

COMET C/2012 X1 (LINEAR)

Electronic Telegram No. 3340

Central Bureau for Astronomical Telegrams

INTERNATIONAL ASTRONOMICAL UNION

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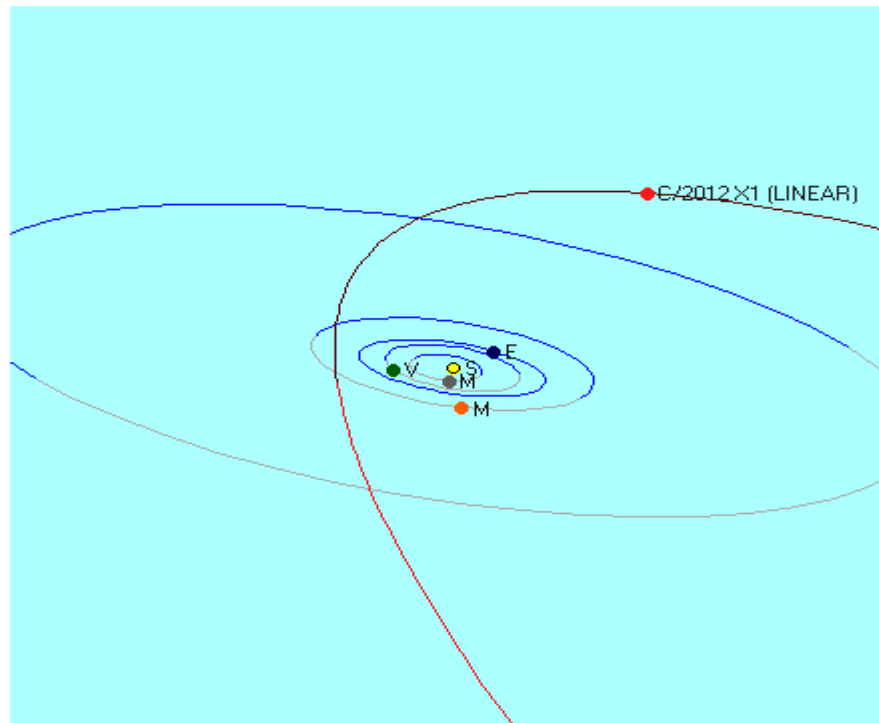
e-mail: cbatiau@eps.harvard.edu (alternate cbat@iau.org)

URL <http://www.cbat.eps.harvard.edu/index.html>

Prepared using the Tamkin Foundation Computer Network

COMET C/2012 X1 (LINEAR)

An apparently asteroidal object discovered by the LINEAR survey (discovery observations tabulated below), and posted at the Minor Planet Center's NEOCP webpage, has been reported to show cometary appearance by numerous CCD astrometrists elsewhere.



Orbita C/2012 X1

C/2012 X1 (LINEAR)

Epoch 2013 Nov. 4.0 TT = JDT 2456600.5

T 2014 Feb. 21.6336 TT

q	1.598918	(2000.0)	P	Q		
z	+0.006525	Peri.	132.1137	-0.2240115	+0.7324024	T = 2456710.13361 JDT
	+/-0.000002	Node	113.1466	-0.9633267	-0.2663953	q = 1.5989177
e	0.989566	Incl.	44.3672	+0.1477178	-0.6265942	Earth MOID = 0.74886 AU

