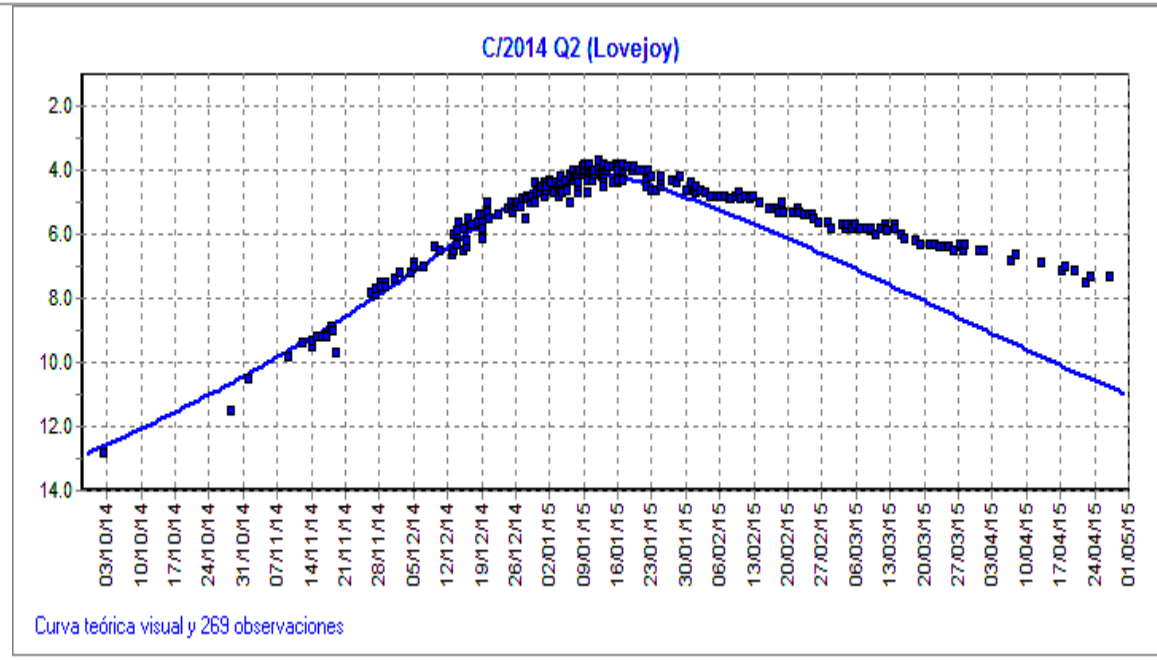
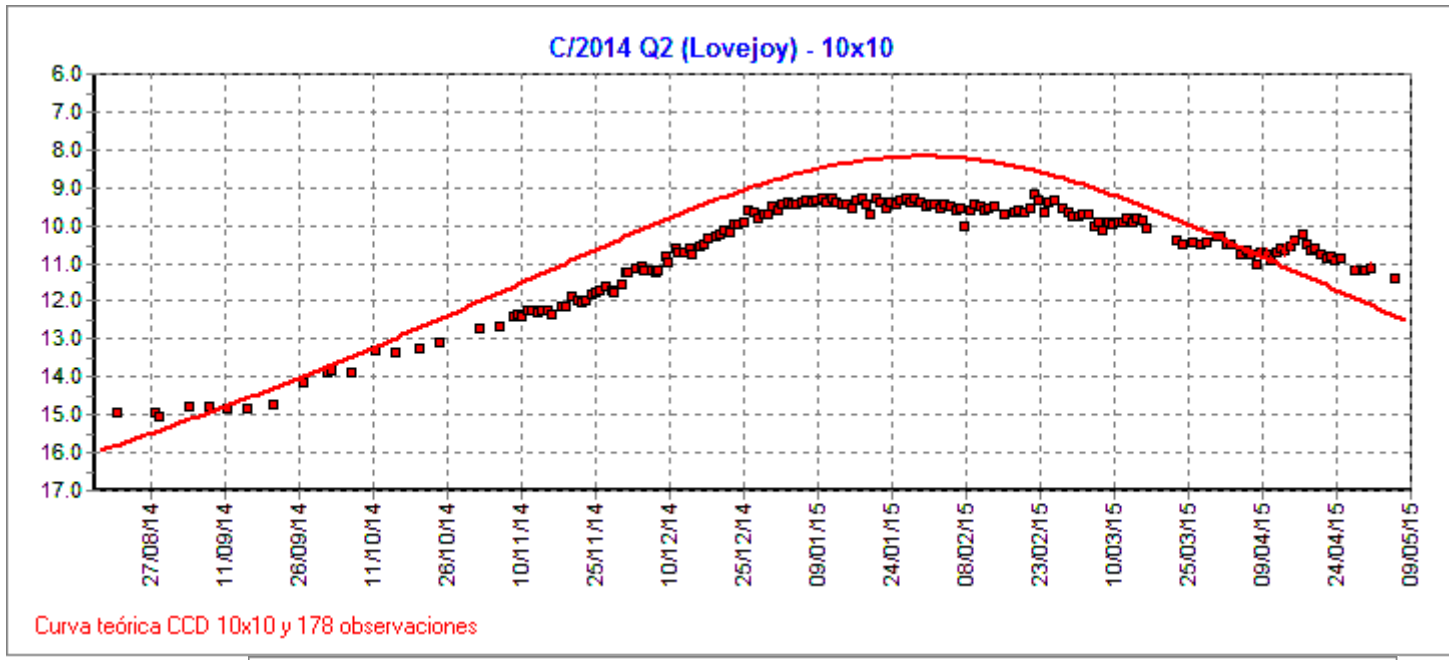


