HEALTH AND ATMOSPHERIC IONIZATION

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Abstract

This work presents a study of atmospheric ions, the effect that they have on the human body .The study presents the amount of positive and negative ions that are found in Earth's atmosphere and electrical conductivity of the atmosphere.I was also presented data on temperature and pressure data from the Institute of Meteorology and Hydrology, branch smoked.

Key words: atmospheric ions,human body,atmospheric ,health

INTRODUCTION

The existence of ions in the atmosphere is admitted as a result of direct measurements of ion concentrations(Borsan D.,1999).You can also give and explanation of the existence of ions in the atmosphere. Under the action of radioactive substances from soil and lower atmosphere under the action of secondary cosmic radiation and solar UV radiation (generally from high heights) throughout the atmosphere was found that there are agents able to snatch ioniser electrons from molecules which constitute the atmosphere.

Measurements made on the concentration of ions at different heights showed a strong increase in the concentration of ions from below.

If they are to transport the load to the Earth's surface over a longer period of time shows a zero balance (balanced) of pregnancy although, in most of the time resulting ion current flowing from top to bottom (positive).Consequence of this is that within very short time during which current flows negative result (bottom up) the ion current intensity is very high. (Mintas O.2008)

MATERIAL AND METHODS

In the study of ion current is used as Spot Ohm's law linking the current density of electric field (written law for homogeneous environment).

$\dot{i} = \Lambda \vec{E}$ $\dot{i}$ = flux density lines in the field;

Λ = total electrical conductivity;

$\vec{E}$ = Electric field

Experimental data show that the vertical electric current density is practically a constant => can affirm that the movement of electrical charges is stationary.

λ =enK

e = elementary electric charge;

n = concentration of charge carriers;

K = mobility tasks;

λ = Electrical conductivity.

This relationship can be written for both tasks with both positive and negative:

$\lambda_i^+ = en_i^+ + K_i^+$;

$\lambda_j^- = en_j^- + K_j^-$;

=> $\Lambda = e\sum_{i=1}^{N}(n_i^+ K_i^+ + n_i^- K_i^-)$ - general expression of the total conductivity (for air).

Based on electrokinetic properties can be developed atmospheric model.

It was found that electrical conductivity increases very rapidly with height (because it increases the concentration of ions). Because of this growth atmosphere gets high electrical conductivity properties which makes it special to approach the conductivity of the Earth crust(Patrascu St.,1996).

Consequence of this can be considered the upper limit of the atmosphere and Earth's surface form a capacitor fittings called atmospheric condenser. Fittings is the dielectric of the atmospheric air.

RESULTS AND DISCUSSION

Further data will be presented that characterize the atmosphere in terms of power (positive and negative ion concentrations and total electrical conductivity) as well as data characterizing the thermally atmosphere.

Data (table 1_8) were collected from the Institute of Meteorology and Hydrology, branch smoked. Experimental data were processed, so that following tables contain monthly averages of the quantities listed above.

Table 1- 1970 year

Moon	**Average temperature(°C)**	n^+	n^-	$\lambda^+ + \lambda^-$
January	2,1	234	237	112,2
February	4	313	299	144,3
March	7,1	685	678	291,3
April	13,3	586	545	258,5
May	18,3	584	580	243,8
June	23,7	515	494	214,1
July	25,5	460	479	212,5
August	27,34	556	469	229.6 '
September	20,16	613	578	255,8
October	20,28	760	740	217,1
November	11,53	522	523	170,5
December	7,8	399	379	122,5

Table 2- 1975 year

Moon	**Average temperature(°C)**	n^+	n^-	$\lambda^+ + \lambda^-$
January	1	417	443	152,2
February	-0,95	276	309	82,7
March	5,2	441,4	443	131,8
April	12,08	1041,9	1033,4	256,3
May	18	903,4	763,06	239
June	24,8	576,3	573,3	235,3
July	26	554	530	263,03
August	23,46	498,6	511,3	260,65
September	25,6	540	549	299,1
October	20	578	605,8	318,2
November	3,57	436,4	361,1	169,8
December	3,46	307,7	347,2	103,42

