

## IONOSPHERE DATA

### Mean ionospheric absorption $L'(dB)$ at oblique incidence (A3)

$$f = 270 \text{ kHz}$$

The following tables give the values of mean ionospheric absorption at oblique incidence (A3) for certain zenith distances of the Sun ( $\chi$ ) expressed in decibels (dB). Values for ground sunset (SS) and ground sunrise (SR) are given for periods of 20 minutes centered on the times of  $\chi = 90^\circ$ . Night values have been determined by taking the periods ranging from  $\chi = 100^\circ$  to 23 00 GMT. The date column gives year, month, day (e.g. 990101 indicates 1999 January 1). SS and Night values in actual row are valid for the actual day, however, the SR values always for the next day's dawn. Values uncertain for some reason are entered in round brackets (). Some gaps are due to missing records.

The sky wave of the transmitter Československo ( $f = 272 \text{ kHz}$ ) has been recorded since January 1967. The geographical coordinates of the reflection point are  $48.4^\circ \text{ N}$ ,  $17.1^\circ \text{ E}$ . Because of reconstruction works on the transmitter Československo, the absorption measurement at 272 kHz and the publication of data were suspended from April 1975 till September 1978. (At present the transmitter frequency is 270 kHz.) Due to changes and repeated troubles in transmitting conditions the publication of absorption data has been abandoned from August 10, 1999.

The equipment and the method have been described in the papers by BENCZE P and MÄRCZ F: "Atmosphärisch-elektrische und ionosphärische Messungen im Observatorium bei Nagycenk". Observatoriumsberichte des Geophysikalischen Forschungslaboratoriums der Ungarischen Akademie der Wissenschaften vom Jahre 1966, Sopron, 1967, as well as by BENCZE P, HORVÁTH J, MÄRCZ F: "A new equipment for the measurement of ionospheric absorption" Geophysical Observatory Report of the Geodetic and Geophysical Research Institute of the Hungarian Academy of Sciences, Year 1975. Observatory of Nagycenk, Sopron, 1976. Further information is given by BENCZE P and MÄRCZ F: "The Geophysical Observatory near Nagycenk II. Atmospheric electric and ionospheric measurements" (*Acta Geod. Geoph. Mont. Hung.*, 16, 1981, 353-357).

See CD (program Seenck.exe, menu item Ionosphere/Absorption).

*Mean ionospheric absorption L' (dB) at oblique incidence (A3)*  
*f = 270 kHz*  
 1999

Date	SS	Night	SR
990101	22.2	15.7	29.2
990102	35.2	14.1	19.9
990103	33.2	21.0	23.8
990104	35.2	21.8	28.2
990105	35.2	22.2	27.2
990106	35.2	22.2	37.7
990107	41.2	26.4	37.7
990108	28.2	20.2	27.2
990109	37.7	(20.6)	
990110	22.7	21.0	25.0
990111	41.7	23.8	33.2
990112	28.2	25.7	19.5
990113	35.2	23.8	23.8
990114	27.2	26.4	30.3
990115	31.7	23.2	25.0
990116	31.7	23.2	28.2
990117	29.2	23.8	27.2
990118	35.2	21.8	30.3
990119	23.8	25.7	33.2
990120	27.2	27.2	28.2
990121	27.2	(18.9)	
990122			
990123	33.2	18.9	31.7
990124	20.6	25.7	31.7
990125	27.2	27.2	28.2
990126	30.3	27.2	31.7
990127	31.7	25.7	
990128	41.2	27.2	37.7
990129	37.7	26.4	31.7
990130	41.2	29.2	29.2
990131	35.2	26.4	31.7
990201	33.2	24.4	18.6
990202	25.0	19.9	25.0
990203	41.2	26.4	23.8
990204	25.7	24.4	27.2
990205	37.7	23.8	26.4
990206	31.7	20.2	25.7
990207	26.4	19.5	24.4
990208	25.7	27.2	31.7

Date	SS	Night	SR
990209	26.4	21.4	24.4
990210	33.2	19.9	25.7
990211	35.2	21.8	27.2
990212	30.3	21.8	25.7
990213	29.2	18.3	21.0
990214	23.8	27.2	28.2
990215	35.2	21.0	31.7
990216	33.2	28.2	27.2
990217	30.3	26.4	33.2
990218	35.2	26.4	29.2
990219	33.2	30.3	33.2
990220	31.7	25.0	33.2
990221	35.2	23.8	27.2
990222	35.2	22.2	28.2
990223	27.2	22.7	28.2
990224	35.2	18.6	
990225	27.2	22.2	37.7
990226	26.4	23.8	41.2
990227	37.7	19.2	29.2
990228	35.2	24.4	47.2
990301	23.8		
990302	21.4	21.8	21.8
990303	33.2	20.6	28.2
990304	23.2	23.2	23.8
990305	23.2	18.1	23.8
990306	27.2	17.8	23.8
990307	21.8	23.2	26.4
990308	26.4	21.0	28.2
990309	26.4	19.5	23.8
990310	25.0	(21.8)	25.0
990311	30.3	21.4	28.2
990312	23.2	18.9	23.8
990313	19.2	21.8	18.3
990314	19.2	18.3	21.8
990315	16.9	19.5	22.7
990316	21.8	21.0	21.0
990317	22.2	18.3	28.2
990318	26.4	21.0	21.4
990319	25.0	17.6	27.2
990320	23.8	18.3	28.2
990321	25.7	18.3	25.0
990322	22.7	17.8	27.2
990323	24.4	18.1	25.0