# Visual like m1 values from CCD measurements

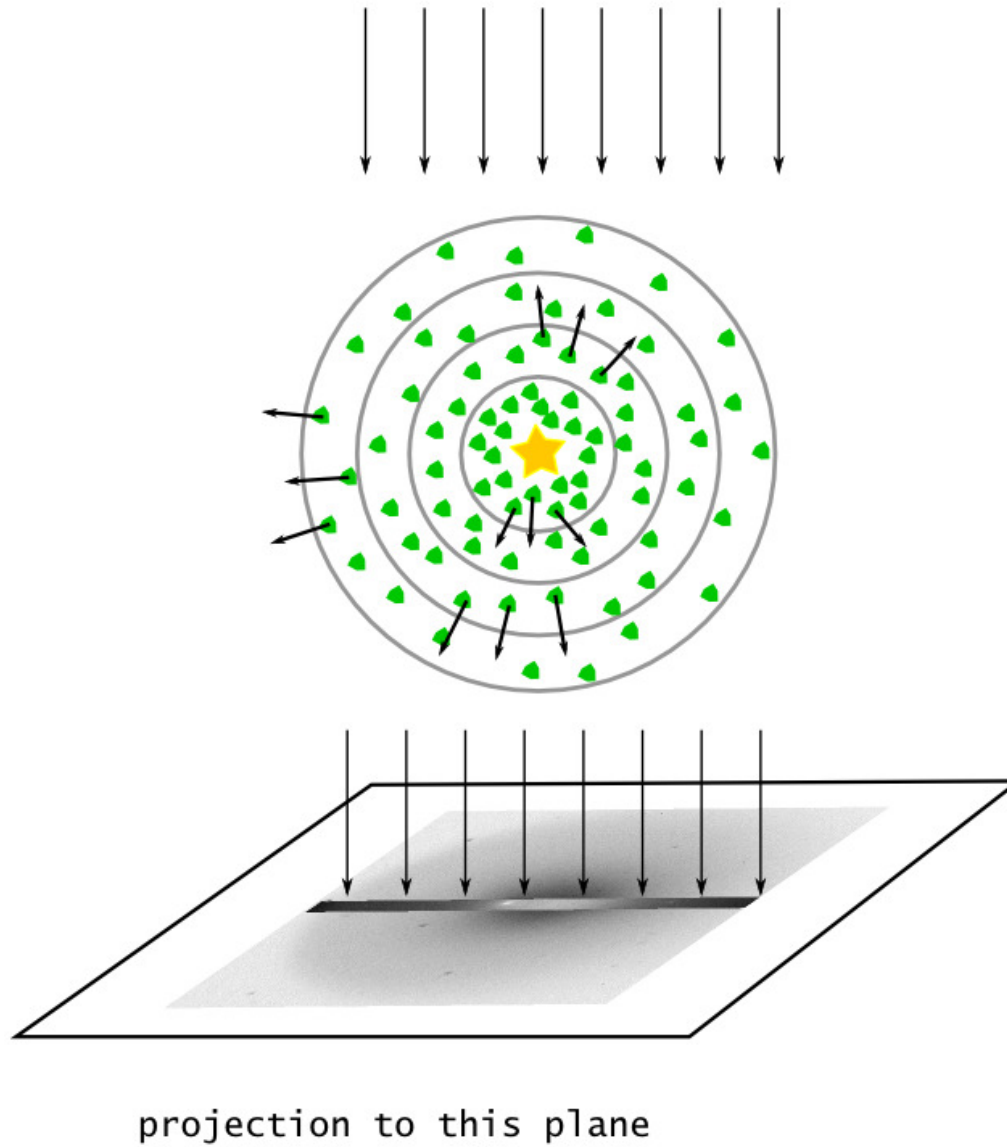
Uwe Pilz, Leipzig, Germany

[piu58@gmx.de](mailto:piu58@gmx.de)



