Upper turbulence is characterized by patchiness, vertical stratification and anisotropy, all of which are discussed. The aeroclimatography along the air route was studied by construction of vertical profiles (248) on which were plotted all vertical sounding data from stations along the route and 200 km to either side, navigator's reports on temperature, wind and special phenomena, and other data. These were supplemented by an appropriate AT 300 chart, a tropopause chart and maximum wind chart. It is noted that there are areas with more frequent or more intense turbulence (three such regions are listed); this contradicts Farthing's conclusions (Trans World Airlines, Met. Section, Kansas City, 1959) that such regions do not exist. The most dangerous synoptic situations are discussed. Turbulence at the tropopause is rarely strong; turbulence under the tropopause is encountered more frequently than above it. Turbulence conditions in various cloud genera and species are described. Orig. art. has: 3 tables.

Card 2/3 SUBMITTED: 18 FEB 63

ROMANOV, N.N.

Short range forecast of first autumn frosts in Central Asia.
Trudy Inst.mat. i mekh.AN Uz.SSR no.12:3-18 '53.(MLRA 8:1)
(Asia, Central--Frost) (Weather forecasting)

PETROSYAN, M.A., red.; KOZIK, E.M.; PSHENICHNYY, A.Ya.; ROMANOV, N.N., red.; BUGAYEV, V.A., red.; DZHORDZHIO, V.A., red.; NAZAROVA, T.L.; CHERNYSHOVA, O.N.; STRAUMAL, O.N., red. izd-va.

[Atlas of typical synoptic processes over Central Asia] Atlas tipichnykh sinopticheskikh protsessov nad Srednei Aziei. Tashkent, 1954. 116 maps (in portfolio). (MIRA 11:7)

1. Akademiya nauk Uzbekskoy SSR, Tashkent. Institut matematiki i mekhaniki.
(Soviet Central Asia--Climatology--Charts, diagrams, etc.)

AID P - 3865

Subject : USSR/Meteorology

Card 1/1 Pub. 71-a - 28/35

Author : Romanov, N. N.

Title : Review of the article of K. I. Kashin and M. V. Gritsenko "On changes of pressure at the earth surface"

Periodical : Met. i. gidr., 6, 59-60, N/D 1955

Abstract : This article appeared in the No. 5, 1954 issue of this periodical. The reviewer criticizes the article for careless and "foggy" deliberations on the movement of air and turbulence.

Institution : None

Submitted : No date

ROMANOV, N.N.

Prolonged and severe cold period in Central Asia. Trudy Inst mat.i mekh.AN.SSR no.14:93-107 '55. (MLRA 8:8)
(Asia, Central--Meteorology)

ROMANOV, N.N.

Hydrometeorological observations in the mountains of northern Kirghizia. Trudy Inst.mat.i mekh.AN Uz.SSR no.14:173-180 '55. (MLRA 8:8)

(Kirghizistan--Meteorology--Observations)

BUGAYEV, V.A.; DZHORDZHIO, V.A.; KOZIK, Ye.M.; PETROSYANTS, M.A.; PSHENICHNYY, A.Ya.; ROMANOV, N.N.; CHERNYSHEVA, O.N.; SARYMSAKOV, T.A., akademik, red.; GOR'KOVOY, P.I., red.izd-va; GOR'KOVAYA, Z.P., tekhn.red.

[Synoptic processes of Central Asia] Sinopticheskie protsessy Srednei Azii. Tashkent, Izd-vo Akad. nauk Uzbekskoi SSR, 1957. 477 p. (MIRA 11:7)

1. Akademiya nauk UzSSR (for Sarymsakov)
(Soviet Central Asia--Climate)

ROMANOV, N.N.

AUTHOR: Romanov, N. N.

TITLE: Pamir Tian Shan Aerological Expedition (Pamiro-Tyan'-Shanskaya aerologicheskaya ekspeditsiya)

PERIODICAL: Meteorologiya i Gidrologiya, 1957, No. 2, pp. 26-28 (U.S.S.R.)

ABSTRACT: The preliminary report describes the scope of the aerological expedition conducted from end of July to 20th of August 1956 and gives no data since the raw field data are still being compiled and analyzed. The studies were in connection with preparations for the IGY and were organized by the Institute of Mathematics and Mechanics of the Academy of Sciences of the Uzbek SSR in cooperation with the Tashkent Geophysical Laboratory. Student-geophysicists of advanced classes of the Central Asiatic State University as well as teachers and student graduates of the Tashkent Hydrometeorological Technicum also took part.

In contrast to previous field studies, the present expedition dealt with a wider range of problems, the chief one being the influence of the mountain chains of Central Asia upon atmospheric circulation. In

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scope of program and uniqueness of problems studied, the expedition was the largest in the history of aerological investigations in this region. Wind, t^0 and other observations were taken along a section, the northernmost point of which was Dzhambul, followed by Lake Sary-Chelek (in the Chatkal' Range) to the south; the latter point is of interest owing to its increased storm activity. The section intersected the Ferghan Valley at Namangan and Osh, and the Alai Valley at Sary-Tash. Pilot balloons were sent aloft at these points and in the great heights of the Eastern Pamirs (at Lake Kara Kul', the headwaters of the Oksu River, in the region of Kyzyl-Rabot [the southernmost point]). In addition, balance and gradient observations were taken at Kara Kul'. Hence the expedition covered a vast region from foothills to high-mountain regions 4000 m. above sea level, and the resultant materials will permit the construction of vertical sections across both main mountain ranges of Central Asia.

Wind soundings (the chief observations) were taken thrice daily. Radiosondes were released only once daily. Serial pilot balloon and near-ground meteorological observations were taken. During dry haze periods

in the Pamirs, the usually excellent visibility (over 100 km.) decreases abruptly, relative humidity drops quickly and convective cloudiness assumes degenerative forms. All of the scientists who worked in the mountains agreed on the need for describing and introducing in an atlas new cloud types typical only of high mountains. V. A. Bugayev (not referenced by number) had noted an icing of cumulus clouds in fine weather in the Pamirs; his findings were confirmed. Original transitions of Cu humilis to lenticularis and vice versa were noted. Summer cold intrusions, often passing unnoticed across the plains regions of Central Asia, manifested convincing effects in the mountains. O. V. Demenev of Stalinabad (not referenced by number) and other Asiatic meteorologists had hypothecated the penetration of currents from the Indian monsoon all the way to the SE sector of the Pamirs, but the studies of the expedition failed to confirm this theory; more likely, serious worsenings of weather in the Pamirs are related with cold intrusions, cyclogenesis and effective wave activity at the fronts of cold intrusions, because frequent SW air currents over

the Pamirs and contiguous territory are common to Central Asia and can not serve as signs of a monsoon. The same position is taken by the German meteorologist H. Flohn (1), but he does concede the chance of rare interferences of cold intrusions with monsoons.

Interesting observations were taken at Lake Kara Kul'; a strong influence of the lake on circulation and general weather of the entire Kara Kul' Basin was revealed. Outcroppings of fossil ice were found on the lake shores.

The expedition contributed a valuable addition to the fund of knowledge on atmospheric circulation above Central Asia.

The text contains no tables or other graphics. There is one reference which is German.

Pamir Tian Shan Aerological Expedition

ASSOCIATION:

PRESENTED BY:

SUBMITTED:

AVAILABLE:

Card 5/5

SOV/169-59-7-7321

Translation from: Referativnyy zhurnal, Geofizika, 1959, Nr 7, p 123 (USSR)

AUTHORS: Bugayev, V.A., Dzhordzhio, V.A., Petrosyants, M.A., Romanov, N.N.

TITLE: Aerosynoptic Conditions of the Bumping of Aircraft in Central Asia

PERIODICAL: Tr. Sredneaz. n.-i. gidrometeorol. in-ta, 1958, Nr 14, 46 p, 111.

ABSTRACT: Materials of observations are discussed, which were obtained by 128 special flights of LI-2- and IL-12-aircraft along the route from Tashkent to Alma-Ata, carried out from March to June 1956. Cardinal attention was concentrated on the origin of bumping; seven types of bumping are singled out: 1) thermal, 2) cold advection; 3) orographic; 4) frontal; 5) bumping connected with insulated regions of cold air in the medium troposphere; 6) in jet streams; 7) dynamical bumping. Three types of synoptic situations are ascertained, which hamper the evolution of bumping: a) the anticyclonic field having inversion layers;

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SOV/169-59-7-7321

Aerosynoptic Conditions of the Bumping of Aircraft in Central Asia

b) the warm sectors of cyclons having tropic air, and c) the zones having sharply expressed foehns. Twenty-four indications for forecasting the bumping are presented, and a series of propositions for its further study are suggested. Bibl. 19 titles.

Ye.M. Kozik

Card 2/2

BUGAYEV, V.A.; DZHORDZHIO, V.A.; PETROSYANTS, M.A.; ROMANOV, N.N.; USHAKOVA, T.V., red.; VOLKOV, N.V., tekhn.red.

