[redacted]

NASA TT F-8250

FACILITY FORM 602

N65-22600
(ACCESSION NUMBER)

4
(PAGES)

(NASA CR OR TMX OR AD NUMBER)

(THRU)

1
(CODE)

13
(CATEGORY)

ANOMALOUS ABSORPTION AT HIGH LATITUDES OF THE SOUTHERN HEMISPHERE

by G. V. Bukin

GPO PRICE $ _____

OTS PRICE(S) $ _____

Hard copy (HC) $1.00

Microfiche (MF) .50

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON June 1962

DRAFT TRANSLATION NASA TT F-8250

JUN 25 1962

ANOMALOUS ABSORPTION AT HIGH LATITUDES OF THE SOUTHERN HEMISPHERE

(Anomal'noye pogloshcheniye v vysokikh shirotakh yuzhnogo polushariya)

Geomagnetizm i Aeronomiya
Tomm II, No. 2, 368–369
Izd-vo A. N.SSSR, Moskva 1962

by G. V.BUKIN

A series of investigations were devoted to the effect of chromospheric flares on the type II and III ionosphere absorption according to observations at high-latitude stations of the Northern hemisphere [1, 2].

Presented are in this note data on ionosphere effects of 16 solar flares from July 1957 through September 1958, according to materials of vertical soundings of the ionosphere at 24 stations of the Southern hemisphere (from 40 to 90° geomagnetic latitude). All the materials originating in the southern stations were obtained from the 52 Storage Center. As to the data on anomalous absorption in the Northern hemisphere, they are brought forth for the sake of comparison and were borrowed from reference [2]. They bear more particularly on anomalous absorption in the Northern polar region and magnetic disturbances.

Data on chromospheric flares, solar radio emission and absorption in the Northern and Southern hemispheres are compiled in a Table (page 3). From the examination of that Table, the following conclusions may be made :

../..

1. The Delinger effect in the Southern hemisphere was detected only in two cases. It is possible that the utilization of hourly-value graphs offered by a series of stations to the Storage Center did not allow to reveal that short-lived effect in the remaining cases.

2. The commencement time of the type III absorption for the Northern and Southern hemispheres differs rather substantially.

3. In the Northern hemisphere the lower boundary of anomalous absorption latitudes reaches about 58.5° N; in the Southern - 54° S. The distribution of the type III anomalous absorption for same flare (in geomagnetic coordinates) has a clearly-expressed dissymmetry for the Northern and Southern hemispheres.

4. The duration of blackouts, caused by the same flare, may be essentially different in the Northern and Southern hemispheres.

***** E N D *****

Translated by ANDRE L. BRICHANT
for the
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
24 June 1962

REFERENCES.

1. T. OBAYASHI, Y. HAKURA. Rept. Ionosphere and Res. Japan, 14, No. 1 1 — 40, 1960.

2. A. S. BESPROZVANNAYA, V. M. DRIATSKIY. Sb. "Issledovaniye Ionosfery), No. 5, Izd. A. N. SSSR, 7 — 19, 1960.

I Z M I R A N

Entered on 26 Dec. 1961.

TABLE TO BUKIN'S PAPER

	Солнечные вспышки Solar flares: Date and Time дата и время, GMT	Балл FORCE	TYPE IV Радиоизлучение IV типа (GMT) RADIOBURST	Delinger Эффект Делинжера Effect N	Effect S	Аномальное поглощение III типа Anomalous TYPE III ABSORPTION: начало роста (GMT) begin. of rise N	S	minim. latitude минимальная широта Ф, град. deg. N	S	продолжительность блэкаутов, час blackout duration N	S	SC-TYPE Магнитные бури типа SC MAGNETIC STORMS: Date дата	commencement начало, GMT	Particle velocity Скорость частиц $V_{III} \cdot 10^4$, км/сек Km/sec.
1957	3.VII 08 ч. 00 м.	3	08 ч. 49 м.	+	—	09 ч.	09 ч.	60,6	67,0	66	56	5	00 ч. 43 м.	4,2
	24.VII 18 02	3	18 02	+	—	21	24	—	66,0	6	21	27	19 59	0,9
	28.VIII 09 13	3+	09 30	+	—	14	13	63,0	66,0	} 166	34	29	19 20	1,1
	2.IX 13 02	2	13 10	+	—	—	17	—	54,0		72	4	13 00	1,0
	12.IX 05 00	2	05 15	+	—	04	08	63,0	54,0	8	40	13	00 46	1,4
	26.IX 19 07	3	19 49	+	—	21	21	63,0	57,0	24	66	29	00 15	2,1
	20.X 16 37	3	16 46	+	—	19	17	59,8	—	35	47	21	21 20	8,0
1958	9.II 21 08	2	21 09	+	+	06*	05*	59,8	67,0	18	48	11	01 26	0,5
	23.III 09 47	3+	—	—	—	—	—	—	66,0	139	72	25	15 40	—
	6.VI 04 36	3	04 34	—	—	—	—	—	—	5	35	7	00 46	—
	7.VII 00 39	3+	00 27	+	—	03	03 ч. 15 м.	58,5	57,0	104	48	8	07 48	1,4
	29.VII 03 32	3+	03 04	+	+	04	—	63,0	—	4	9	31	15 32	—
	16.VIII 04 32	3+	04 38	+	—	06	07	59,8	54,0	50	50	17	06 22	1,7
	22.VIII 14 17	3	14 40	+	—	14	16 45	—	57,0	} 165	72	24	01 40	1,7
	26.VIII 00 05	3	00 19	+	—	01	02	—	57,0		72	27	02 46	2,1
	22.IX —	—	—	+	—	16	—	63,0	66,0	32	87	25	04 08	—

* The absorption rise began on 10 Feb. (II)

— low-latitude boundary of absorption propagation, V_{III} — lower limit of the velocity of energetic particles having caused the type III absorption.