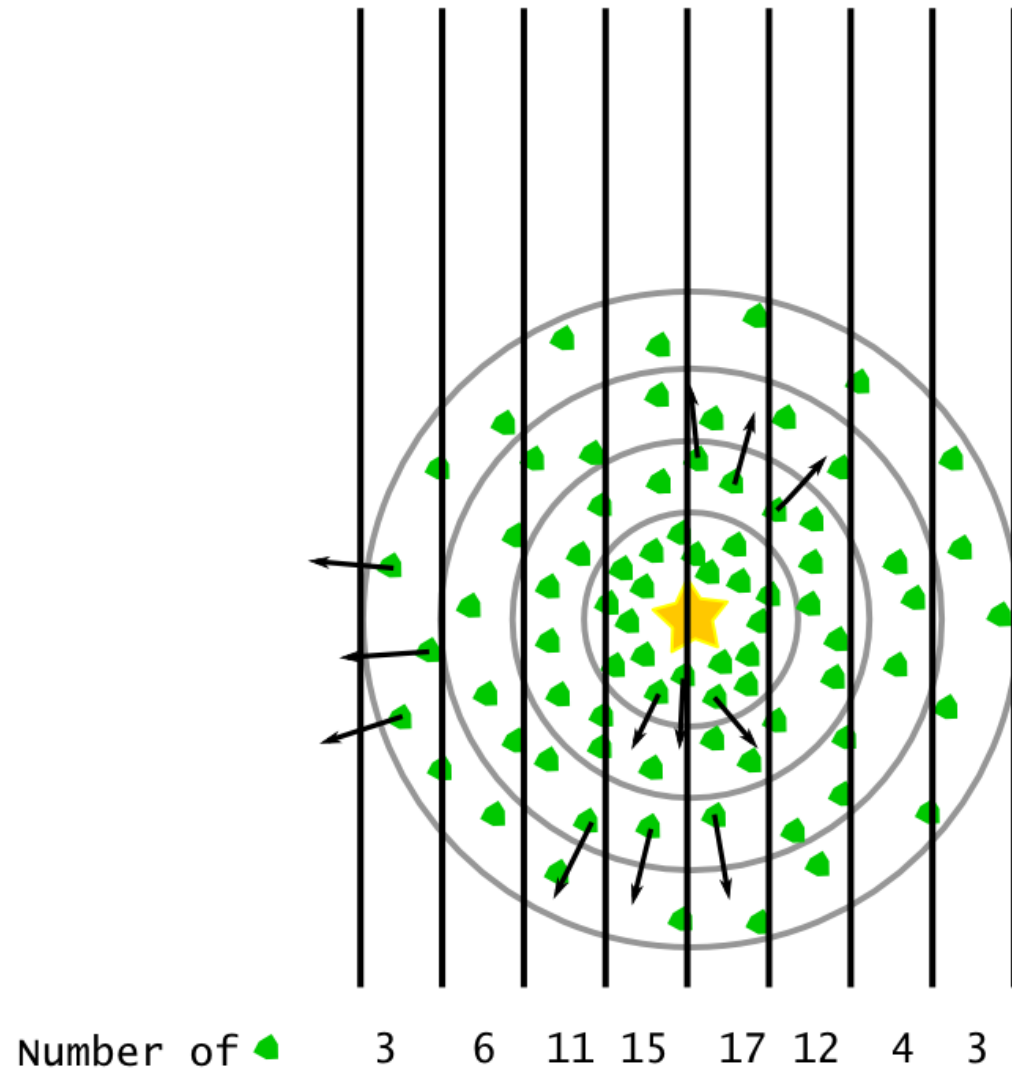
Electronic derived m1 values are too low at large comets (charts from cometas obs)