[Aerosynoptic conditions causing the bumping of airplanes in Central Asia.] Aerosinopticheskie usloviia boltanki samoletov v srednei azii. Leningrad, Gidrometeoro.Izd-vo, 1958. 44p. (Sredneaziatskii nauchno-issledovatel'skii gidrometeorologicheskii institut, Trudy, no.14) (MIRA 12:6)
(Soviet Central Asia--Meteorology in aeronautics)

3(0)

AUTHORS: Pshenichnyy, A. Ya., Romanov, N. N. SOV/50-59-1-17/20

TITLE: Lev Aleksandrovich Molchanov (His 80th Birthday) (Lev Aleksandrovich Molchanov (k 80-letiyu so dnya rozhdeniya))

PERIODICAL: Meteorologiya i gidrologiya, 1959, Nr 1, pp 66-67 (USSR)

ABSTRACT: Molchanov was born in 1878. He studied at the Physico-Mathematical Faculty of Moscow University. Already as a student, Molchanov worked at the ornithology of the Crimea, and took part in many expeditions, including to the Yenisey. In 1911-14 he wrote papers on the geography and climate of Central Asia. After completing his studies at the University, Molchanov worked as a teacher at secondary schools and later at the Universities of Tambov and Saratov. In 1921-33 he had the Chair of Geography at the Sredneaziatskiy universitet (Central Asian University). Since 1933 he has been Professor of Physics and Farming Meteorology at the Tashkentskiy sel'skokhozyaystvennyy institut (Tashkent Institute of Agriculture). In 1938 he received the titles of Doctor of Geographical Sciences and of Professor of Physics and Agrometeorology. Beside his pedagogic activity, Molchanov worked at the Sredneaziatskiy nauchno-issledovatel'skiy meteorologicheskiy institut

Card 1/2

(Central Asian Scientific Research Institute of Meteorology) where he headed the research work on the climate of Central Asia. He wrote a great number of climatological and agro-meteorological monographs. His investigations were important for the development of cotton cultivation and other branches of agriculture. Besides, Molchanov kept on occupying himself with ornithology and hunting. He also took part in public life, and was for a long time President of the Uzbekskiy filial Vsesoyuznogo geograficheskogo obshchestva (Uzbekian Branch of the All Union Society of Geography), a member of the Administration of the House of Scientists, and of the Hunters' Federation. Molchanov was awarded the Lenin Order and the Order of the Red Banner.

GUBIN, V.I.; DZHORDZHIO, V.A.; PETROSYANTS, M.A.; ROMANOV, N.N.

"Introduction to hydrodynamic methods of short-range weather forecasting" by I.A. Kibel'. Reviewed by V.I. Gubin and others. Izv. AN SSSR. Ser.geofiz. no.3:489-492 Mr '59. (MIRA 12:4)
(Weather forecasting) (Kibel', I.A.)

S/049/59/000/03/017/019

AUTHORS: Gubin, V. I., Dzhordzhio, V. A., Petrosyants, M. A. and Romanov, N. N.

TITLE: Book Review

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya, 1959, Nr 3, pp 489-492 (USSR)

ABSTRACT: The following book is reviewed: I. A. Kibel' "Introduction to the Hydrodynamic Methods of Short-Period Weather Forecasting". The book originated as a course of lectures given by Professor I. A. Kibel' in 1955 to 1956 at the Moscow State University. According to the reviewers, this is the first real monograph embodying the whole field of meteorology at the highest level, never before published in the USSR.

Card 1/1

ROMANOV, N.N.

Macrosynoptic characteristics of period with increased cyclonic activity in Central Asia. Trudy Sred.-Az. nauch.-issl. gidrometeor. inst. no.1:76-87 '59. (MIRA 13:8)
(Soviet Central Asia--Cyclones)

ROMANOV, N.N.; CHANYSHEVA, S.G.

Brief characteristics of aerosynoptic conditions during the period of the expedition to the Golodnaya Steppe in February - March 1957. Trudy Sred.-Az.nauch.-issl.gidrometeor.inst. no.2:17-25 '59. (MIRA 13:6)

(Golodnaya Steppe--Winds)
(Soviet Central Asia--Meteorology)

BURKOVA, M.V.; ROMANOV, N.N.

Brief aerosynoptic characteristics of the period of the meteorological expedition in the valley of the Shakhimardan river in July 1958. Trudy Sred.-Az.nauch.issl.gidrometeor.inst. no.6: 41-47 '61. (MIRA 15:4)

(Shakhimardan Valley--Meteorology)

PETROSYANTS, M.A.; ROMANOV, N.N.

Outlook for regional synoptic investigations. Trudy Sred.-Az. nauch.-issl. gidrometeor. inst. no.4:3-9 '61. (MIRA 15:1)
(Weather research)

S/169/62/000/002/044/072
D228/D301

AUTHORS: Petrosyants, M. A. and Romanov, N. N.

TITLE: The prospects of regional synoptic investigations

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 2, 1962, 46, abstract 2B335 (Tr.Sredneaz. n.-i. gidrometeorol. in-ta, no. 4 (19), 1961, 3-9)

TEXT: It is suggested that the chief problem of regional synoptics in the next 2 - 3 years will be the verification of the instructions contained in the guidance documents of central hydrometeorologic institutions. Then, the meteorologic study of territories, airports and air-routes is necessary. Serious attention should be paid to study of the influence of orography on synoptic processes and to the development of the principles of synoptic analysis in mountainous districts. In the field of long-term forecasting one of the first problems is the clarification of the type-alternation patterns of synoptic processes and the organizational improvement of work on the preparation of long-term forecasts. The

Card 1/2

S/169/62/000/002/044/072
D228/D301

The prospects of ...

adjusting of the coordination of the work is of great significance.
[Abstracter's note: Complete translation.]

Card 2/2

ROMANOV, N.N.; ROMANOVA, I.A.

Practice of using highly accurate gravity prospecting to study primary diamond deposits under conditions of trappean formations. Razved. i prom. geofiz. no.42:55-61 '61. (MIRA 16:11)

BUGAYEVA, I.V.; ROMANOV, N.N.

Topography of the upper cloud boundary. Meteor. i gidrol. no.7:40-45 Jl '62. (MIRA 15:6)
(Clouds)

DZHORDZHIO, V.; PETROSYANTS, M.; ROMANOV, N.; DZHURAYEV, A.;
BURKOVA, M.; NEUSHKIN, A.

Prognostic weather charts. Grazhd. av. 19 no.4:21 Ap '62.
(MIRA 15:5)

(Meteorology in aeronautics)

L 17831-63 EWT(1)/BDS AFFTC/ASD/ESD-3 RB

ACCESSION NR: AP3005876 S/0050/63/000/008/0053/0053

58

AUTHOR: Dzhordzhio, V. A.; Romanov, N. N.

TITLE: Are stratospheric aircraft soundings necessary?

SOURCE: Meteorologiya i gidrologiya, no. 8, 1963, 53

TOPIC TAGS: aircraft sounding, pressure pattern chart, radiosonde, meteorological forecasting

ABSTRACT: Specialists at the laboratoriya po struyny*m techeniyam (Jet Stream Laboratory) of Tashkent State University believe that high-level aircraft soundings in the 12—20 km altitude range are necessary to supplement radiosonde measurements. Ordinary navigator's reports on wind, temperature, and cloud cover from Tu-104 aircraft operating at altitudes of 9—12 km, for example, are considered to be of value in preparing a more precise analysis of high-level pressure pattern charts (AT_{300} and AT_{200}) and for information on the general synoptic situation. In addition, many phenomena, such as high-level frontal cloud systems, routinely encountered at flight altitudes of 12—20 km, can be studied only by regular aircraft soundings.

Card 1/2

L 17831-63 0

ACCESSION NR: AP3005876

ASSOCIATION: Tashkentskiy gosudarstvenny*y universitet (Tashkent State University)

SUBMITTED: 00 DATE ACQ: 06Sep63 ENCL: 00

SUB CODE: AS, NO REF SOV: 000 OTHER: 000

Card 2/2

ACCESSION NR: AT4030528 S/0000/63/000/000/0065/0071

AUTHOR: Bugayeva, I. V.; Burkova, M. V.; Dzhordzhio, V. A.; Dzhurayev, A. D.; Neushkin, A. I.; Ovcharenko, V. P.; Petrosyants, M. A.; Romanov, N. N.; Emm, Z. G.

TITLE: On the upper cloud boundary along Tashkent-Moscow route according to observations from TU-104 passenger aircraft

SOURCE: Nauchnaya konferentsiya po aviatsionnoy meteorologii. Moscow, 1960. Materialy*. Moscow, Gidrometeoizdat, 1963, 65-71

TOPIC TAGS: TU-104 aircraft, cloud boundary, flight condition, troposphere, stratosphere, jet stream

ABSTRACT: This paper is one of 13 previously unpublished reports of the 40 papers given at the Nauchnaya konferentsiya po voprosam aviatsionnoy meteorologii (scientific conference on problems of aviation meteorology) that was held in June and July of 1960 in Moscow at the Glavnoye upravleniye gidrometeorologicheskoy sluzhby* SSSR. In this paper the authors present some visual weather observations made from aircraft and the results of their processing. Reports from TU-104 crews along the Tashkent-Moscow route, made during the period of 16 Sep 58 through 31 Dec 59, and airborne observations of a group of Tashkent meteorologists, made in two series of flights

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ACCESSION NR: AT4030528

(Oct-Dec 59 and Mar-Apr 60) in TU-104 aircraft along the same route, served as the raw data. Results of these observations are given in graphs. 248 research flights made in the warm half of the year, have shown a principle difference between the frontal stratonimbus clouds and the same clouds in extrafrontal zones, located in the central, western, and northwestern regions of deep seated, well developed cyclones. This difference is shown. Frontal stratonimbus clouds have an upper boundary of 2 to 3 times greater than stratonimbus clouds in central, western and especially northwestern sections of deep seated, well developed cyclones. In these portions of the cyclones the ascending currents are caused by friction convergence which in any stage of the cyclone do not extend high enough and even at levels of from 2 to 4 km alternate with intense decending movements. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 18Feb63 DATE ACQ: 17Apr64 ENCL: 00

SUB CODE: AS NO REF SOV: 000 OTHER: 000

Card 2/2

ACCESSION NR: AT4031118 S/2648/63/000/010/0067/0087

AUTHOR: Romanov, N. N.; Bugayeva, I. V.