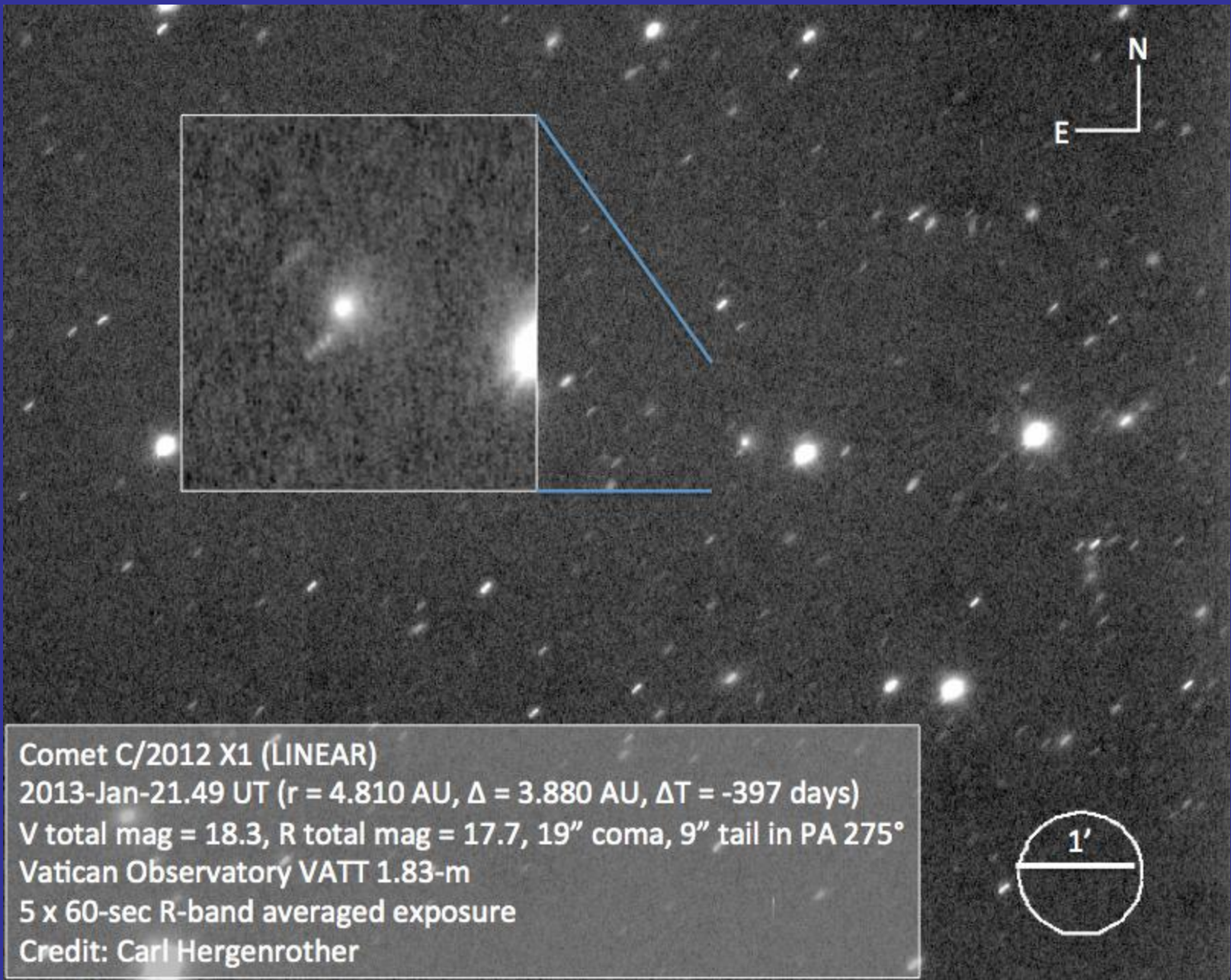
1/a(orig) = +0.006907 AU⁻¹, 1/a(fut) = +0.006348 AU⁻¹.

No residual file available.

Perturbed ephemeris below based on elements from [MPEC 2013-U17](#).

CK12X010

Date	UT	R.A. (J2000)	Decl.	Delta	r	El.	Ph.	m1	Sky Motion	P.A.
	h m s								"/min	
2013 10 25	000000	13 14 31.2	+24 07 27	2.941	2.237	37.6	15.7	13.8	1.50	106.1
2013 10 26	000000	13 17 03.4	+23 57 26	2.928	2.228	37.9	15.9	13.8	1.51	106.1
2013 10 27	000000	13 19 36.3	+23 47 21	2.915	2.220	38.2	16.1	13.8	1.52	106.1



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2013-Jan-21.49 UT ($r = 4.810$ AU, $\Delta = 3.880$ AU, $\Delta T = -397$ days)

V total mag = 18.3, R total mag = 17.7, 19" coma, 9" tail in PA 275°

Vatican Observatory VATT 1.83-m

5 x 60-sec R-band averaged exposure

Credit: Carl Hergenrother

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[Editor's note: this text replaces that on CBET 3674]

Having passed conjunction with the sun in August at elongation < 25 deg, this comet (cf. CBET 3340) had been following a slow, steady brightness increase according to $H_{10} = 8.0$ from discovery until the last astrometry in June (several months ago, when it was around total mag 16.5, according to CCD astrometrists; cf. MPEC 2012-N23). Now pulling slowly away from the sun (elongation 35-40 deg), H. Sato (Tokyo, Japan) has reported an outburst in brightness of this comet from a 60-s CCD exposure taken on Oct. 20.507 UT with a 0.51-m f/6.8 astrograph (+ luminance filter, which is essentially a wide-band clear filter) near Mayhill, NM, U.S.A.; the comet shows a morphology similar to the outburst of comet 17P in 2007, showing a disk-like coma 85" across of total mag 8.5 (as measured within a circular aperture of diameter 85".2) with a brighter center about 10" across. The predicted H_{10} magnitude would be around 14 now.