Table 3- 1980 year

Moon	**Average temperature(°C)**	$\mathbf{n}^+$	$\mathbf{n}^-$	$\lambda^+ + \lambda^-$
January	-0,08	315,7	263,8	73,1
February	2,4	488,9	454,7	111,04
March	8,8	520,8	462,3	144,3
April	17,03	757,03	659,7	199,5
May	19,14	724,8	626,04	224,3
June	24,1	761,6	688,25	259,9
July	28,3	835,64	741,56	258,44
August	27,36	770,1	718	254,36
September	26,3	728,6	658,3	343
October	13,3	756,11	624,7	258,3
November	8,29	529,6	472,1	150,41
December	4	_534,28	526,8	122,1

Table 4- 1985 year

Moon	**Average temperature(°C)**	$\mathbf{n}^+$	$\mathbf{n}^-$	$\lambda^+ + \lambda^-$
January	1,9	351,7	257,4	108,4
February	4	501,8	410,6	116,5
March	11,6	434,2	382,6	173,7
April	19,4	725,3	608,3	195,6
May	22,7	807,6	732,2	229,2
June	25,8	574,8	387,4	194,5
July	27,4	424	383,7	189
August	27,3	609,7	470,7	198,1
September	25,1	614,6	482,6	200,1
October	12,7	532	484	178,8
November	5,1	426,7	285,1	134,6
December	-	-	-	-

Table 5- 1990 year

Moon	**Average temperature(°C)**	$\mathbf{n}^+$	$\mathbf{n}^-$	$\lambda^+ + \lambda^-$
January	-2,4	298	312	49,8
February	1,3	436	439	57
March	11,0	349	335	82
April	13,5	453	419	100
May	16,6	491	437	117
June	26,5	579	492	109
July	26,5	920	815	120
August	30,6	534	487	84
September	-	-	-	-
October	17,4	696	531	81
November	-	-	-	-
December	4,3	411	407	66

Table 6- 1995 year

Moon	**Average temperature(°C)**	n^+	n^-	$\lambda^+ + \lambda^-$
January	3,6	421	381	94
February	0,8	401	375	66
March	6,8	462	384	70
April	12,9	821	625	144
May	21,7	720	659	94
June	23,5	760	671	89
July	24,2	685	614	110
August	24,6	832	780	111
September	26,3	858	791	97
October	22	900	764	109
November	6,5	677	619	89
December	0,9	644	493	124

Table 7- 2000 year

Moon	**Average temperature(°C)**	n^+	n^-	$\lambda^+ + \lambda^-$
January	1,9	351,7	257,4	108,4
February	4	501,8	410,6	116,5
March	11,6	434,2	382,6	173,7
April	19,4	725,3	608,3	195,6
May	22,7	807,6	732,2	229,2
June	25,8	574,8	387,4	194,5
July	27,4	424	383,7	189
August	27,3	609,7	470,7	198,1
September	25,1	614,6	482,6	200,1
October	12,7	532	484	178,8
November	5,1	426,7	285,1	134,6
December	0,9	644	493	124

Table 8- 2005 year

Moon	**Average temperature(°C)**	n^+	n^-	$\lambda^+ + \lambda^-$
January	1,7	315,7	263,8	73,1
February	3,5	488,9	454,7	111,04
March	11,2	520,8	462,3	144,3
April	19,6	757,03	659,7	199,5
May	21,3	724,8	626,04	224,3
June	23,4	761,6	688,25	259,9
July	26,8	835,64	741,56	258,44
August	27,1	770,1	718	254,36
September	22,2	728,6	658,3	343
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CONCLUSIONS

It was found that systematically as ground electrical conductivity is less negative than positive and negative small ion concentration less than that of positive ions.