TITLE: Synoptic-statistical characteristics of flight conditions relative to clouds

SOURCE: Tashkent. Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut. Trudy*, no. 10(25), 1963. Voprosy* aviatsionnoy meteorologii (Problems in aviation meteorology), 67-87

TOPIC TAGS: meteorology, aviation meteorology, cloud, troposphere, aircraft turbulence, atmospheric physics

ABSTRACT: An analysis has been made of 8,000 reports submitted by aircraft crews concerning flight conditions relative to clouds. It has been determined that the use of data from only high-level aircraft is inadequate for such a study; reports from all levels of the troposphere are required. The massiveness of available data forced the author to base the study on data available at Vnukovo, aerometeorological information applying primarily to the central regions of the European SSSR for January-May and August-October 1959. Findings have been summarized in 14 tables: 1 - Forms of pressure fields and fronts encountered; 2-3 - Flight conditions relative to clouds in different synoptic situations;

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ACCESSION NR: AT4031118

4 - Flight conditions relative to clouds in troughs; 5 - Flight conditions relative to clouds in ridges; 6 - Flight conditions relative to clouds in the planetary high-level frontal zone; 7 - Flight conditions relative to clouds during warm and cold advection and divergence-convergence (at the 300-mb level); 8 - Flight conditions relative to clouds in high-level troughs; 9 - Flight conditions relative to clouds in high-level ridges; 10 - Reports on flight conditions relative to clouds in cyclones and anticyclones; 11 - Flight conditions in well-developed cyclones; 12 - Flight conditions at levels of 8-12 km (relative to clouds) and surface pressure (in mb) at centers of cyclones and anticyclones, reduced to sea level; 13 - Flight conditions during various pressure trends in flight area; 14 - Flight conditions associated with precipitation in flight area. A special section of the report deals with a method for mapping the topography of the upper cloud boundary for typical synoptic situations; Fig. 1 of the Enclosure is an example of the mapping of such situations. The vast amount of data available from aircraft flights can be highly useful in making aeroclimatic generalizations; the approximate character of much of this information is compensated by its bulk. Such data are scattered widely throughout the country at various meteorological establishments; there should be a central office for collection and automatic processing of this information. Orig. art. has: 1 figure and 14 tables.

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ACCESSION NR: AT4031118

ASSOCIATION: Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut (Central Asian Hydrometeorological Scientific Research Institute)

SUBMITTED: 00	DATE ACQ: 10Apr64	ENCL: 01
SUB CODE: ES,AA	NO REF SOV: 000	OTHER: 000

Card 3/4

L 36650-65 EWT(1)/FCC GW

ACCESSION NR: AR5008855 S/0169/65/000/002/B093/B094

17

B

SOURCE: Ref. zh. Geofizika, Abs. 2B621

AUTHOR: Burkova, M. V.; Dzhordzhio, V. A.; Romanov, N. N.

TITLE: TU-104 aircraft turbulence during a sharp change of wind direction aloft

CITED SOURCE: Tr. In-ta matem. AN UzSSR, vyp. 27, 1963, 26-42

TOPIC TAGS: TU-104 aircraft, atmospheric turbulence, aircraft turbulence, wind, wind shift, aviation meteorology, tropopause, frontal cloud, anticyclone, cyclone

TRANSLATION: Two TU-104 flights along the Tashkent-Tbilisi route are described with respect to turbulence encountered and prevailing synoptic situation. In the first case, 11 November 1960, the aircraft passed through the northern periphery of a high-level cyclone which was clearly shown on the AT-500, AT-300 and AT-200 charts. An area of high (up to 1030 mb) pressure was observed on the surface chart during the flight. Turbulence of varying intensity was noted when penetrating through four-layer frontal clouds: in the layer from 0.3 to 1.0 km it attained values $\delta_1 - \delta_{1.5}$, from 1.4 to 3.0 km the flight was calm, from 3.7 to 6.4 km the turbulence intensified from δ_1 at the bottom to $\delta_{1,5}$ in the upper part of the

Card 1/3

L 36650-65

ACCESSION NR: AR5008855

layer and farther aloft attained $\delta_2 - \delta_{2.5}$. At 1,250 hours the wind turned to the left by more than 90° and $\delta_{1.5} - \delta_2$ turbulence began suddenly, persisting for 15-20 seconds. The flight was made at the 9-km level when the wind velocity was 80-90 km/hour, whereas at a height of 12.9 km the motor attained 210 km/hour and at a height of 8.3 km 200 km/hour. At 1,500 hours on 11 November it was possible to distinguish two tropopauses: a tropical tropopause at a height of 13.5 km in the southern part of the Turkmen SSR, rising northward to 150 mb, and a middle-latitude tropopause at a height of 11-9 km. The aircraft flew above the lower layer of the tropopause. In the second flight, on 28 December 1960, the aircraft passed through a warm high-level anticyclone at 1,226 hours bounded on the west, south and east by a narrow zone of low pressure on whose axis there was a change of wind direction. It was possible to distinguish two tropopause layers over the considered region: a tropical tropopause at a height of 100-150 mb and a middle-latitude tropopause at a height of 200-300 mb. The high-level wind shift on the AT-200 chart coincided with a deep and narrow middle-latitude tropopause depression. The flight was made at a height of about 9 km with a wind direction of 70°, then changing to 360°, and a wind velocity from 170 to 220 km/hour. Continuous moderate turbulence began at 1,407 hours when the aircraft passed through a high-level wind shift line over the Caspian Sea. At 1,422 hours it intensified to δ_2, but at 1,434 hours there was continuous chaotic $\delta_{1.5} - \delta_2$

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L 36650-65

ACCESSION NR: AR5008855

turbulence. The aircraft flew into the leading part of the maximum of a cluster of isotachs moving from the west. Turbulence stopped suddenly at 1,446 hours.
V. Shtal'.

SUB CODE: ES ENCL: 00

Card 3/3

L 44142-66 EWT(1) GW

ACC NR: AT6018240 SOURCE CODE: UR/3021/64/000/259/0076/0087

AUTHORS: Medvedeva, I. F.; Petrosyants, M. A.; Romanov, N. N. 35

ORG: none B+1

TITLE: A rare case of cyclogenesis over Tyan'-Shan'

SOURCE: Tashkent. Universitet. Nauchnyye trudy, no. 259. Fizicheskiye nauki, no. 23, 1964. Fizika atmosfery i aviatsionnaya meteorologiya (Physics of the atmosphere and aviation meteorology), 76-87

TOPIC TAGS: atmosphere, atmospheric phenomenon, cyclone, weather map, ATMOSPHERIC PRECIPITATION

ABSTRACT: An unusual case of cyclogenesis is described. The authors trace the development of a cyclone which caused a heavy snow fall followed by a peculiar raised advective mist in the Tyan'-Shan' mountain range during their visit there as members of a meteorological exploration party on 14--21 May 1962. The development of the cyclone is traced from its initial stages to its final stage on 18 May 1962 (see Figs. 1 and 2). The authors note that it was V. A. Bugayev (Obrazovaniye struynogo techeniya v atmosfere pod vliyaniyem gornykh massivov Sredney i Tsentral'noy Azii. Meteorologiya i gidrologiya No. 5, 1958 g.) who first pointed out the possibility of mist transfer from the east to the Pamir mountains, but they also note that their observations are unique in that the mist was transported over enormous distances in the central atmosphere.

Card 1/3

ACC NR: AT6010240

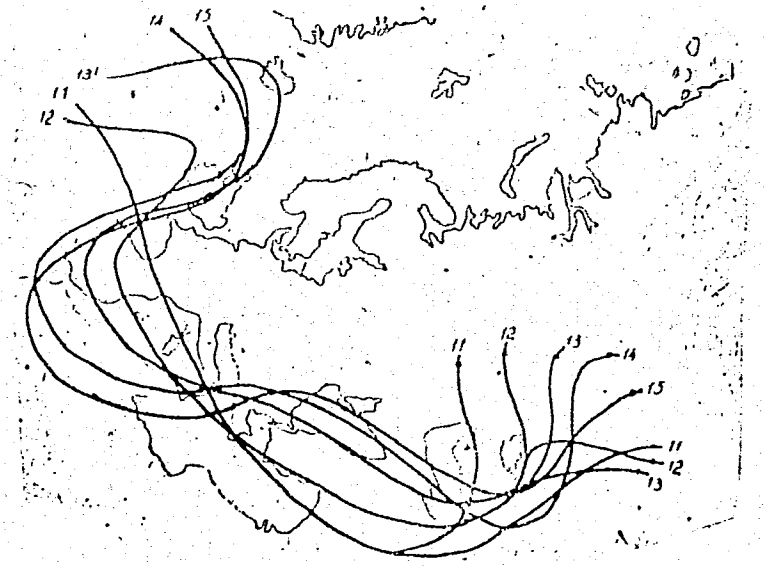

Fig. 1. Collective map for the axes of the chief global high frontal zones for the period 11--15 May 1962.

Card 2/3

AT6018240

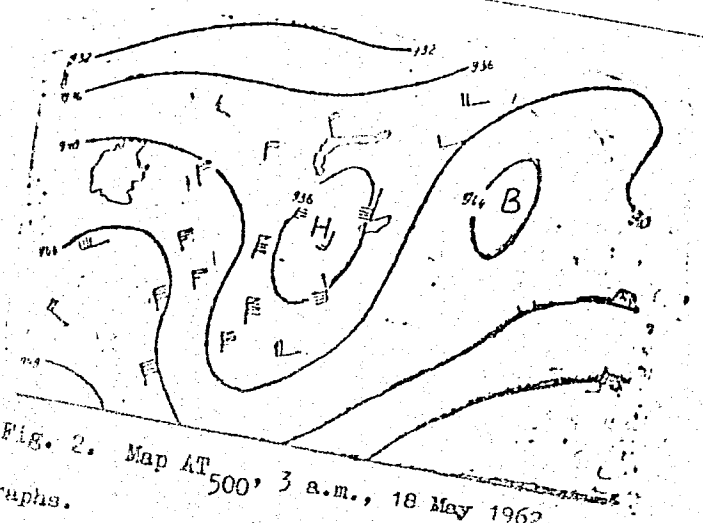

Fig. 2. Map AT 500, 3 a.m., 18 May 1962.

Orig. art. has: 10 graphs.

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 004

Card 3/3

ACC NR: AT6018251 SOURCE CODE: UR/3021/64/000/259/0187/0188

AUTHORS: Dzhordzhio, V. A.; Burkova, M. V.; Neushkin, A. I.; Romanov, N. N.