K. Kadota, Ageo, Japan (0.25-m reflector + CCD) reports a disk-like inner coma of diameter 1'.6 and an outer coma diameter of 5' with total magnitude 8.2 on Oct. 20.82 UT. Kadota has posted his image at website URL <http://members.jcom.home.ne.jp/kenic-k/comet/2012X1-20131020.jpg>.

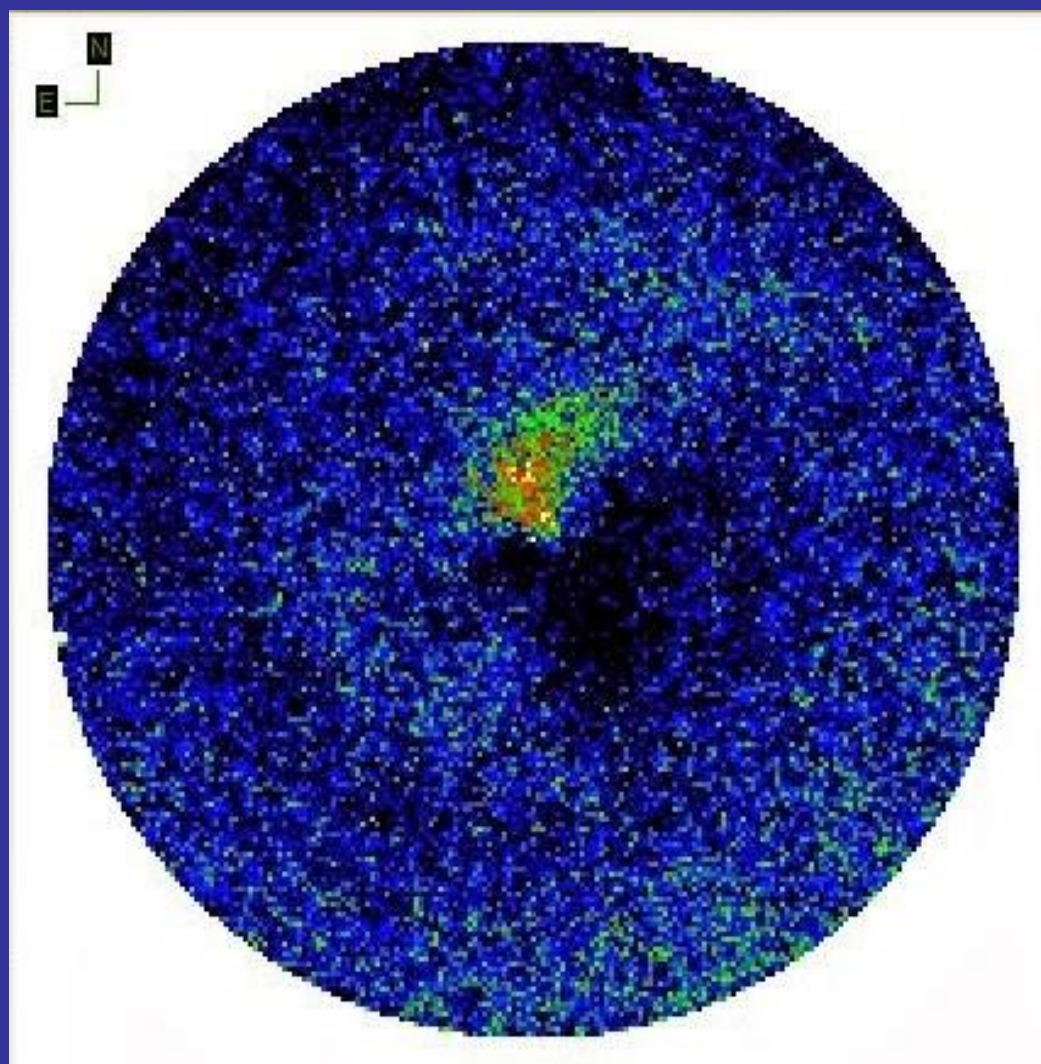
Quanzhi Ye, University of Western Ontario; Xing Gao, No. 1 Senior High School of Urumqi, China; and Man-To Hui, Guangzhou, China, report on their imaging of an expanding coma of the comet, taken with the 0.35-m SASP telescope at Xingming Observatory at Oct 21.96 UT. The unprocessed data show a highly circular coma with a radius measured to be 90"; processing with an azimuthal median model reveals a bright fan extending from p.a. 90 to 225 deg, together with two fainter jet-like structures at p.a. 20 and 80 deg. No features ejection are identified in the anti-sunward direction (p.a. 225 to 360 deg).