Look from here

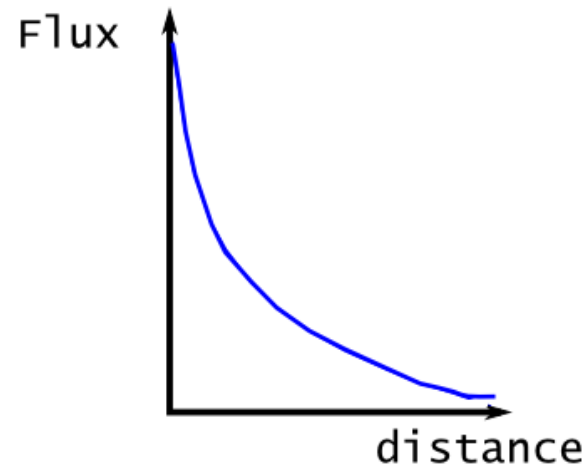
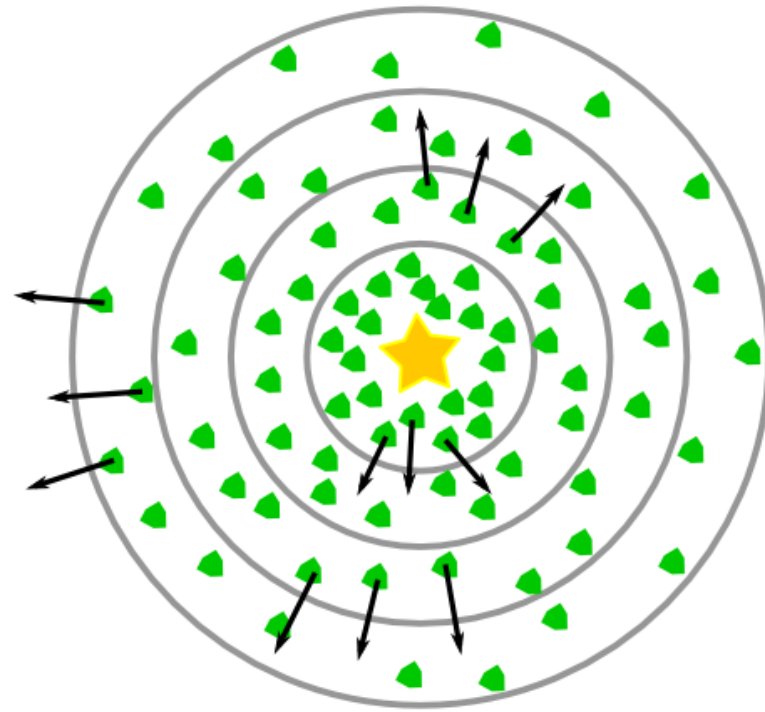


In each shell of the coma we find the same amount of particles.

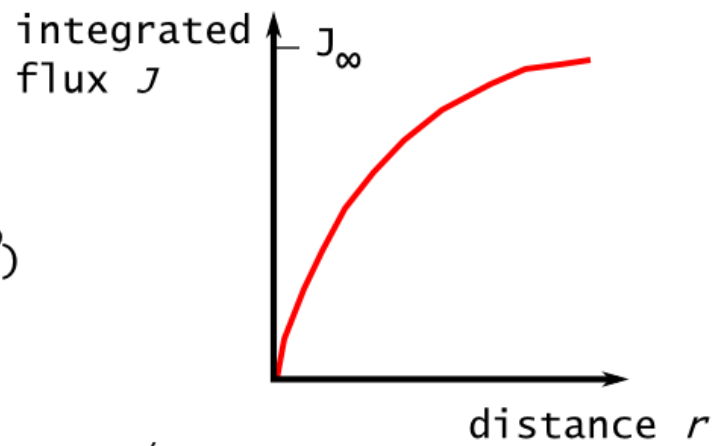
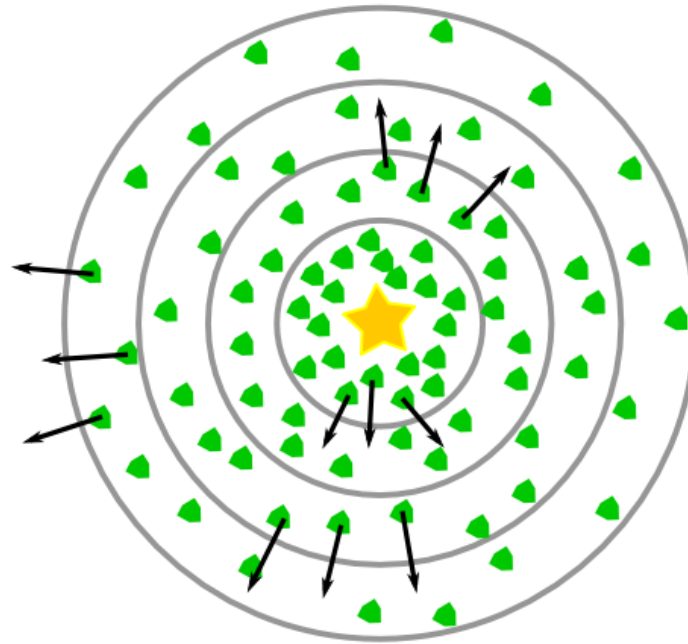
Look from here