ORG: none

TITLE: The necessity for organizing an institute of aviation meteorology

SOURCE: Tashkent. Universitet. Nauchnyye trudy, no. 259. Fizicheskiye nauki, no. 23, 1964. Fizika atmosfery i aviatsionnaya meteorologiya (Physics of the atmosphere and aviation meteorology), 187-188

TOPIC TAGS: civil aviation, all weather flying, weather forecasting, METEOROLOGIC RESEARCH FACILITY

ABSTRACT: The necessity for creating an institute of aviation meteorology is pointed out. The authors note that the progress in the aviation industry, expecially after the XXII Congress of the Communist Party of the Soviet Union, has been so rapid that it has outstripped the weather forecasting facilities of the country. It is argued that the present weather forecasting bodies be centralized and that an Aviation Meteorological Institute be created. It is further suggested that the institute should be financed partly by the government and partly by Aeroflot and from savings realized in the reorganization of Gidrometsluzhba.

SUB CODE: 04/ SUBM DATE: none

Card 1/1 fv

MEDVEDEVA, I.F.; ROMANOV, N.N.

Synoptic processes resulting in the daily fall of precipitation on the Tien Shan in summer. Trudy Sred.-Az. nauch.-issl. gidrometeor. inst. no.20:145-149 '65.

Air-mass convective clouds and shower precipitation on the Kungey-Alatau. Ibid.:150-152 (MIRA 18:10)

L 45512-66 EWT(d)/EWT(m)/EWP(h)/T-2/EWP(w) IJP(c) EM

ACC NR: AT6018248 SOURCE CODE: UR/3021/64/000/259/0163/0167

AUTHORS: Burkova, M. V.; Gerasina, S. A.; Dzhordzhio, V. A.; Dzhurayev, A. D.; Kem, L. I.; Neushkin, A. I.; Petrosyants, M. A.; Ubaydullayeva, I.; Romanov, N. N.

ORG: none

TITLE: Some statistical data on the bumps of the TU-104 aircraft

SOURCE: Tashkent. Universitet. Nauchnyye trudy, no. 259. Fizicheskiye nauki, no. 23, 1964. Fizika atmosfery i aviatsionnaya meteorologiya (Physics of the atmosphere and aviation meteorology), 163-167

TOPIC TAGS: aircraft, wind direction, wind velocity, statistic analysis, meteorologic observation / TU-104 aircraft, IL-18 aircraft

ABSTRACT: The results of about 900 special research flights with TU-104 aircraft and a smaller number of flights with IL-18 aircraft are given. The routes were Tashkent to Novosibirsk, Tashkent to Moscow, and Tashkent to Simferopol'. Three problems are considered: the flight conditions as a function of wind velocity, of wind direction, and of the angle between the fuselage of the aircraft and the wind vector. It is found that there is no statistical confirmation for the hypothesis that there is a genetic relationship between a strong bump and zones of moderate gales. In the zones of winds with a southern component, a strong bump is observed

L 45512-66

ACC NR: AT6018248

approximately five times more frequently than in winds with a northern component. The popular hypothesis that the probability of encountering a bump zone is greater in flights where the angles to the air stream are great is refuted by the data obtained. Orig. art. has: 3 tables.

SUB CODE: 04, 01/ SUBM DATE: none/ ORIG REF: 001

hs

Card 2/2

L 44444-65 EWT(d)/EWT(l)/EWT(m)/T-2/EWP(h) GW

ACC NR: AT6018249 SOURCE CODE: UR/3021/64/000/259/0176/0179

AUTHORS: Bilyalov, R.; Burkova, M. V.; Dzhordzhio, V. A.; Dzhurayev, A. D.; Levina, P. Z.; Myalkovskaya, N. M.; Neushkin, A. I.; Petrosyants, M. A.; Eyvazova, I. L.; Romanov, N. N.

ORG: none

TITLE: Proposal for the construction of a map AT_{250} to improve the meteorological service for aircraft TU-104

SOURCE: Tashkent. Universitet. Nauchnyye trudy, no. 259. Fizicheskiye nauki, no. 23, 1964. Fizika atmosfery i aviatsionnaya meteorologiya (Physics of the atmosphere and aviation meteorology), 176-179

TOPIC TAGS: atmosphere, weather map, weather forecasting, aircraft, meteorology

ABSTRACT: The necessity for constructing an AT_{250} map is pointed out. The authors note that in the majority of cases, the flight height of the TU-104 aircraft is 10.5 km, a height that corresponds to an absolute topography of 250 millibars. It is argued that very little additional effort would be called for from existing weather forecasting stations for the construction of the AT_{250} weather maps since these stations already routinely broadcast information on AT_{200} and AT_{300}. Examples of

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L 44144-66

ACC NR: AT6018249

AT_{250} maps are given. The maps were constructed by interpolating between the data for AT_{300} and AT_{200} (see Fig. 1).

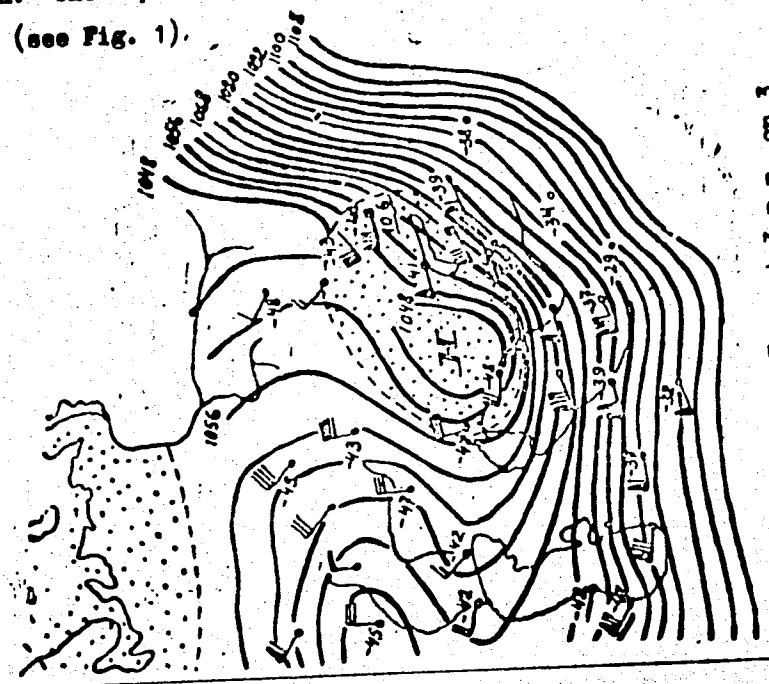

Fig. 1. Map AT_{250} at 3 p.m. on 3 August 1960. Dotted region indicates the stratospheric zone. Squares indicate reports from aircraft crews.

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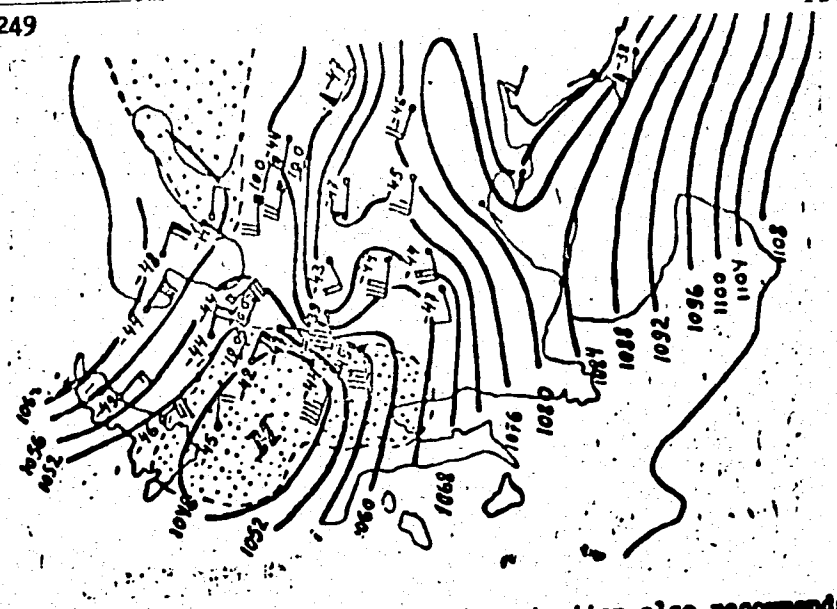
Card 2/3

L 44144-66

ACC NR: AT6018249

From Card 2/3



It is mentioned that the World Meteorological Organization also recommends a regular construction of AT_{250} maps. Orig. art. has: 2 graphs.

SUB CODE: 04/ SUBM DATE: none

Card 3/3

L 45507-66 EWT(1) GW

ACC NR: AT6018250 SOURCE CODE: UR/3021/64/000/259/0180/0186

AUTHORS: Burkova, M. V.; Dzhordzhio, V. A.; Dzhurayev, A. D.; Neushkin, A. I.; Petrosyants, M. A.; Romanov, N. N.

46
B+1

ORG: none

TITLE: A proposal for a multi-route system of aircraft flights with the use of jet streams

SOURCE: Tashkent. Universitet. Nauchnyye trudy, no. 259. Fizicheskiye nauki, no. 23, 1964. Fizika atmosfery i aviatsionnaya meteorologiya (Physics of the atmosphere and aviation meteorology), 180-186

TOPIC TAGS: jet stream, aeronautic meteorology, meteorologic observation, weather map, aircraft, ~~topography~~, isobar / TU-104 aircraft

ABSTRACT: A multi-route system for aircraft flights with the use of jet streams is proposed on the basis of meteorologic observations on the Tashkent-Vnukovo route and other routes. The work was prompted by observations of the great effect of jet streams on the flying time between various points. Maps showing the synoptic situation at certain times on various routes are given as examples. The system of multi-route flights proposes the use of 5—7 standard routes for each direction, expansion of the ground radar networks, and the creation of a control system. Possible objections to the plan and flight safety in jet strams are discussed briefly. Orig. art. has: 5 maps.

Card 1/1 SUB CODE: 04, 01/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 002

L 40288-66 EWT(1) GW/JT

ACC NR: AR6014553 SOURCE CODE: UR/0169/65/000/011/B001/B001

AUTHOR: Romanov, N. N.