Ground observation data we can show different anthropogenic influences that have appeared in the atmosphere(Barnea M.,Ursu P.,1974). Atmospheric electrical parameters

we can also provide data on pollution. Ground data shows that the area is characterized by lower electrical conductivity than unpolluted areas (mountain areas). The explanation can be given in areas polluted by the presence of large numbers of suspensions which lead to the formation of large ions => small ions are formed in large ions => conductivity decreases. All areas with higher pollution carries an electric field intensity higher than in unpolluted areas (i = A * E = constant).

Electrical conductivity in the year of observation is lower in winter and higher in summer, with intermediate values in spring and autumn equinox.

Diurnal variation of parameters (conductivity) Electric is not around 0 but around an average.

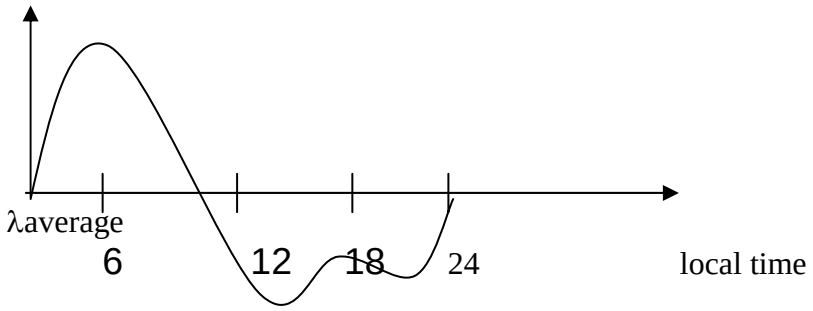

Fig.1 Graph of k daily behavior.

Comparison of k the behavior typical of other continental stations allows us to conclude that in addition to global influences on local conductivity is a factor in determining an overlapping influence of factors influence global time(Tromp S.W.,1963,)This local factor actually print the general trend of diurnal variation (because it represented according to local time).

Generally the atmosphere is much quieter at night than day because of lower temperatures which means that the number of intermolecular collisions is less than =:> thermal agitation is lower =:> increase the small ions and large ions concentration decreases => increase electrical conductivity of the atmosphere.

According to specialists between ions in the atmosphere and the health of the population there is a correlation.

It was shown that clean air and thus the climate is largely determined by the proportion of negative ions, which exert a beneficial effect on various organs, causing also a good and steady state, a mental euphoria. Instead, positive ions are significantly unfavorable. This explains why before a storm, the proportion of atmospheric positive ions is very high, many people with normal health feel bad, nervous. (Popescu, T.C., Popescu, D. et. al. ,1992,) In patients with angina pectoris, asthmatics are worse disorders. They disappear after the storm, the occurrence of negative ions, produced by lightning occurred between the earth and clouds. Disorders caused by the wind are due also high proportions of positive ions transported by air. The accumulation, over vast industrial agglomerations, smoke, gas pollutants, (Barnea M.,Ursu P.,1974) cause also a decrease of negative ions and a multiplication of positive ions. * Inside the buildings, structural steel, heating and air conditioning appliances destroy negative ions. Weakness, fatigue, boredom, headaches experienced by people staying in rooms poorly ventilated(Borota D.,Buzasiu O.,2000), not only due to lack of oxygen, but also by increasing the positive ions, eliminated by breathing. Scientists have found that the animals: guinea pigs, rabbits, dogs, pigeons, place in an atmosphere totally devoid of negative ions - the other maintaining normal biological conditions - die in less than 8 o'clock(Zapartan M.,Buzasiu O.,2002,). Therefore, negative

ions exert a beneficial effect on body and psyche induction mental euphoria. Experiences have proved that negative ions regulates the functioning of the central and autonomic nervous system, and endocrine system, which we normalize. (Popescu, D.et al.,1993,)

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