The projected particle density diminishes with distance from the core.



The flux reaches zero not before infinity.

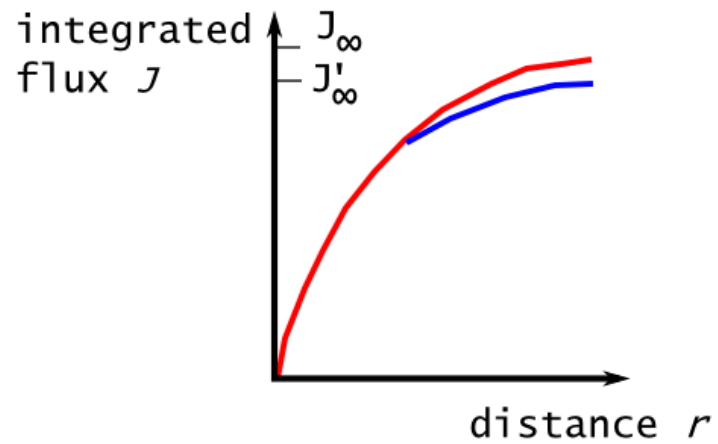
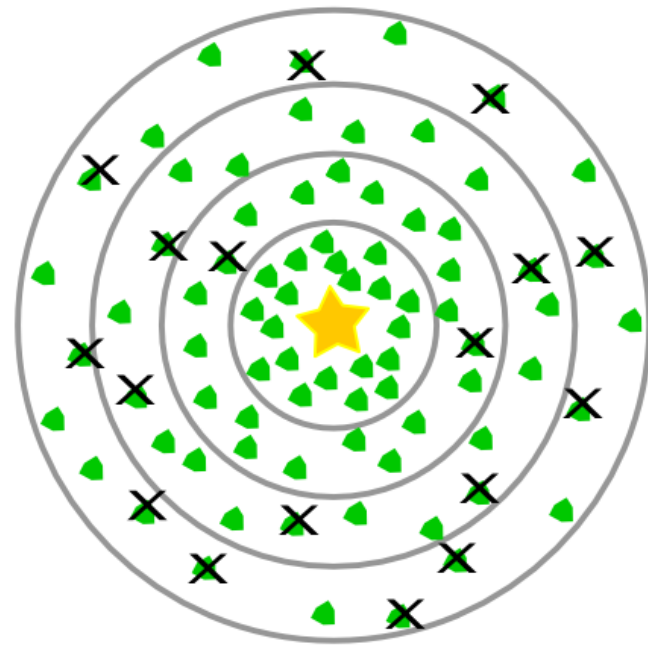