TITLE: Atmospheric physics and aviation meteorology

SOURCE: Ref. zh. Geofizika, Abs. 11B1K

REF SOURCE: Fizika atmosfery i aviatsionnaya meteorologiya. Nauchn. tr. Tashkentsk. un-t, vyp. 259. Tashkent, 1964, 206 str.

TOPIC TAGS: atmospheric physics, aeronautic meteorology, jet stream, wind, wind shear, cyclone, statistic analysis, direct solar radiation, free atmosphere, smoke, fog, aircraft, turbojet aircraft, turboprop aircraft / TU-104 aircraft

ABSTRACT: The principal articles of this collection are: V. A. Dzhordzhio, "Department of atmospheric physics. History of 40 years of activity," "On the problem of classification of the jet streams over southern SSSR;" M. V. Burkova, V. A. Dzhordzhio, "The method of vertical wind profiles as a means of analyzing jet streams;" A. D. Kulagina, "Aeroclimatology of PFVZ over Central Asia and Kazakhstan;" R. Bilyarov, "Wind characteristics in the vertopause layer over southern SSSR during the MGG and MGS;" P. Z. Levina, "Vertical wind shears in extremely strong jet streams over southern SSSR;" I. F. Medvedeva, M. A. Petrosyants, N. N. Romanov, "A rare case of cyclogenesis over Tien Shan;" S. V. Khukova, "On calculating the Laplace operator for meteorological elements;" E. S. Kazaryants, "On an objective method of forecasting

UDC: 551.5:656.7

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ACC NR: AR6014553

13

Southwestern cyclones in Central Asia;" D. Kh. Salikhova, "Some statistical data on heat waves in Tashkent;" A. Agzamov, "Some statistical characteristics of cold waves in the free atmosphere over Central Asia," "On the problem of AT-300 forecasting over Central Asia;" O. A. Lyapina, M. V. Sitnikova, "The strength of direct solar radiation on days with dust-laden mist and on days with maximal visibility over Tashkent;" Kh. E. Saidnazarov, "Air disturbances beneath blocking layers and within them in the free atmosphere over Central Asia from data of aircraft soundings of Tashkent and Ashkhabad;" Ye. S. Skiba, "On fogs in the Chuyskaya Valley which precede the emergence of southern cyclones;" Yo. M. Kozik, A. I. Neushkin, "Industrial smoke and the impairment of visibility at the Tashkent airport;" M. V. Burkova, Kh. E. Saidnazarov, "Aerosynoptic analysis of the bump conditions of the TU-104 aircraft on the Tashkent--Moscow route on 10 May 1963;" M. V. Burkova, S. A. Gerasina, V. A. Dzhordzhio, et al, "Some statistical data on the bumps of TU-104 aircraft;" R. Bilyalov, M. V. Burkova, V. A. Dzhordzhio, et al, "A proposal for the use of navigators' reports of turbojet and turboprop aircraft in aerosynoptic analysis," "A proposal for the construction of an AT-250 map to improve the meteorological service of TU-104 aircraft;" M. V. Burkova, V. A. Dzhordzhio, A. D. Dzhurayev, et al, "A proposal for a multiroute system of aircraft flights with the use of jet streams;" V. A. Dzhordzhio, M. V. Burkova, A. I. Neushkin, N. N. Romanov, "On the need for organizing an Institute of Aviation Meteorology." /Translation of abstract/

SUB CODE: 04, 01 /

Card 2/2 mlp

CHISTYAKOV, A.D.; BUBKOVA, M.V.; ORLOVA, Ye.M.; GLAZOVA, O.P.; PED', D.A.; BERLYAND, M.Ye.; ABRAMOVICH, K.G.; POPOVA, T.P.; MATVEYEV, L.T.; BACHURINA, 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.; BATYREVA, T.F.; MININA, L.S.; BEL'SKAYA, N.N., nauchn. red.; ZVEREVA, N.I., nauchn. red.; KURGANSKAYA, V.M., nauchn. red.; MERTSALOVA, A.N., nauchn. red.; TOMASHEVICH, L.V., nauchn. red.; SAGATOVSKIY, N.V., otv. red.; KOTIKOVSKAYA, A.B., red.

[Manual of short-range weather forecasting] Rukovodstvo po kratkosrochnym prognozam pogody. Leningrad, Gidrometeoizdat. Pt.2. Izd.2. 1965. 491 p. (MIRA 18:8)

1. Moscow. TSentral'nyy institut prognozov.

L 64550-65 EWT(d)/EWP(1) IJP(c) BC

ACCESSION NR: AT5016869 UR/2648/64/000/019/0083/0089

AUTHORS: Dzhordzhio, V. A.; Petrosyants, M. A.; Romanov, N. N. 44,55 44,55 44,55

TITLE: Certain indications of the possible encountering of bumpiness by means of visual observations from the cabin of a TU-104 aircraft

SOURCE: Tashkent. Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut. Trudy, no. 19(34), 1964. Voprosy regional'noy sinoptiki Sredney Azii (Problems in regional synoptics of Central Asia), 83-89

TOPIC TAGS: aircraft, aircraft control, meteorology, climatology, weather forecasting, storm 9,44,55

ABSTRACT: Some recommendations for anticipating an encounter with zones of moderate or strong turbulence are presented. The recommendations are based upon immediate observations of an aviator in flight. A tabulation is made of certain basic situations encountered by pilots of TU-104 jet aircraft. The first situation is the passing through one air mass to another as indicated by a) the character and distribution of cloudiness, b) a sharp change in air temperature (one degree or more in ten minutes of flight), or c) a change in visibility, especially slope sight distance. Some general characteristics of turbulent zones are stated in

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ACCESSION NR: AT5016869

3

order to provide a rough guide for estimating the length, width, and strength of turbulence zones. Characteristics are prevailing wind direction, amount of up and down drafts, variation of wind direction, and other indicators. Conditions of relative stability are correlated with cloud structures and cloud front sizes. The visible indications of storm front severity are reviewed, and a case history of a flight is presented. Certain land forms, such, as mountains, provide additional indications of incipient turbulence when considered along with cloud formations, prevailing winds, etc. The authors emphasize the importance of considering all available indicators of weather stability and also the importance of weighing visual indications with the weather data and forecasts provided by meteorological services. It is also stated that the visual observations of aviators can substantially increase the accuracy of weather analysis and forecasts of ground stations.

ASSOCIATION: Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut (Central Asian Scientific Research Hydrometeorological Institute) 44,55

SUBMITTED: 00 ENCL: 00 SUB CODE: AC, ES

NO REF SOV: 000 OTHER: 000

Card 2/2 mll

L 55028-65 EWT(d)/EWT(m)/EWP(w) EM

ACCESSION NR: AR5008408 S/0264/65/000/001/V021/V021

SOURCE: Ref. zh. Vozdushnyy transport. Svodnyy tom, Abs. 1V99 12 B

AUTHOR: Burkova, M. V.; Dzhordzhio, V. A.; Romanov, N. N.

TITLE: Buffeting of TU-104 aircraft during sudden changes of wind direction at high altitudes

CITED SOURCE: Tr. In-ta matem. AN UzSSR, vyp. 27, 1963, 26-42

TOPIC TAGS: flight turbulence, high altitude buffeting, wind direction, jet flight

TRANSLATION: The authors describe two flights of TU-104 aircraft which encountered buffeting over the Tashkent-Tiflis route, as well as an analysis of the synoptic environment. One aircraft passed through the northern periphery of a high altitude cyclone. The latter was well defined on absolute topography charts for the 500, 300 and 200 millibar levels at 0300 hrs. The low altitude chart indicated a high pressure area (up to 1030 mb) during the flight period. Take-off was at 1057 hrs. Buffeting was experienced when penetrating a four-layer frontal cloud cover. It reached intensities of δ_1 to $\delta_{1.5}$ in the 0.3-1.0 km

Card 1/3

layer. The flight was smooth in the 1.4 - 3.0 km layer; buffeting increased in the 3.7 - 6.4 layer from δ_1 in the lower to $\delta_{1.5}$ in the upper part, reaching intensities of δ_2 to $\delta_{2.5}$ in the fourth layer. The wind direction changed by more than 90° to the left at 1250 hrs, buffeting was experienced suddenly ($\delta_{1.5}$ to δ_2) and lasted 15 - 20 sec. The aircraft cruised at an altitude of 9 km and wind velocity of 80 - 90 km/hr. The latter was 200 and 210 km/hr., respectively at altitudes of 8.3 and 12.9 km. Two tropopause zones were indicated by the tropopause chart for 1500 hrs, November 11th. A tropical tropopause over the southern portion of the Turkmen SSR, at an altitude of 13.5 km, rising northward to 150 mb, and a moderate latitude tropopause at altitudes of 9 - 11 km. The aircraft cruised below both tropopauses. The second aircraft took off at 1226 hrs and passed through a warm high altitude anticyclone, bordered on the west, south and east by a narrow low pressure area. Changes in wind direction were noted along the latter's axis. Two tropopauses were present over the region. A tropical tropopause at 150 to 150 mb and a moderate latitude tropopause at 200 to 300 mb. The altitude curve of wind shear on the AT-200 chart coincided with a deep and narrow trough in the moderate latitude

L 55028-65
ACCESSION NR: AR5008408

tropopause. The aircraft cruised at about 9 km, wind direction was 70° and changed later to 360°, wind velocity was 170 - 220 km/hr. Prolonged moderate buffeting began as the aircraft intersected the altitude curve of wind shear over the Caspian Sea at 1407 hrs. Buffeting intensified at 1422 hrs to δ_2, with continuous and chaotic flight turbulence ($\delta_{1.5}$- δ_2) noted at 1434 hours. The aircraft was flying in the frontal part of a peak isotach convergence (area of most intense wind velocity differentials). Buffeting ceased abruptly at 1446 hours. Bibl. with 4 titles. V. Shtal'.

