



# 100 Explosions on the Moon

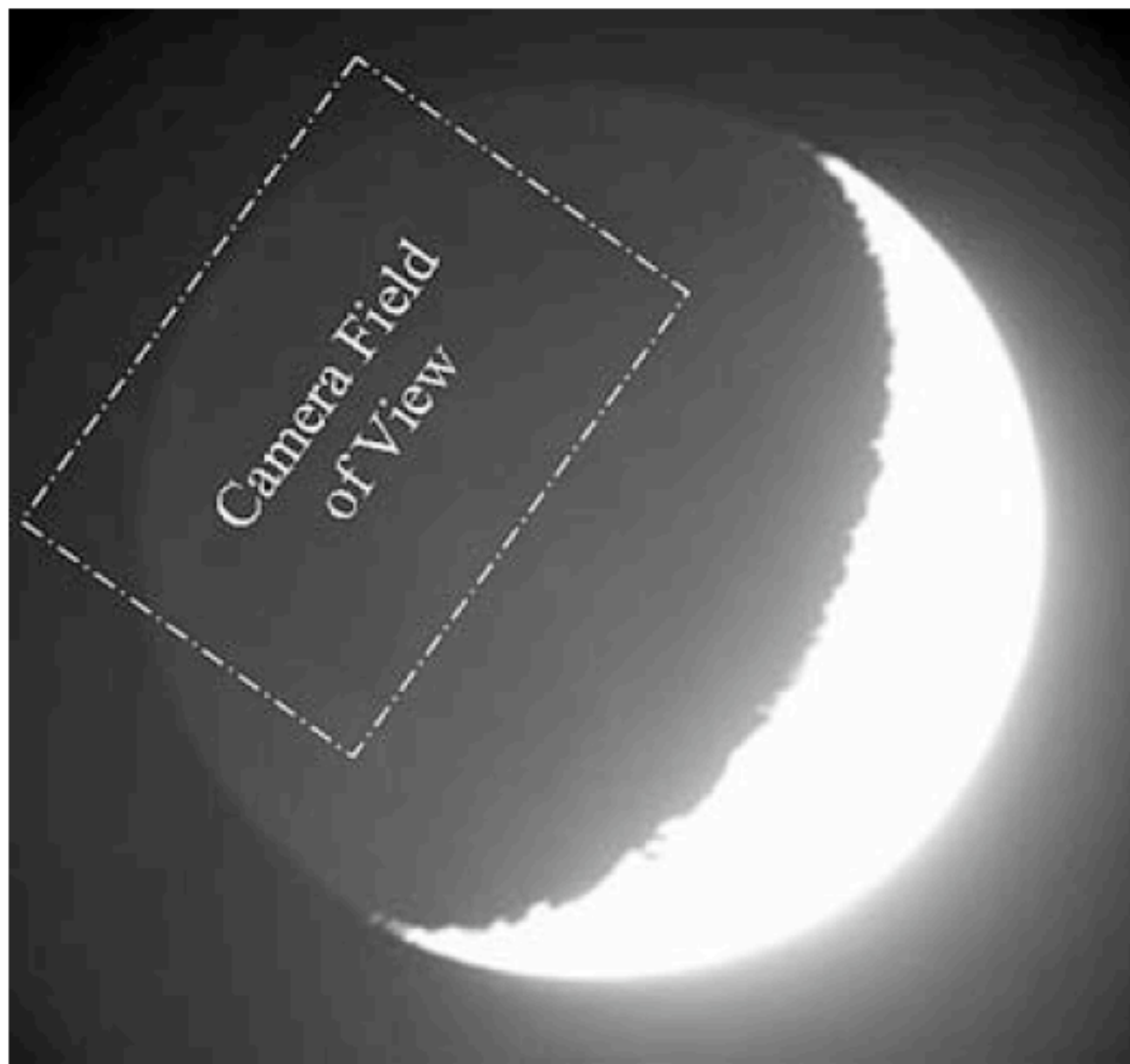
## Reference:

1. [http://science.nasa.gov/headlines/y2008/21may\\_100explosions.htm](http://science.nasa.gov/headlines/y2008/21may_100explosions.htm)
2. Suggs, R.M. et al., 2008, Earth Moon Planet, 102, 293-298
3. Cooke, W. J. et al., 2007, Lunar and Planetary Science, 1388, 1986