$$J = J_{\infty} (1 - e^{-r/\rho})$$

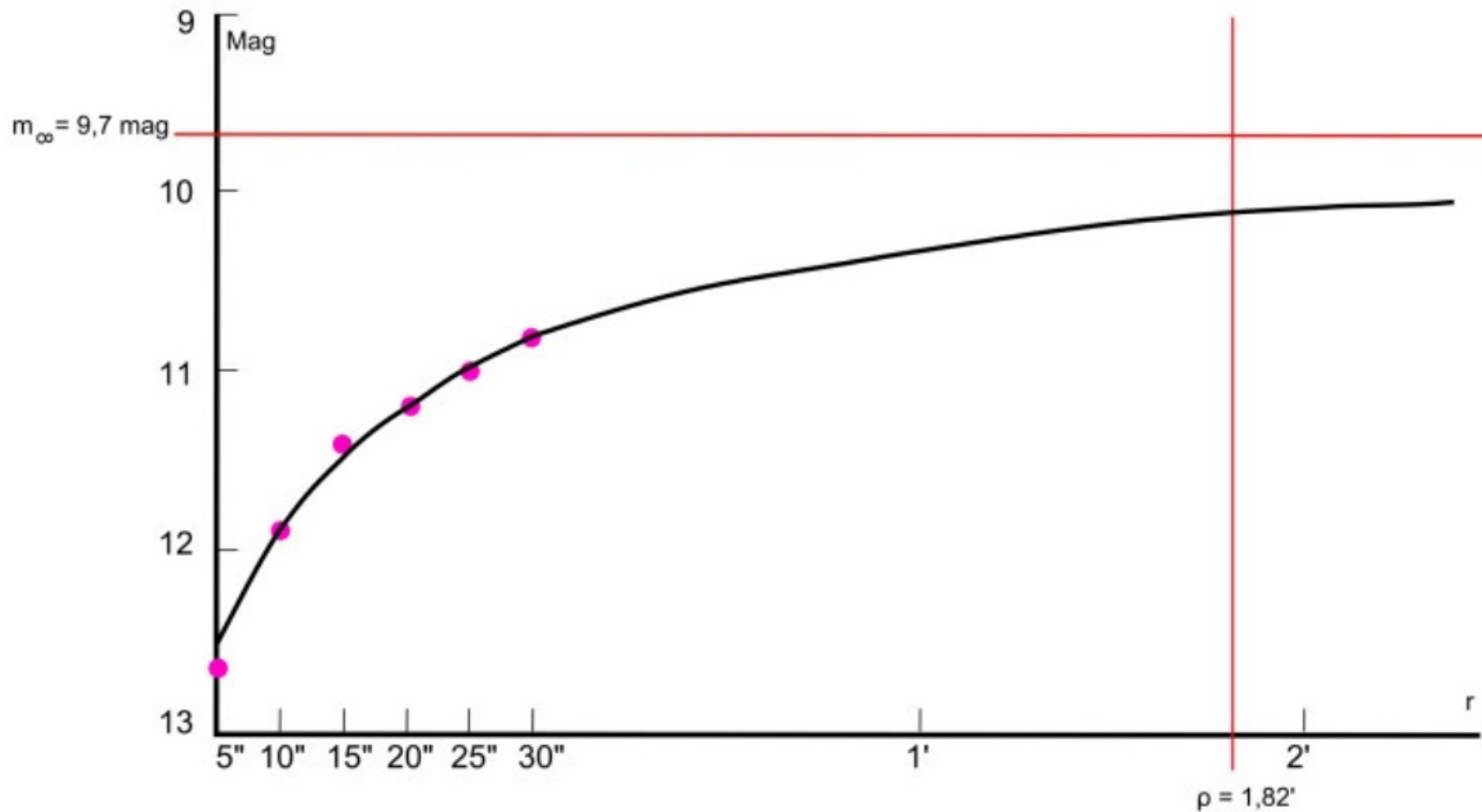
leads to

$$m = m_{\infty} - 2.5 \log(1 - e^{-r/\rho})$$

The integrated flux converges to a limiting value, which can be described with an exponential function.