SUB CODE: AC ENCL: 00

Card 3/3

DZHORDZHIO, V.A.; ROMANOV, N.N.

Aerosynoptic analysis of some cases of sudden disturbances of the flight of TU-104 airplanes. Nauch.trudy TashGU no.225 Fiz. nauki no.22:62-90 '64. (MIRA 18:1)

DZHIONDZHIO, V.A.; PETROSYANTS, [illegible] A.; ROMANOV, N.N.

Classification of buffeting of TU-104 airplanes in the upper troposphere and lower stratosphere. Nauch. trudy TashGU no.225 Fiz. nauki no.22:90-99 '64. (MIRA 18:1)

BR

ACCESSION NR: AT4031126 S/2648/63/000/010/0194/0196

AUTHOR: Morozov, M. V.; Romanov, N. N.

TITLE: The growth of well-developed cumulus clouds

SOURCE: Tashkent. Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut. Trudy*, no. 10(25), 1963. Voprosy* aviatsionnoy meteorologii (Problems in aviation meteorology), 194-196

TOPIC TAGS: meteorology, aviation meteorology, cloud, cumulus cloud, cloud physics, atmospheric condensation

ABSTRACT: It usually is assumed that the upward development of cumulus and cumulonimbus clouds occurs smoothly and continuously, without significant disruptions, but such a concept is based on ground observations. Discontinuous development at the top of the cloud can be observed when the cloud is viewed horizontally from an aircraft at the height of the cloud top. It can be noted that a light hazy shroud appears at certain times at a small distance above the compact cloud mass. It has the same configuration as the cloud top. The gap between the shroud and the cloud top is some tens of meters to 200-300 meters and this space remains completely clear for 1-2 seconds. The gap then is filled in

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ACCESSION NR: AT4031126

solidly and the shroud becomes denser. A new shroud appears several seconds later and the same process is repeated. The process is shown schematically in Fig. 1 of the Enclosure. During the lifetime of the cloud the process is repeated several tens of times. The phenomenon has been observed independently by different observers, mostly in mountainous country but also over plains. The phenomenon apparently can be attributed to nonuniform vertical condensation of moisture over cloud tops; the described effects apparently are manifested best during strong convection and when there are strong winds above the cloud tops. It is not clear why the condensation occurs at some distance above the cloud top, not immediately at the cloud boundary. It is emphasized that this phenomenon should not be confused with the cloud variety Cumulus congestus pileus. Orig. art. has: 1 figure.

ASSOCIATION: Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut, Tashkent (Central Asian Hydrometeorological Scientific Research Institute)

SUBMITTED: 00 DATE ACQ: 10Apr64 ENCL: 01

SUB CODE: ES NO REF SOV: 001 OTHER: 000

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ACCESSION NR: AT4031126

ENCLOSURE: 01

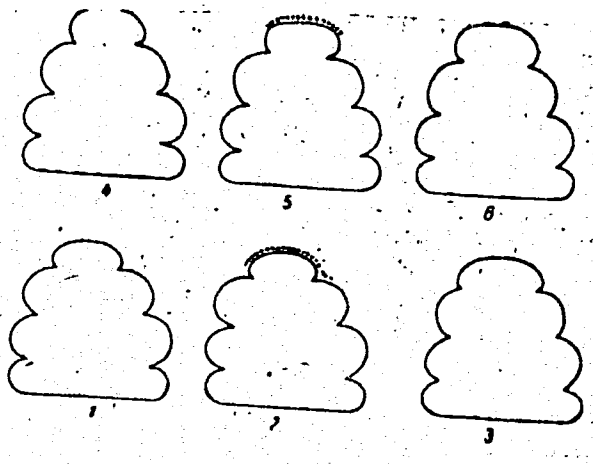

Fig. 1. Discontinuous growth of the upper boundary of a well-developed cumulus cloud. The figures denote successive stages in growth of the upper part of the cloud.

Card 3/3

ACCESSION NR: AT4031116 S/2648/63/000/010/0003/0050

AUTHOR: Romanov, N. N.

TITLE: Analysis of a series of crew reports on turbulence experienced by TU-104 aircraft

SOURCE: Tashkent. Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut. Trudy*, no. 10 (25), 1963. Voprosy* aviatsionnoy meteorologii (Problems in aviation meteorology), 3-50

TOPIC TAGS: meteorology, aircraft turbulence, atmospheric turbulence, troposphere, upper troposphere, lower troposphere, aviation meteorology

ABSTRACT: A study has been made of the synoptic conditions prevailing during 434 cases of aircraft turbulence (mostly TU-104 aircraft). Most data are for the period September 1958 to December 1959. Each of the 434 cases is listed in a 22-page table which gives the date, hour, height in km, region of occurrence, intensity of turbulent activity and additional remarks; the source data are described fully. The Richardson criterion and the method of analysis of turbulence occurrences are discussed. There is a general review of the synoptic conditions in the lower troposphere at the time of aircraft turbulence at the 8-12 km level; Table 1 (4 pages) is a highly detailed analysis of aircraft turbulence in the upper tropo-

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sphere and lower stratosphere in relation to various synoptic factors (cyclone, anticyclone, trough, ridge, front, instability, divergence, planetary high-level frontal zone) and Table 2 provides an analysis of turbulence in different sectors of cyclones and anticyclones. The aerosynoptic conditions associated with turbulence in the upper troposphere are summarized; 19 situations associated with turbulence are listed. A number of examples of typical aerosynoptic situations associated with turbulence in the upper troposphere are discussed, accompanied by 10 corresponding synoptic charts. The frequency of turbulence in various regions and its annual variation is reviewed and data summarized in 2 tables; the Tashkent-Moscow air route, along which most of the data were collected, is broken down into eight sectors. The possibilities of description and prediction of turbulence in the upper troposphere by the synoptic method are discussed. Despite the great difficulties it is noted that progress is being made in the prediction of aircraft turbulence. "The author wishes to thank his associates in the Aviation Meteorology Section -- I. V. Bugayeva, G. G. Ry*zhikova, S. A. Chernik and L. A. Gandy*bina for assistance in selection of the initial data and their technical processing".
Orig. art. has: 12 figures and 5 tables.

ASSOCIATION: Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut (Central Asian Hydrometeorological Scientific Research Institute)

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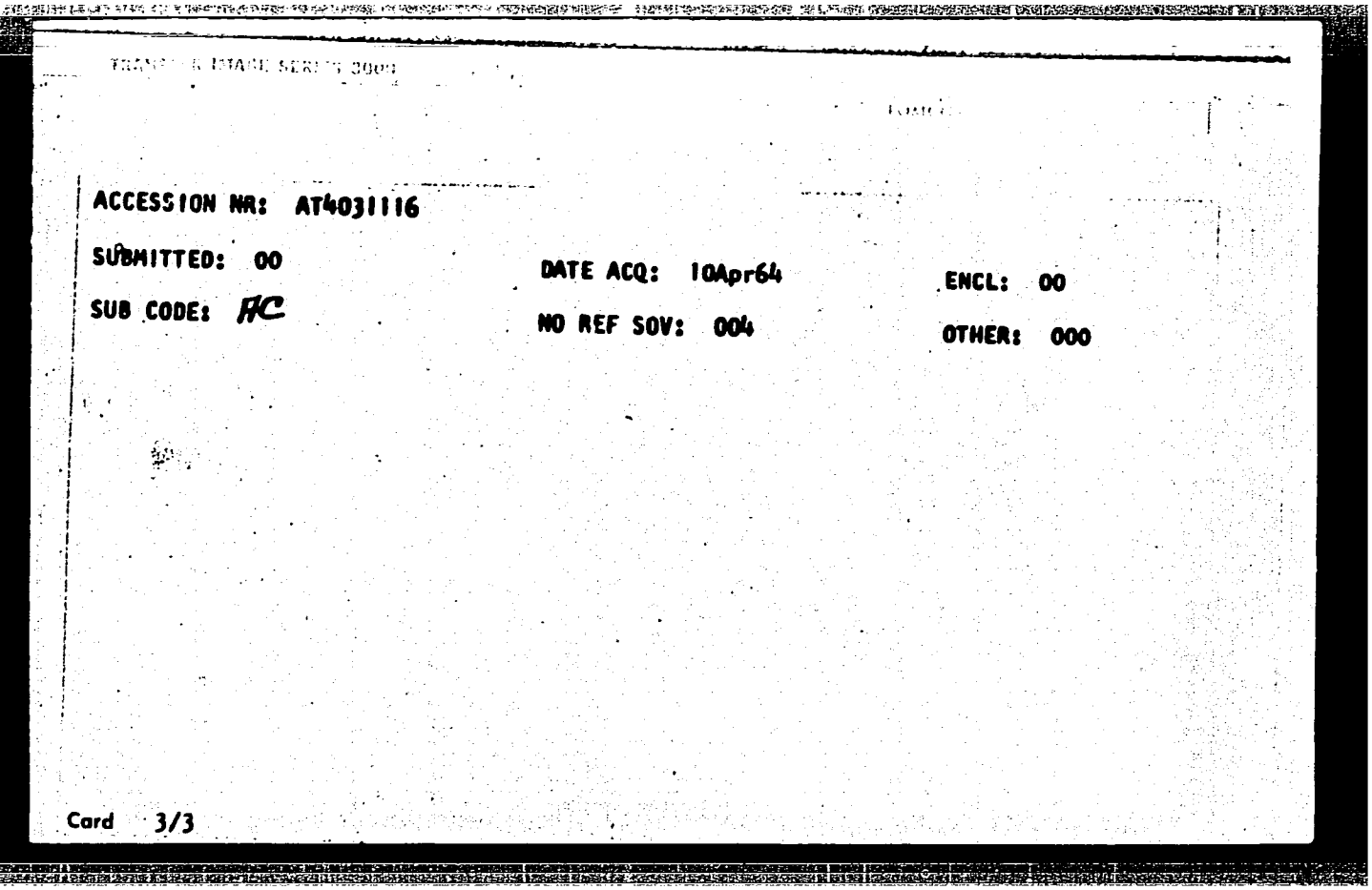

TRANSLATION SERIES 3000

ACCESSION NR: AT4031116

SUBMITTED: 00 DATE ACQ: 10Apr64 ENCL: 00

SUB CODE: AC NO REF SOV: 004 OTHER: 000

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ACCESSION NR: AT4031119 S/2648/63/000/010/0088/0115

AUTHOR: Bugayeva, I. V.; Romanov, N. N.