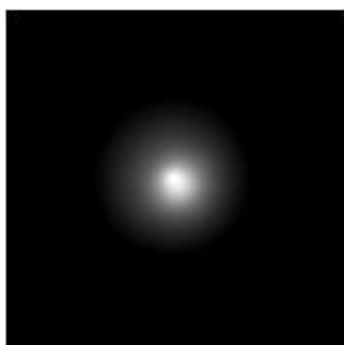
NOTE: These 'Central Bureau Electronic Telegrams' are sometimes superseded by text appearing later in the printed IAU Circulars.



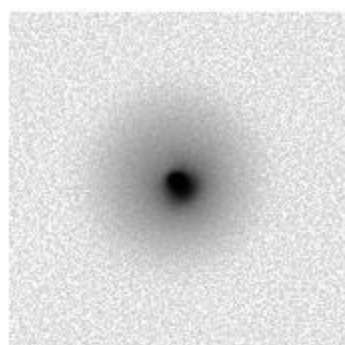
Outburst of Comet C/2012 X1 (LINEAR) 2013, October 21.5
Stacking of 3x20-seconds unfiltered exposures
0.50-m f/6.8 astrograph + CCD + f/4.5 focal reducer
Remotely from MPC code H06 (iTelescope Observatory, New Mexico)
Ernesto Guido, Nick Howes & Martino Nicolini
<http://remanzacco.blogspot.com>



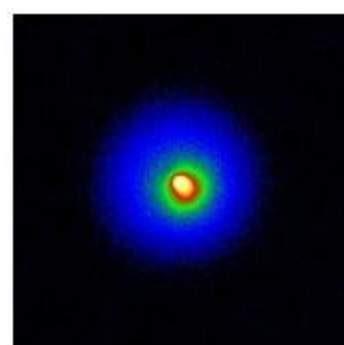




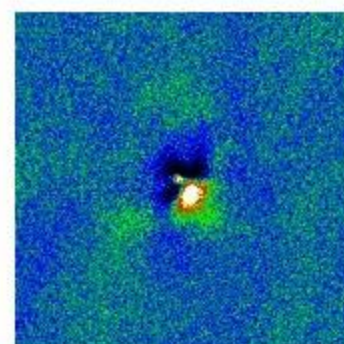
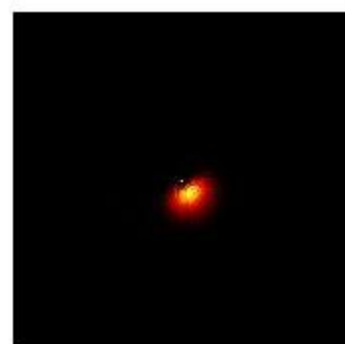
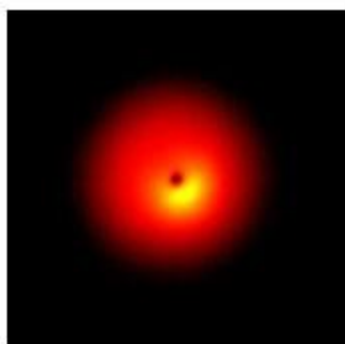
Grayscale palette



Negative palette



False colors palette



1/r theoretical model subtraction Azimuthal Median Subtraction Rotational Gradient Filtering

$\frac{40 \text{ arcsec}}{48,000 \text{ Km}}$

Narrowband interference filter centered @ 450nm (blue dust continuum), FWHM: 10nm

17P/Holmes in outburst

2007, October 25.03

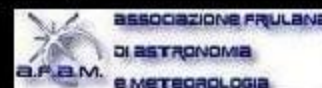
Stacking of 50 exposures, 10 seconds each