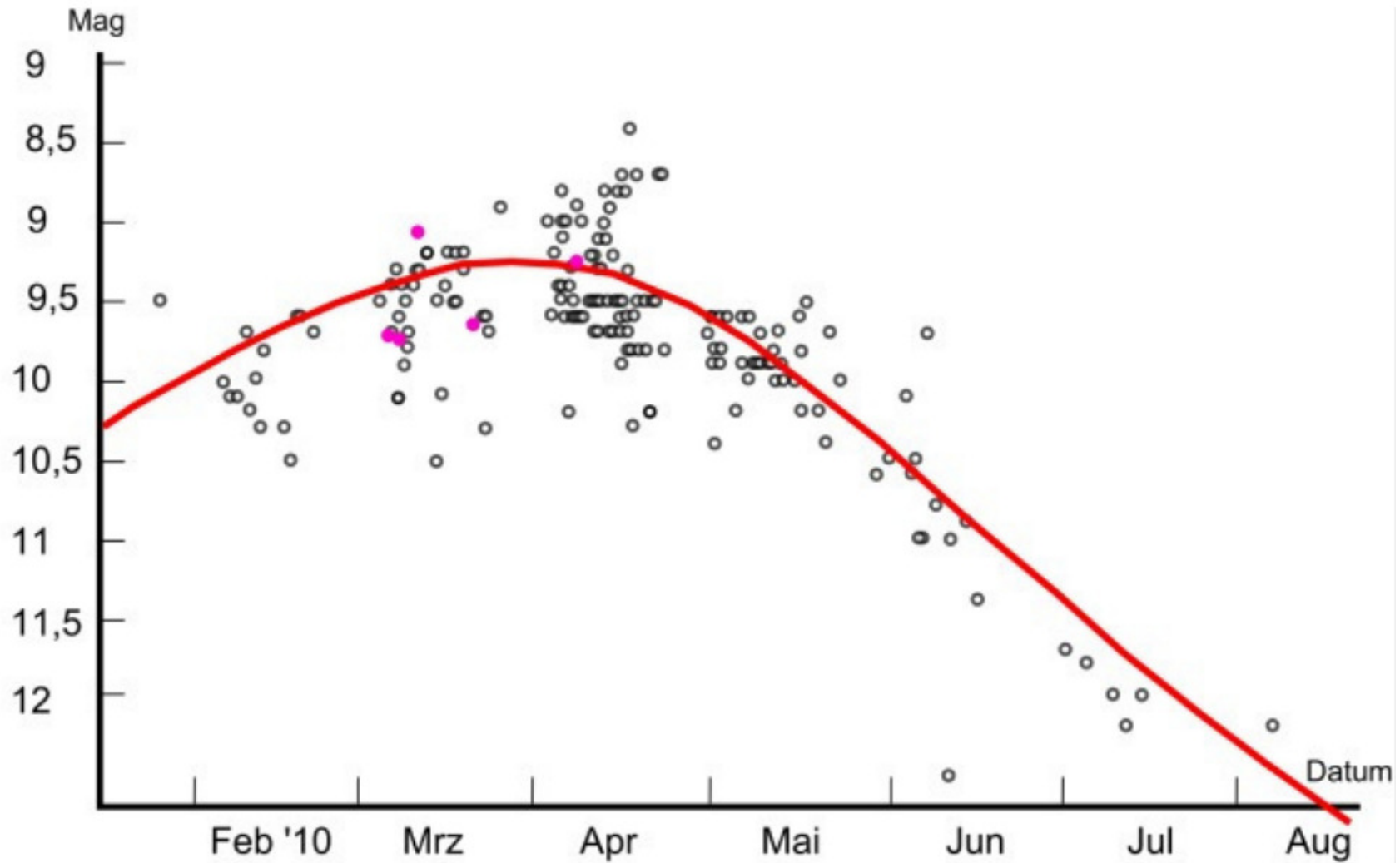


In reality particles get lost / will be destroyed oder moved far away.



The limiting magnitude  $m_\infty$  and the characteristic radius  $\rho$  can be calculated with curve fitting (least squares method)





Such derived values are conform with visual results in most cases. Example: 81P/Wild, 2010.