TITLE: Aerosynopic conditions of the height of the upper cloud boundary along the Tashkent-Moscow air route

SOURCE: Tashkent. Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut. Trudy*, no. 10(25) 1963. Voprosy* aviatsionnoy meteorologii (Problems in aviation meteorology), 88-115

TOPIC TAGS: meteorology, cloud, cloud boundary, cloud boundary height, atmospheric front, atmospheric pressure field, tropopause, atmospheric advection, aviation meteorology

ABSTRACT: A report has been published on the results of an aerosynoptic analysis of a large number (1,550) of flight reports collected along the Tashkent-Moscow air route by crews of TU-104 and IL-18 aircraft with respect to the height of the upper cloud boundary (at levels 5 to 12 km, with most data broken down by 1-km levels). There is a discussion of the characteristic heights of the upper cloud boundary along fronts, in different forms of pressure field, and in relation to advection of different signs, the position of the tropopause and other factors.

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The data are broken down by warm and cold season of the year, since the upper cloud boundary differs sharply in the case of convective clouds. The titles of the tables indicate the scope of the article: Tables 1-2: Height of the upper cloud boundary in different sectors of a newly formed cyclone in the cold and warm seasons; Tables 3-4: Height of the upper cloud boundary in different sectors of a mature or occluded cyclone in the cold and warm seasons; Table 5: Height of the upper cloud boundary in different sectors of a newly formed anticyclone; Table 6: Height of upper cloud boundary in different sectors of a nearly stagnant anticyclone; Table 7: Distribution of height of upper cloud boundary over surface troughs in the cold season; Table 8: Height of upper cloud boundary in cyclones at 300-mb level in the warm season; Table 9: Height of upper cloud boundary in troughs and ridges at 300-mb level; Tables 10-11: Height of upper cloud boundary along fronts in cold and warm seasons; Tables 12-13: Height of upper cloud boundary for different (8) wind directions in cold and warm seasons; Table 14: Height of upper cloud boundary relative to the zone of maximum wind; Table 15: Height of the upper cloud boundary in zones of convergence and divergence at the 300-mb level; Table 16: Height of the upper cloud boundary for tropopause heights from 8 to 19 km; Table 17: Upper cloud boundary during certain characteristic

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processes. A number of specific cases are discussed in detail. Orig. art. has: 10 figures and 17 tables.

ASSOCIATION: Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut (Central Asian Hydrometeorological Scientific Research Institute)

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Card 3/3

ABRAMOV, A.F.; DZHORDZHIO, V.A.; ROMANOV, N.N.

Preliminary analysis of a series of cases of heavy bumping and casting of TU-104 and IL-18 airplanes. Trudy Sred.-Az. nauch.-issl. gidrometeor. inst. no.10:51-60 '63.
(MIRA 17:6)

MOROZOV, N.V.; KOMAROV, N.N.

Accumulation of thick cumulus. Trudy Sred.-Az. nauch.-issl. gidrometeor. inst. no.10:194-196 '63. (MIRA 17:6)

[illegible], A.V.; [illegible], N.A.

Possibilities of evaluating the weather forecasting of aviation routes based on observations of airplane crews. Trudy Sred.-Az. nauch.-issl. gidrometeor. inst. no.10:61-66 '63.

Synoptic and statistical characteristics of the conditions governing flight as related to the clouds. Ibid.:67-87

Aerosynoptic conditions governing the height of the upper boundary of clouds on the route from Tashkent to Moscow. Ibid.:88-115

Some general data on the upper boundary of clouds in high aviation routes; based on observations of airplane crews. Ibid.:116-123 (MIRA 17:6)

ACCESSION NR: AT4031117 S/2648/63/000/010/0051/0060

AUTHOR: Abramova, A. F.; Dzhordzhio, V. A.; Romanov, N. N.

TITLE: Preliminary analysis of a series of cases of strong turbulence and bumping of TU-104 and IL-18 aircraft

SOURCE: Tashkent. Srednaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut. Trudy*, no. 10 (25), 1963. Voprosy* aviatsionnoy meteorologii (Problems in aviation meteorology), 51-60

TOPIC TAGS: meteorology, aviation meteorology, aircraft turbulence, atmospheric turbulence, troposphere

ABSTRACT: A study has been made of the synoptic situation at the time of nine cases of strong aircraft turbulence experienced by TU-104 and IL-18 planes. Each of the cases is considered separately and the weather conditions accompanying each such event described in sufficient detail; in several cases high-level pressure pattern charts accompany the description. Every case of aircraft turbulence described was unique, although certain similarities were noted between several. In one case, for example, the turbulence was attributed to a strong divergence of northwesterly winds and a zone of variable relatively weak winds in a region of confluence of opposite flow; other cases were attributed to equally complex com-

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binations of factors; in another case wind shear normal to the flow lines was considered responsible; the study of one case suggested that pilot error, not meteorological conditions, was the causative factor, etc. Orig. art. has: 5 figures.

ASSOCIATION: Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut (Central Asian Hydrometeorological Scientific Research Institute)

SUBMITTED: 00	DATE ACQ: 10Apr64	ENCL: 00
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ACCESSION NR: AT4031120 S/2648/63/000/010/0116/0123

AUTHOR: Bugayeva, I. V.; Romanov, N. N.

TITLE: Certain general data on the upper cloud boundary along high-level air routes (as reported by aircraft crews)

SOURCE: Tashkent. Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut. Trudy*, no. 10(25), 1963. Voprosy* aviatsionnoy meteorologii (Problems in aviation meteorology), 116-123

TOPIC TAGS: meteorology, aviation meteorology, cloud, cloud boundary, troposphere

ABSTRACT: A report has been published providing data on flights by TU-104 and IL-18 aircraft above clouds, in clouds and along the upper cloud boundary along the Tashkent - Moscow air route during the period from September 1958 through October 1960. A lesser amount of similar data is provided on the basis of information obtained along other air routes. The analysis was based on about 12,000 reports representing observations at specific points and about 2,000 reports describing dominant or generalized conditions. Tables 1 and 2 in the text give information on flights above clouds and at the upper boundary of clouds (between Tashkent and Moscow); the upper boundary at any place along the route can be as high as 12 km.

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It is noted that Table 1 cannot be interpreted as the probability of flight above clouds along different parts of the route and Table 2, which gives the frequency of occurrence of the upper cloud boundary for the warm and cold seasons, cannot be used to judge the predominant position of the upper cloud boundary along any part of the route. Data show that in the warm half-year the upper boundary of nonconvective clouds is 1.5-2 km higher than in the cold half-year. Certain additional characteristics of cloud distribution in the upper troposphere are given in Table 4, which gives data for flights in and outside clouds. Table 5 gives data of this type for the Novosibirsk - Tashkent and Tbilisi - Tashkent routes, as well as for the Moscow - Tashkent route. Table 6 gives the mean heights of the upper cloud boundary for flights at different times of day (during three 6-hour intervals. Diurnal variation of cloud boundary height is greatest in summer, when even the mean values of height of the upper cloud boundary increase by 1.5-2 km during the second half of the day (in some cases the increase is even greater). Orig. art. has: 6 tables.

ASSOCIATION: Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut (Central Asian Hydrometeorological Scientific Research Institute)

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Card 2/2

ROMANOV, N.N.

Analysis of a series of crew reports on TU-104 airplane bumping. Trudy Sred.-Az. nauch.-issl. gidrometeor. inst. no.10: 3-50 '63. (MIRA 17:6)

ACCESSION NR: AT4012400 S/2648/63/000/015/0041/0047

AUTHOR: Gerasina, S.A.; Petrosyants, M.A.; Romanov, N.N.; Chany*sheva, S.G.

TITLE: The interaction of mountain-valley circulations of two valleys separated by a mountain pass

SOURCE: Tashkent. Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut. Trudy*, no. 15, 1963, 41-47

TOPIC TAGS: meteorology, wind, mountain wind, valley wind, mountain valley circulation, atmospheric turbulence, foehn, air current

ABSTRACT: In August and September of 1955, an expedition was sent to the Talass and Susamy*r valleys by the Institut matematiki i mekhaniki AN UzbSSR (Institute of Mathematics and Mechanics) and the Tashkentskaya nauchno-issledovatel'skaya geofizicheskaya observatoriya (Tashkent Scientific Research Geophysics Observatory) to study the mountain-valley circulation and the air currents over mountainous regions. Four observation points were situated in the Talass valley, and one in the Susamy*r valley. Along with visual observations, observations were made by means of balloons and metereological instruments, and at

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two points, radio-sounding was utilized. Both valleys are situated in the western Tian-Shan and run more or less from East to West. The Talass valley is longer, wider and deeper than the Susamy*r valley. The observations proved that at night and during the morning hours, there are autonomous and completely independent circulations untouched by synoptic processes in the upper parts of both valleys. Mountain winds appear around 10 P. M., and between 8-10 A. M. are replaced by valley winds. At 10 A. M. or sometimes at noon, there is practically no interaction of mountain-valley circulations in the upper parts of the valleys. In the Talass valley, mountain winds blow at night and in the morning while valley winds blow all day long. From noon at 2 P. M. the flow from the Talass valley is not strong enough to send air to the Susamy*r valley. After noon the valley circulation of the upper regions of the Susamy*r is replaced by western and S. W. winds. These are called mountain-pass winds and have their own peculiarities. They appear at a certain altitude and then drop to earth; between noon and 2 P. M. they blow over the very bottom of the valley. The mountain-pass wind has more force and intensity than the valley wind, and has a gusty structure. It attains maximum velocities between 2 and 6 P. M. and disappears after 10 P. M. The nature of these winds can be explained by the following facts: (1) Since the Talass valley is considerably longer and wider than the Susamy*r valley, the valley-winds of the former should be much

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stronger. The mass of air of the valley circulation is much greater than in the Susamy*r valley. Therefore, the kinetic energy of the winds of the Talass valley is greater than in the Susamy*r valley. (2) The velocities of the mountain-pass wind are greater than those of the Talass valley wind at a comparable altitude. This is, apparently, the result of the fact that the Talass valley mountain-pass winds are forced to flow through sections having smaller surfaces. (3) The velocities of the mountain-pass winds increase later in the day. At the same time, the valley-winds of the Talass valley attain their maximum strength. It is possible that during the day the convection, especially above the mountains, is the greatest. Therefore, the free atmospheric flow is transferred from the upper levels of the convection to the lower levels. The direction of the mountain-pass wind often coincides with the direction of the dominant wind of the free atmosphere. (4) According to visual observations, the part of the Talass ridge which divides both valleys is, in daytime, almost always covered by convective clouds. It is natural that this cloudiness should be increased by ascending Talass valley-winds and, in consequence, a more or less distinct foehn effect in the upper part of the Susamy*r valley can be expected. (5) Vertical currents are also responsible for the existence of mountain-pass winds which play an important role in the transfer of turbidity from lower regions to mountainous terrains. Orig. art. has: 1 figure and 2 tables.