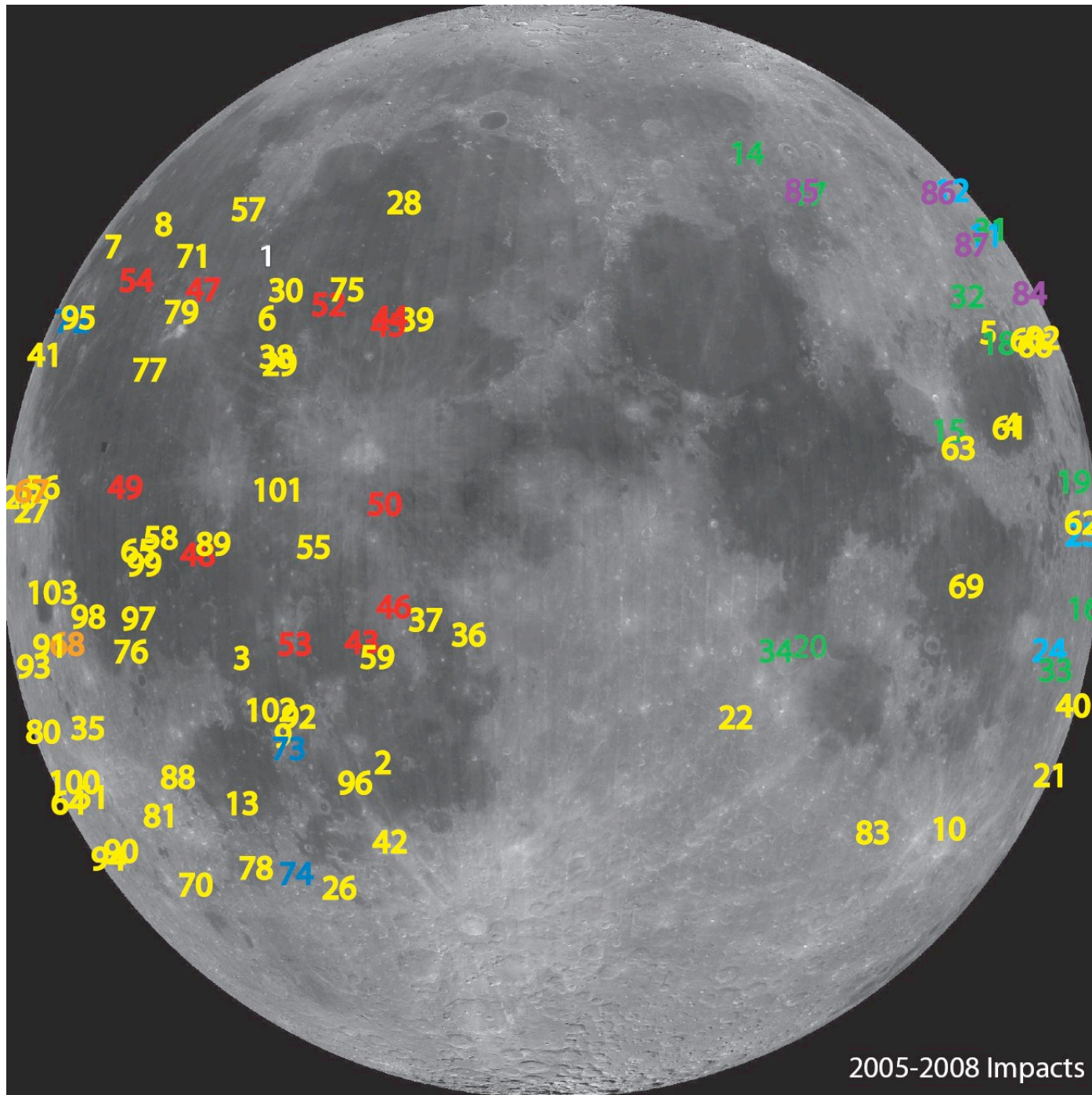
Yeh, Lun-Wen  
2008.6.19

- Video observation of the Moon during the Leonid storm in 1999 confirmed that lunar meteoroid impacts are observable from the Earth.
- NASA's *Meteoroid Environment Office* and the Marshall Space Flight Center's *Space Environments Team* start observing the lunar impact from 2005 until now.
- 10'' and 14'' ground-based telescopes.