COD B82

OBS Bernhard Haeusler

CATALOG: USNO A2.0 / CMC-14 - BAND: R

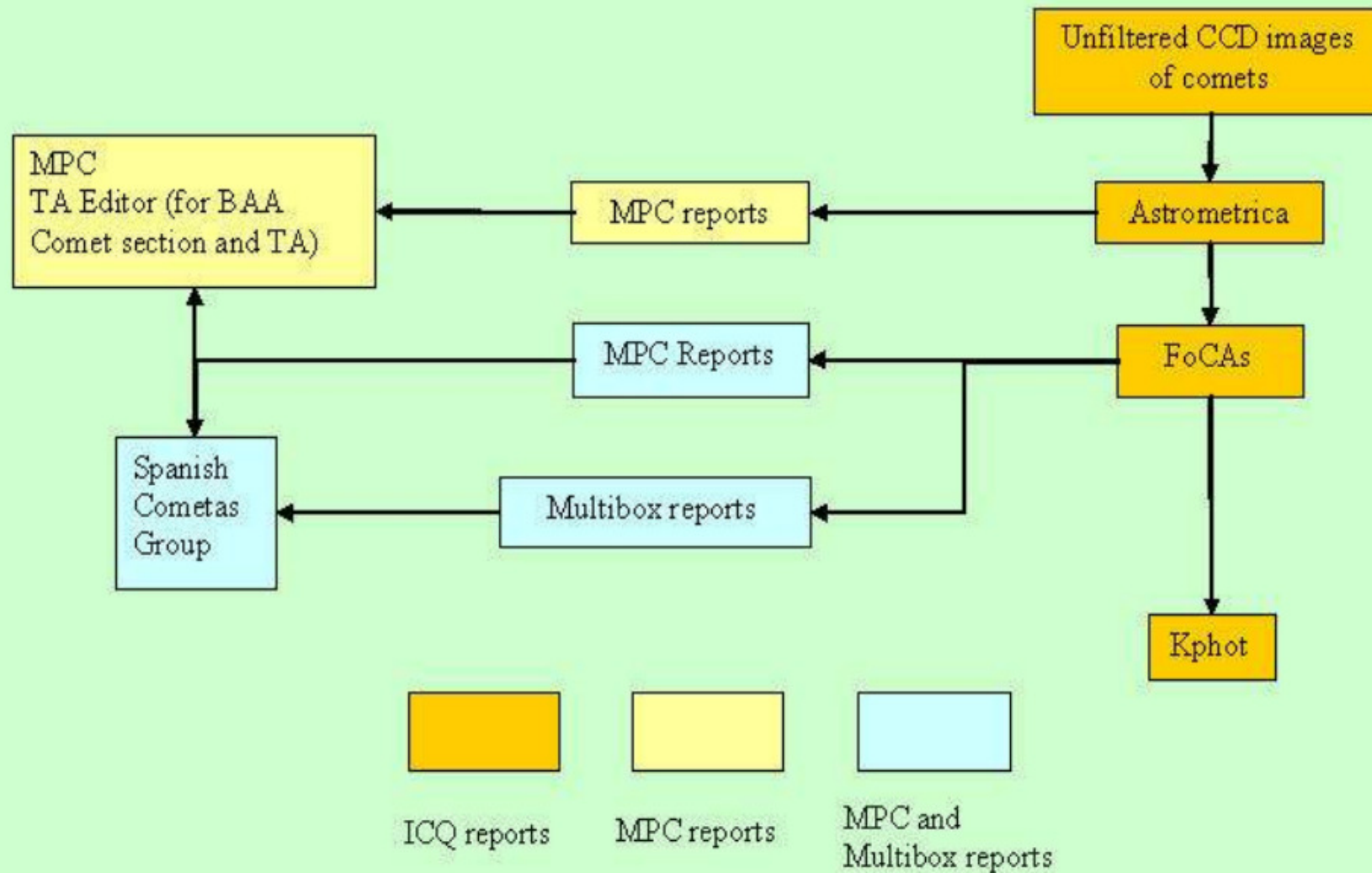
OBJECT	DATE	TIME	10x10 +/-	20x20 +/-	30x30 +/-	40x40 +/-	50x50 +/-	60x60 +/-	SNR N	SB FWHM	COD CAT
C/2012 K5	10/09/2012	19:18:34	14.37	13.72	13.43	13.24	13.10	12.99	28.9	19.1	B82
C/2012 K5	10/09/2012	19:18:34*	0.00	0.01	0.00	0.02	0.04	0.04	4	3.4	CMC
262P	09/09/2012	21:10:24	18.33	17.94	18.03				5.5	19.3	B82
262P	09/09/2012	21:10:24*	0.02	0.42	0.42				3	3.8	CMC
C/2010 S1	09/09/2012	22:48:11	15.13	14.44	14.19	14.06	13.99	13.95	31.5	20.2	B82
C/2010 S1	09/09/2012	22:48:11*	0.00	0.00	0.01	0.01	0.01	0.01	4	3.7	USN
C/2010 S1	10/09/2012	01:08:42	15.14	14.46	14.21	14.08	14.02	13.98	34.0	19.8	B82
C/2010 S1	10/09/2012	01:08:42*	0.00	0.01	0.01	0.01	0.01	0.01	3	3.6	USN
C/2012 K5	09/09/2012	20:17:51	14.29	13.67	13.38	13.18	13.04	12.95	27.1	19.0	B82
C/2012 K5	09/09/2012	20:17:51*	0.00	0.01	0.01	0.01	0.02	0.04	3	4.7	CMC

kphot reads FoCas files ...

2012K5	2012	09	10.80	Z	12.7	MC	30.5T	6	01.31	HAE	Afp=421cm	
262		2012	09	09.88	Z	17.9	MC	30.5T	6	00.27	HAE	Afp=6cm
2010S1	2012	09	09.95	Z	13.9	MC	30.5T	6	00.76	HAE	Afp=8433cm	
2010S1	2012	09	10.05	Z	13.9	MC	30.5T	6	00.76	HAE	Afp=8344cm	
2012K5	2012	09	09.85	Z	12.8	MC	30.5T	6	01.19	HAE	Afp=460cm	

... and writes ICQ lines

## BAA Comet section CCD process overview – Part 1



There exist a collaboration with the BAA comet section (Roger Dymock)