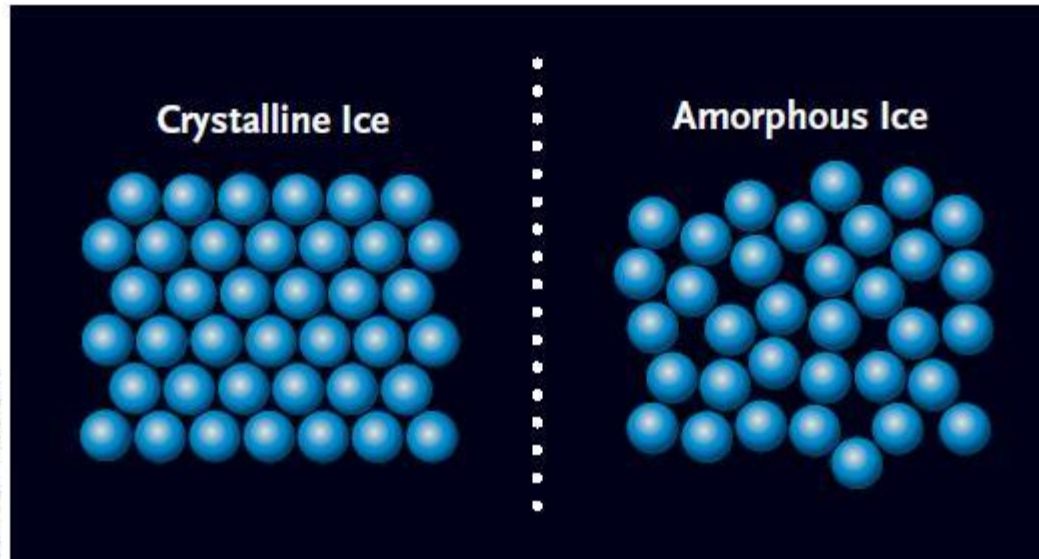
0.25m, f/12 Maksutov + Hi-Sis23ME CCD + Blue Continuum filter

G. Sostero and E. Guido (Remanzacco Observatory, Italy)

<http://www.afamweb.com>

<http://cara.uai.it>



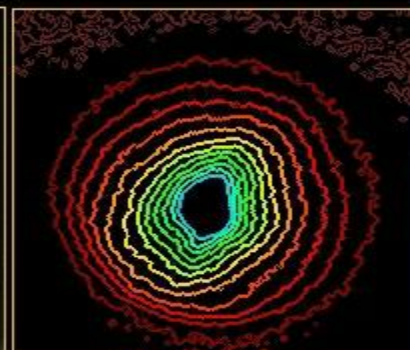


TWO FORMS OF ICE Water ice occurs in two forms. In its more familiar crystalline form (left), the molecules form an orderly, hexagonal arrangement. But in extreme cold, the molecules can be bunched together in a chaotic jumble (right). Various gases can become trapped in the gaps between molecules. When this amorphous ice is heated and spontaneously converts to crystalline form, it can explosively release the trapped gases.

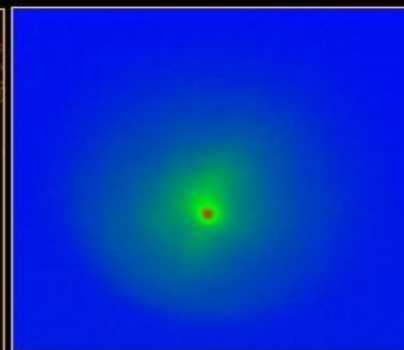
C/2012 X1 (LINEAR)



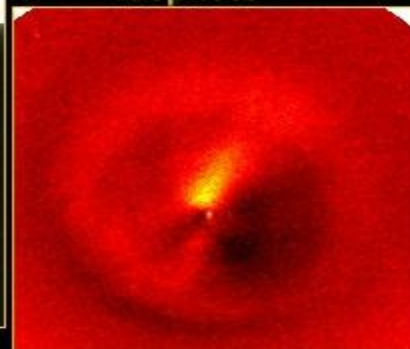
grey - logarithmic stretch



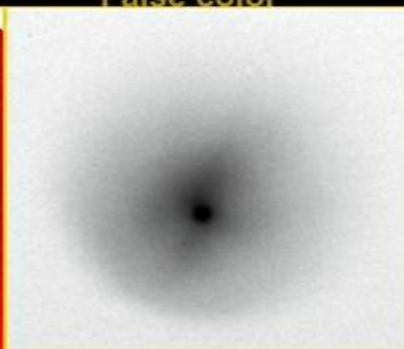
Isophoto



False color



MCM



Negativ

Date: 24 oct.2013 - 4h44 m UT - phase angle:15.63 Delta: 2.9510 AU - r: 2.244
 astrometry: CK12X010 C2013 10 24.18700 13 12 28.11 +24 15 30.8 13.2 N
 Telescope: 0.4-m f/3.8 astrograph AG16 Focal Length: 1514 mm
 R-Bessel filter - exp: 36x60 sec 1x1 binning
 camera: SBIG STL-6303E pixelresolution:1.224"
 Magn: 8.2 @ comadim.3'18"
 photometric data from FOCAS-II:

COMET	UTC	10x10 +/-	20x20 +/-	30x30 +/-	40x40 +/-	50x50 +/-	60x60 +/-	SNR N	SB FWHM	COD CAT
C/2012 X1	24/10/2013 04:46:46	12.52	11.37	10.70	10.21	9.83	9.53	21.7	14.8	B96
C/2012 X1	24/10/2013 04:46:46*	0.42	0.26	0.18	0.14	0.11	0.09	39	3.4	CMC



Radial weighted model

BRIXIIS Observatory - Kruibeke - Belgium - MPC: B96
 location: 4°18.6E - 51°9.8 N // URL: <http://www.astronomie.be/erik.bryssinck/>
 observer: Erik Bryssinck - erik.bryssinck@telenet.be





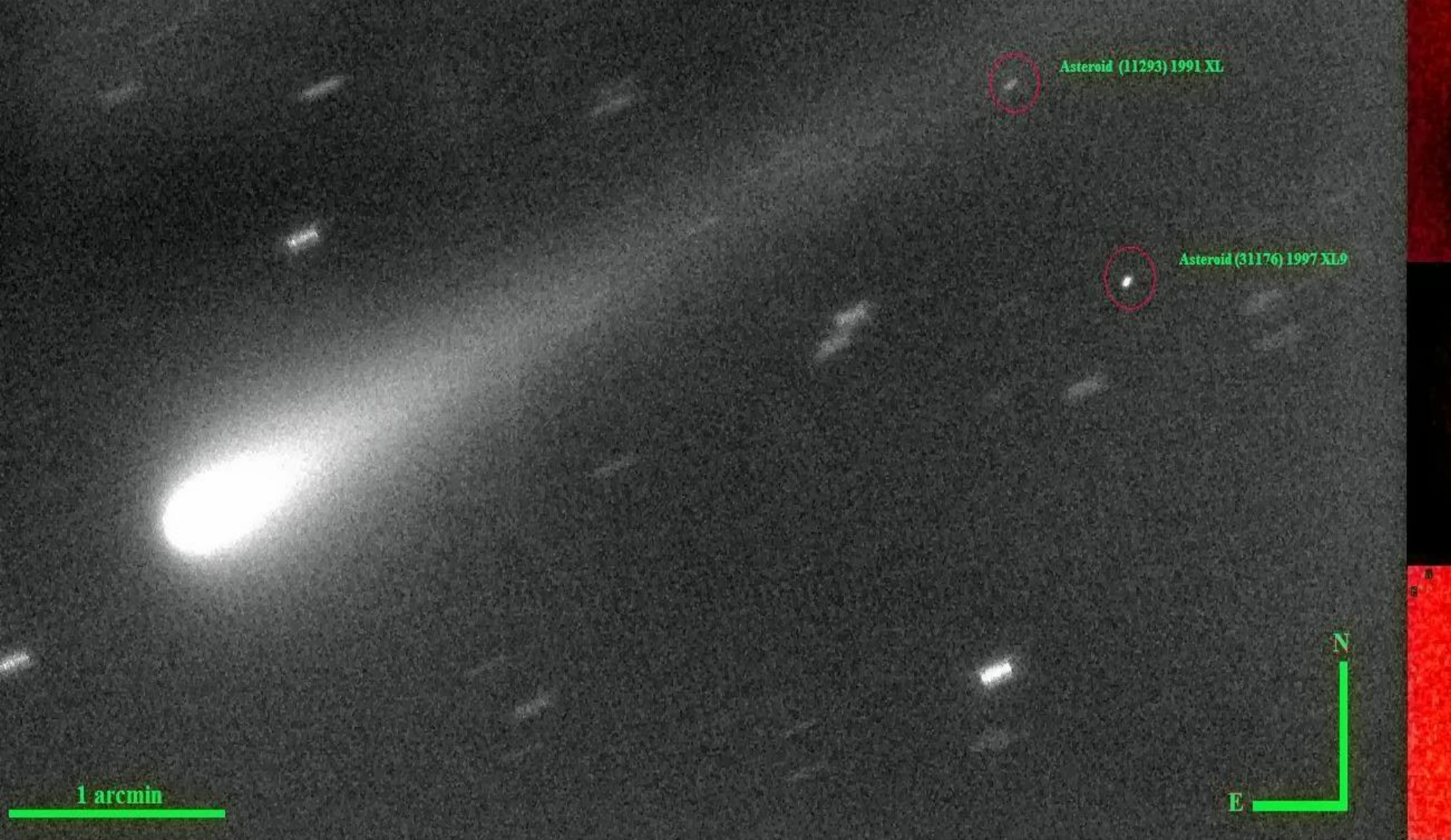
Comet C/2012 X1 (Linear). 25 Oct. 2013, 04:27 UT.