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Date	SS	Night	SR
990324	30.3	21.4	27.2
990325	24.4	18.1	31.7
990326	28.2	19.9	27.2
990327	23.2	18.1	27.2
990328	24.4	21.0	19.2
990329	22.2	20.6	22.2
990330	27.2	19.2	23.2
990331	19.5	17.8	21.4
990401	22.7	18.3	23.8
990402	25.0	21.0	22.2
990403	27.2	19.2	25.7
990404	22.7	25.0	22.2
990405	24.4	19.9	22.7
990406	22.7	19.9	22.7
990407	25.0	16.7	21.4
990408	23.8	19.2	29.2
990409	33.2	17.6	21.4
990410	21.8	23.2	18.6
990411	22.2	14.6	21.8
990412	26.4	19.5	23.2
990413	30.3	17.8	24.4
990414	26.4	19.9	25.0
990415	30.3	19.2	24.4
990416	26.4	21.8	21.8
990417	27.2	18.3	21.0
990418	24.4	19.5	19.9
990419	23.8	19.9	20.2
990420	23.8	23.8	24.4
990421	19.5	26.4	21.0
990422	26.4	23.8	23.2
990423	21.4	(26.4)	23.2
990424	25.0	21.4	
990425	17.1	19.5	29.2
990426	26.4	16.5	24.4
990427	28.2	21.8	23.2
990428	23.8	23.2	
990429	31.7	23.2	24.4
990430	23.8	17.3	26.4
990501	29.2	23.8	27.2
990502	35.2	21.0	21.8
990503	26.4	21.0	24.4
990504	24.4	17.8	33.2
990505	35.2	18.6	27.2

Date	SS	Night	SR
990506	33.2	19.5	28.2
990507	26.4	21.4	19.9
990508	31.7	23.8	23.8
990509	41.2	19.9	33.2
990510	28.2	19.9	22.2
990511	33.2	22.7	26.4
990512	29.2	20.2	23.2
990513	35.2	22.7	23.2
990514	25.7	22.2	27.2
990515	30.3	17.6	31.7
990516	31.7	26.4	29.2
990517	37.7	24.4	25.7
990518	25.7	24.4	25.7
990519	30.3	26.4	27.2
990520	29.2	17.8	28.2
990521	24.4	20.6	30.3
990522	28.2	21.8	25.0
990523	31.7	18.3	22.7
990524	26.4	19.2	25.0
990525	23.8	24.4	28.2
990526	33.2	21.8	27.2
990527	27.2	21.4	24.4
990528	25.7	21.0	27.2
990529	30.3	26.4	31.7
990530	31.7	23.8	31.7
990531	25.7	26.4	26.4
990601	24.4	21.0.	27.2
990602	31.7	20.6	24.4
990603	37.7	23.8	31.7
990604	33.2	22.7	28.2
990605	27.2	21.8	29.2
990606	30.3.	23.2	27.2
990607	31.7	20.2	28.2
990608	27.2	23.8	35.2
990609	30.3	21.4	28.2
990610	26.4	26.4	27.2
990611	30.3	23.8	(26.4)
990612	23.8	24.4	(33.2)
990613	31.7	28.2	37.7
990614	24.4	19.2	27.2
990615	26.4	24.4	26.4
990616	26.4	25.7	26.4
990617	35.2	25.0	26.4

Date	SS	Night	SR
990618	30.3	23.2	(30.3)
990619	30.3	23.8	(28.2)
990620	24.4	20.2	26.4
990621	24.4	23.8	31.7
990622	28.2	26.4	26.4
990623	25.0	19.5	
990624	31.7	26.4	24.4
990625	26.4	23.2	31.7
990626	24.4	21.0	27.2
990627	29.2	24.4	27.2
990628	35.2	21.0	27.2
990629	30.3	27.2	31.7
990630	27.2	24.4	26.4
990701	30.3	24.4	26.4
990702	30.3	28.2	29.2
990703	28.2	26.4	29.2
990704	21.4	27.2	37.7
990705	26.4	21.4	25.7
990706	28.2	23.8	24.4
990707	21.8	21.4	26.4
990708	26.4	33.2	31.7
990709	30.3	26.4	27.2
990710	28.2	24.4	29.2
990711	29.2	28.2	33.2
990712	31.7	21.0	27.2
990713	35.2	23.2	28.2
990714	31.7	23.8	26.4
990715	29.2	25.7	24.4
990716	29.2	24.4	29.2
990717	37.7	27.2	25.7
990718	25.7	29.2	35.2
990719	29.2	21.8	27.2
990720	27.2	23.8	24.4
990721	29.2	25.7	27.2
990722	27.2	26.4	31.7
990723	23.8	25.7	31.7
990724	25.7	25.0	25.7
990725	24.4	23.8	26.4
990726	30.3	21.4	26.4
990727	35.2	19.9	31.7
990728	26.4	23.2	25.7
990729	25.7	27.2	23.8
990730	30.3	22.7	33.2

Date	SS	Night	SR
990731	27.2		
990801	27.2	23.2	28.2
990802	27.2	20.2	23.2
990803	28.2	(21.4)	(27.2)
990804			
990805	(31.7)	(23.8)	(26.4)
990806			
990807	29.2	26.4	30.3
990808	29.2	24.4	23.8
990809	29.2	19.5	

Due to changes and repeated troubles in transmitting conditions the publication of absorption data has been abandoned from August 10, 1999