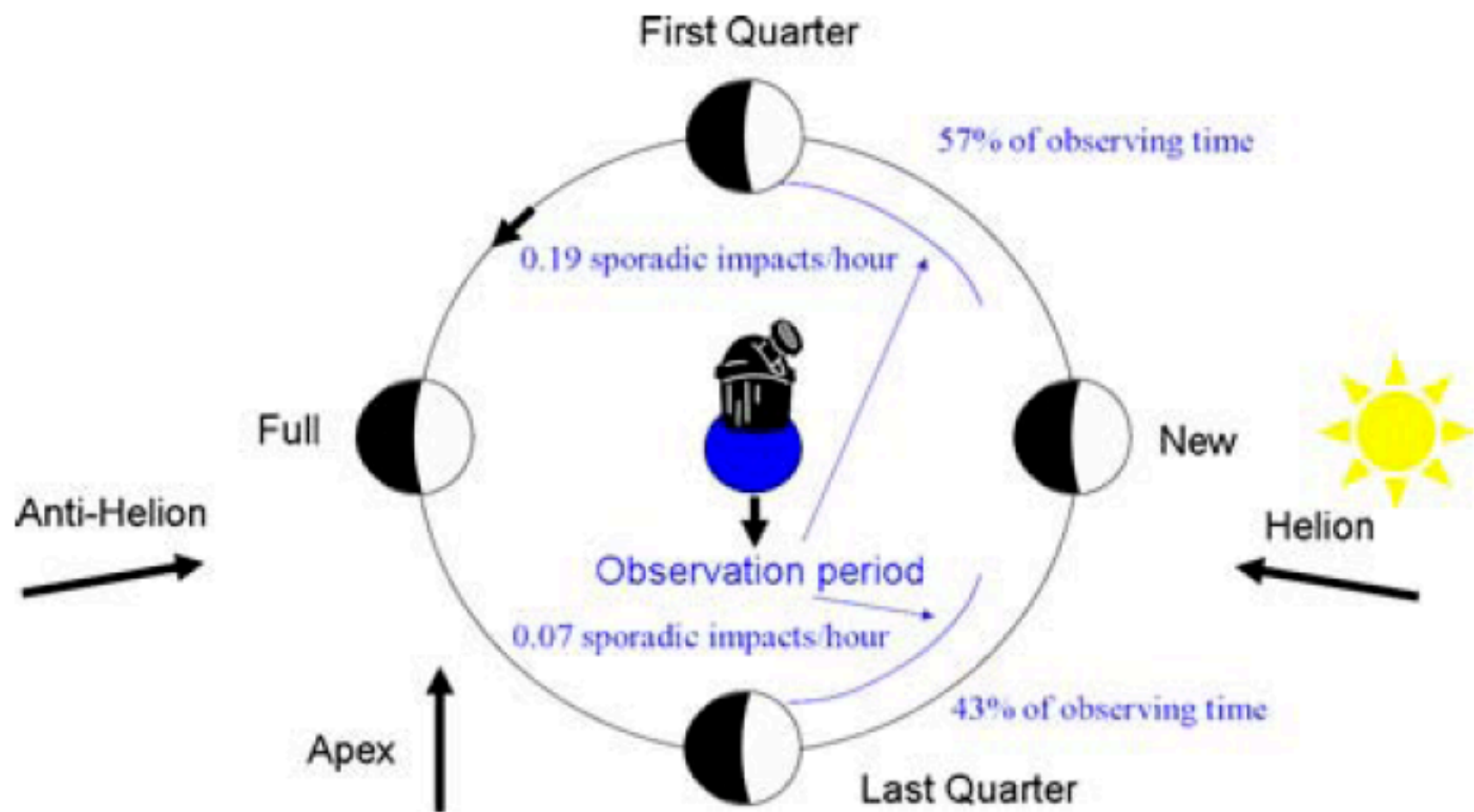
The limiting stellar magnitude at the 1/30 s frame rate is approximately 12.



#	UT Date	UT Time	Video Frames (1/30 s)	Approx. Magnitude	Probable Type	Telescopes
1	07 Nov 05	23:41:52	5	7.3	Taurid	10"
2	02 May 06	02:34:40	14	6.9	Sporadic	10"
3	04 June 06	04:48:35	1.5	7.9	Sporadic	10"
4	21 June 06	08:57:17	2.5	8.3	Sporadic	10" & 14"
5	19 July 06	10:14:44	2	8.4	Sporadic	10" & 14"
6	03 Aug 06	01:43:19	3.5	6.7	Sporadic	14"
7	03 Aug 06	01:46:11	1.5	9.1	Sporadic	14"
8	04 Aug 06	02:24:57	2	7.1	Sporadic	10" & 14"
9	04 Aug 06	02:50:14	2	8.9	Sporadic	10" & 14"
10	16 Sep 06	09:52:53	1	8.7	Sporadic	two 14"
13	30 Oct 06	00:24:27	1.5	7.6	Sporadic	two 14"
12	17 Nov 06	10:46:27	1	9.4	Leonid	two 14"
11	17 Nov 06	10:56:34	1	8.2	Leonid	two 14"
14	14 Dec 06	08:12:40	1	9.4	Geminid	two 14"
15	14 Dec 06	08:50:36	1	8.5	Geminid	two 14"
16	14 Dec 06	08:56:43	0.5	8.6	Geminid	two 14"
17	14 Dec 06	09:00:22	1	8.5	Satellite?	two 14"
18	14 Dec 06	09:03:33	0.5	10	Geminid	two 14"
19	14 Dec 06	10:56:42	1	8.7	Geminid	two 14"
20	14 Dec 06	11:28:08	2.5	7.5	Geminid	two 14"