This image is the average of four, 60-seconds exposures remotely taken with the Planewave 17"+Paramount ME+STL-6303E robotic unit part of the Virtual Telescope. Images were registered against the comet's apparent motion, Scale is 1.2"/pixel.

Images by Gianluca Masi, Ceccano (FR), Italy - The Virtual Telescope Project - www.virtualtelescope.eu

120"

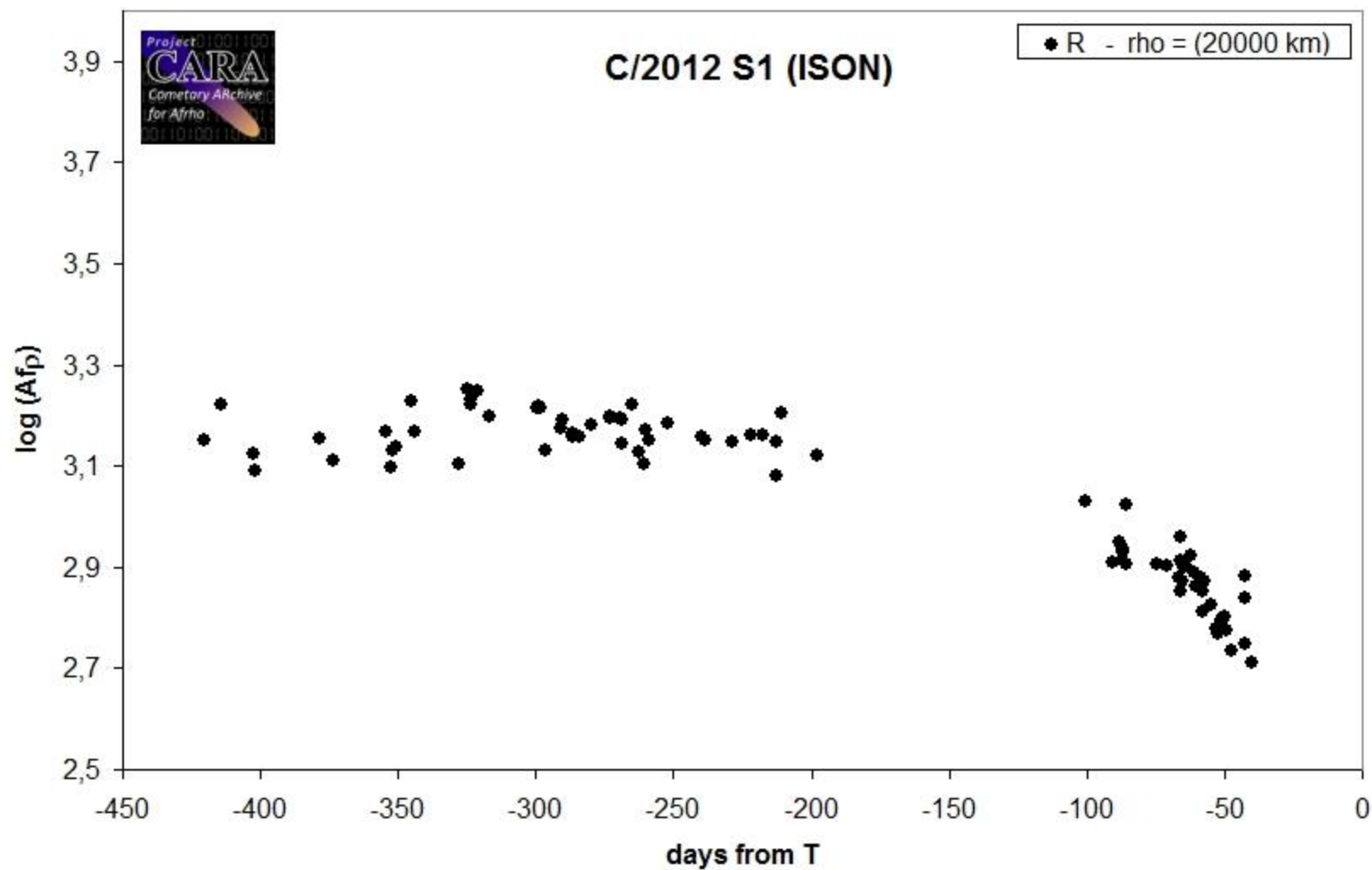




Comet C/2012 S1 (ISON) 2013, October 01.2
Stacking of 20 R-filtered exposures, 11-sec each
2.0-m Ritchey-Chretien + CCD
Remotely from MPC code J13 (Liverpool Telescope)
Nick Howes, Ernesto Guido & Martino Nicolini
<http://remanzacco.blogspot.com>