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ASSOCIATION: Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut, Tashkent (Central Asian Scientific Research Institute for Hydrometeorology)

SUBMITTED: 00 DATE ACQ: 20 Feb 64 ENCL: 00

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ROMANOV, N.N.

From congress to congress. Okhr. truda i sots. strakh. 6 no.10: 1-5 O '63. (MIRA 16:11)

1. Sekretar' Vsesoyuznogo tsentral'nogo soveta professional'nykh soyuzov.

ROMANOV, N.N.

Physical exercise is a public concern. Zdorov'e 5 no.6:1-2 Je '59. (MIRA 12:11)

1. Predsedatel' TSentral'nogo soveta Soyuza sportivnykh obshchestv i organizatsiy SSSR.
(PHYSICAL EDUCATION AND TRAINING)

ROMANOV, N. P.

O Dvukh Teoremakh Additivnoy Teorii Chisel. Matem. SB., 4((1939), 514-520.

Ob Odnoy Teoreme Additivnoy Teorii Chisel. M., Uchen. Zap. un-ta, 2:2 (1934), 49-54.

Ueber Einige Satze der Additiven Zahlentheorie. Math. Ann., 109 (1934), 668-678.

Ob Ortonormirovan ykh Sistemakh. Dan, 46 (1945), 239 -242.

SO: Mathematics in the USSR, 1917 -1947
edited by Kurosh, A. G.,
Markushevich, A. I.,
Rashevskiy, P. K.
Moscow - Leningrad, 1948.

ROMANOV, N.P.

Romanoff, N. P. Über die Bestimmung der höherer Mittelwerte der Fundamentalfunktion der additiven Zahlentheorie. Bull. [Izvestiya] Math. Mech. Inst. Univ. Tomsk 3, 128–144 (1946). (Russian. German summary)

This paper is concerned with the estimation of the mean value of the cube of the function f defined in the preceding review, the sequences X and Y being varied in all possible ways. For this purpose the sum $\sum_x \sum_y f^s$ is regarded as the coefficient of $u^x v^y$ in a double power series $\Phi_{s,s}(u, v)$. Lengthy and complicated formulae involving several auxiliary functions are obtained by means of which $\Phi_{s,s}(u, v)$ and other similar functions may be derived. The author makes considerable use of results obtained by him in an earlier paper [same Bull. 2, 13–37 (1938)] which was concerned with the estimation of the mean value of f.

R. A. Rankin (Cambridge, England).

Source: Mathematical Reviews, Vol , No.

ROMANOV, N. P.

Romanov, N. P. The application of functional analysis to questions of the distribution of prime numbers. Bull. [Izvestiya] Math. Mech. Inst. Univ. Tomsk 3, 145–173 (1946). (Russian)

The author considers a set of distributive functional operators L_u $(u>0)$ which map a family of functions onto itself and which possess the multiplicative property $L_m L_n = L_{mn}$ for all m, n. This property is possessed, for example, by the operator

$$L_u = u^{-\lambda} = \sum_{r=0}^{\infty} \frac{(-\log u)^r}{r!} \lambda^r,$$

where λ is an arbitrary linear operator. It is shown that many of the properties of the Riemann zeta-function hold also for the operator $\zeta(s+\lambda) = \sum_{n=1}^{\infty} n^{-s} n^{-\lambda}$ when certain convergence conditions are satisfied and when the expressions obtained are interpreted in a suitable and natural manner. Thus $\zeta(s+\lambda)$ can be continued to the left of its region of absolute convergence and satisfies a functional relation connecting it with $\zeta(1-s-\lambda)$. This relation only differs from that which holds for the ordinary zeta-function in the presence of certain simple operators which vanish when λ is a pure number. The occurrence of these extra operators can be attributed to the fact that, in the theory of the Riemann zeta-function, the term $1/(s-1)$ due to the pole at $s=1$ appears first, for $\Re s>1$, as an integral $\frac{1}{2}\int_0^1 t^{\frac{1}{2}(s-1)-1}dt$ and is later identified with the integral $-\frac{1}{2}\int_0^1 t^{\frac{1}{2}(1-s)-1}dt$ when $\Re s<1$. This identification between the two integrals is not always possible in the case of integrals which are operators.

R. A. Rankin.

Source: Math[illegible] Reviews, Vol [illegible] No. [illegible]

Romanov, N. P.

Romanov, N. P. On a special family of infinite unitary matrices. C. R. (Doklady) Acad. Sci. URSS (N.S.) 52, 295–297 (1946).

The author restates the main properties of the family of infinite unitary matrices which he derived in an earlier paper [Bull. Acad. Sci. URSS. Sér. Math. [Izvestia Akad. Nauk SSSR] 10, 3–34 (1946); these Rev. 8, 9] in terms of an arbitrary sequence of differentiable functions satisfying certain conditions. Orthogonality relations and other properties are deduced from the differential equations satisfied by the matrices. *R. A. Rankin* (Cambridge, England).

Source: Mathematical Reviews, Vol 8, No. 3

37999. ROMANOV, N. P.

Ryady Furyye Po Odnoy Spyetsial'noy Ortogonal'noy Sistyemye. Trudy Samarkandsk. Gos. Ob" Yedin. Pyed. I Uchityel. In-ta 1 m. Gor" Kogo, T. VI, 1948, s. 69-80 (? 91-102)

ROMANOV, N.P.

Romanov, N. P. Concerning the distribution of prime numbers. (Russian) Mat. Sbornik N.S. 23(65), 259–278 (1948).

Let $\Lambda(n)$, $\mu(n)$ and $\varphi(n)$ be the functions of von Mangoldt, Möbius and Euler, respectively, and let

$$Q_n(x) = -\mu(n)x + \sum_{d|n} \mu(n/d)\frac{dx^d}{1-x^d} = \sum_{\rho} \frac{\rho^2 x^2}{1-\rho^2},$$

where ρ runs through the $\varphi(n)$ primitive nth roots of unity. In the course of the paper the following result of Hardy and Littlewood is applied several times:

(A) $$\lim_{r\to 1-0} (1-r)\sum_{n=1}^{\infty} c_n r^n = A, \qquad c_n \geqq 0,$$

implies $\lim_{N\to\infty} N^{-1}\sum_{n=1}^{N} c_n = A$. The author proves, by elementary methods, the formula

(B) $$\sum_{m=1}^{\infty} m^{-1}\varphi(m)\Lambda(m)x^m = \sum_{n=1}^{\infty} \{\mu(n)/\varphi(n)\}Q_n(x), \qquad |x|<1.$$

This is achieved by considering partial sums of the second series which are shown to tend to the first series as the number of terms included is increased. The second series, when multiplied by $1-|x|$, is uniformly convergent for $x = re^{2\pi i l/k}$, $(k, l) = 1$, as $r \to 1-0$, and it is shown that the prime number theorem, and the corresponding result (C) $\pi(k, l; x) \sim x/\{\varphi(k)\log x\}$ for the number of primes in an arithmetic progression, can be deduced quite simply from this fact. However, the uniform convergence cannot be deduced from the elementary proof of (B) which is given, and the author has to make use of complex variable methods which are of the same depth as the prime number theorem, as proved by Hadamard and de la Vallée Poussin, in order to prove that the convergence is uniform. The analysis is complicated and an adequate account of the methods used cannot be given here.

Other applications of the same ideas are given, and (B) is generalised to sequences of exponents $n_1, n_2, \cdots$ in place of $1, 2, \cdots$. An alternative method of deducing (C) is sketched. This is based on the result

Source: Mathematical Reviews, Vol 10 No. 5

Romanov, N.P.

(D) $\limsup_{x\to\exp(2\pi i l/k)} (1-|x|)|F_s(x)-F(x)| \leqq A(s-1)$,

where $F(x)=\sum_{n=1}^{\infty}\Lambda(n)x^n$ and

$$F_s(x)=\sum_{n=1}^{\infty}\lambda(n,s)x^n=\zeta(s)\sum_{n=1}^{\infty}x^n\prod_{p\mid n}(1-p^{1-s}).$$

Here $\zeta(s)$ denotes the Riemann zeta-function and $\lambda(n,s)\to\Lambda(n)$ as $s\to 1$. It is shown that it is sufficient to prove that

(E) $$\sum_{n\leqq N}\frac{d}{ds}\lambda(n,s)=O(N) \qquad (n\equiv l(\mathrm{mod}\ k)),$$

uniformly for $1\leqq s\leqq 2$. Only the first part of the proof of (E) is given in full, so that it is not clear to the reviewer whether the complete proof uses complex variable methods or not. If it does not, the author has obtained an elementary proof of (C) and the full details would be of interest.

Source: Mathematical Reviews, Vol 10 No. 5