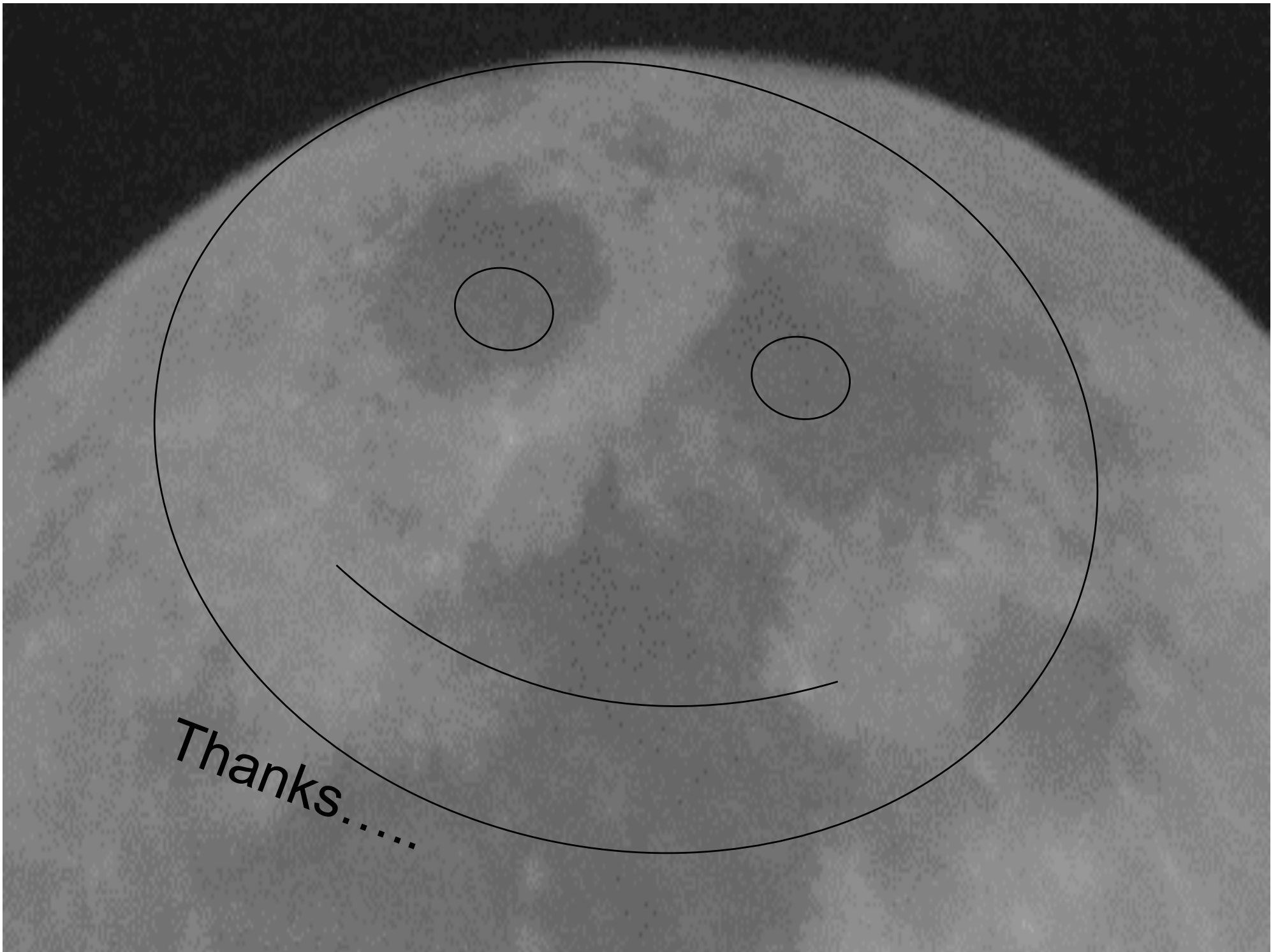


2005-2008 Impacts



# Main purposes of lunar impact observation

- From observations, theoretical models and laboratory experiments → the fraction of the initial kinetic energy converted into radiation, mass flux, particle sizes and particle velocities,...etc.
- Study the secondary particles.



Thanks.....