Manifestation of gas-dust streams from double stars on lunar seismicity.

Oleg B. Khavroshkin , Vladislav V. Tsyplakov,
Schmidt United Institute of Physics of the Earth,
RAS Moscow, Russia, e-mail: khavole@uipe-ras.scgis.ru

Information content of the Nakamura`s Catalog of moonquakes is very rich: from solar-earth tides to clustering among the meteoroid streams [1,2]. The histograms from meteoroid impacts seismic data revealed the seismic wave responses of the Moon to solar oscillations and the action on the lunar surface by dust-gas plasma of meteoroid streams [3]. The time series of seismic events were generated as follows: on an axis of ordinates the peak amplitudes of events in standard units, on an abscissa seismogram durations of the same moonquakes and subsequent time intervals between them were put aside [4]. Spectrum of the series of meteoroid streams disclosed time picks on orbital periods some planets and their satellites and solar oscillations [4,5]. The research of peculiarities of histogram envelopes [3] and comparative common analysis solar bursts data and mass meteoroid distribution are confirmed [3,4] and revealed Forbush`s effect for gas-dust plasma [6]. Hidden astrophysical periodicities of lunar seismicity were obtained early from an analysis of time series [7] which were similarity to series [4]. The pat of results of [7] is presented in Table.

Table

Characteristic of binary stars systems and picked out periods of lunar seismicity.

N Tabl 1	lunar periods, day	Name of system	Half period /period day	Masses of component solar unit.		distans parsec	Gravitation radiation. Gd/s
4	6.7	V380 Cyg	6.21	13.3	7.6	4168	10^{21}
		CV Vel	T=6.89	6.0	6.0	1047	
5	4.8	V356 Sgr	4.45	12.3	4.7	3090	10^{21}
6	3.5	CV Vel	3.44	6.0	6.0	1047	$2*10^{21}$
		h Aql	3.58			100	
7	2.25	UW Cma	2.20	43.5	32.5	8912	$5*10^{24}$
8	2.03	AG Per	T=2.029	4.5	4.5	660	
		α Vir	2.007	10.3	6.4	257	$3*10^{22}$
9	1.33	V906 Sco	1.393	3.5	2.8	251	
10	0.966	G Aql	0.975	6.8	5.4	549	$2*10^{23}$
11	0.666	Y Aql	0.651	7.5	6.9	275	$5*10^{23}$
12	0.543	IM Mon	0.595	8.4	5.6	724	$1*10^{24}$
14	0.323	VV U.Ma	0.343	2.1	0.5	512	$1*10^{22}$
		YY Eri	T=0.321	0.76	0.5	42	$1*10^{22}$
16	0.265	i Boo	0.268	1.35	0.68	12	$1*10^{23}$
20	0.160	SW Lac	0.160	0.97	0.82	74	$1*10^{23}$
21	0.142	j U.Mi	T=0.143			>100	
28	0.0751	j. U.Mi	0.0715				
29	0.0559	WZ Sge	T=0.0559	0.08	0.6	100	
34	0.0285	WZ Sge	0.0280	0.08	0.6	100	$4*10^{22}$

First hypothesis for explanation of Table is an existing gas-dust streams from binary stars near systems solar system and interacted on with lunar surface; second is it correlation to the gravitation radiation from the same stars. We think that first hypothesis is more real.

References.

1. Sadeh D. Possible siderial period for the seismic lunar activity. "Nature" .240,p.139,nov.17,1972
2. *Oberst J. and Nakamura Y.* A Search for Clustering among the Meteoroid Impacts Detected by the Apollo Lunar Seismic Network, ICARUS, Vol. 91, 315-325, 1991 Balazin M. and Zetzsche A., PHYS.STAT.SOL., Vol.2, ,1962 1670-1674
3. Khavroshkin O.B. and Tsyplakov V.V. Meteoroid stream impacts on the Moon: Information of duration of the seismograms. Proceedings of the Conference METEOROID 2001, Swedish Institute of Space Physics, Kiruna, Sweden, 6-10 August 2001
4.Khavroshkin O.B. and Tsyplakov V.V., Temporal Structure of Meteoroid Streams and Lunar Seismicity according to Nakamura's Catalogue Proceedings of the Conference METEOROID 2001, Swedish Institute of Space Physics, Kiruna, Sweden, 6-10 August 2001
5. Хаврошкин О.Б., Цыплаков В.В. Экзогенная сейсмичность Луны: поиск и изучение космогонической составляющей. Вестник отделения наук о Земле РАН.Электронный научно-информационный журнал №4 (21) 2003.
6.Хаврошкин О.Б., Цыплаков В.В. Особенности огибающих гистограмм длительностей импактных лунных сейсмограмм. Очерки геофизических исследований. М., ОИФЗ РАН, 2003, 471с.
7 O.B.Khavroshkin, V.V.Tsyplakov., Hidden astrophysical periodicities of lunar seismisity. Herald of the DGGGMS RAS Electronic Scientific Information Jornal №4(14)` 2000