Delta= 2.144 AU, r= 1.646 AU, Elongation= 47.7 deg, Phase= 26.7 deg





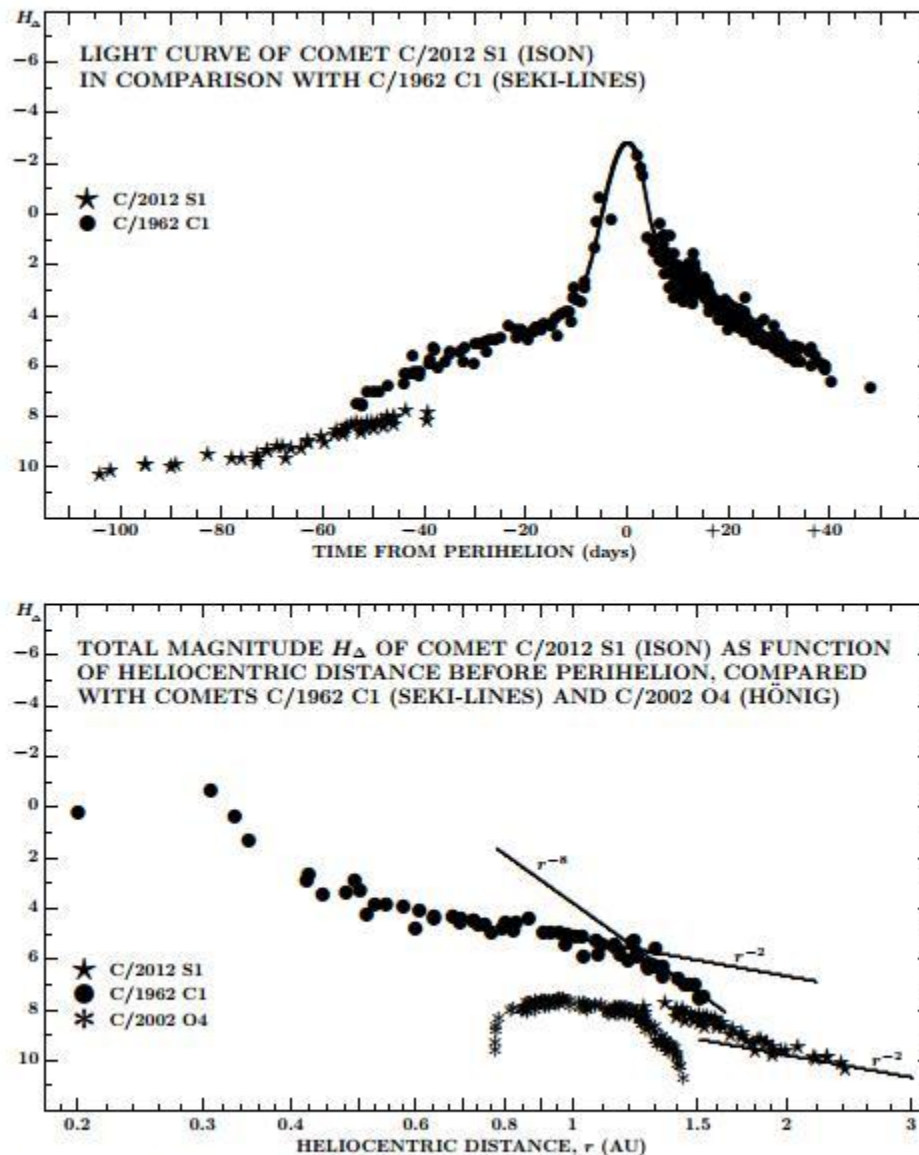


Figure SUR2-1. Light curve of C/2012 S1, as of October 21, 2013, plotted against time, in comparison with the light curve of C/1962 C1 (upper panel); and plotted against heliocentric distance, in comparison with the light curves of C/1962 C1 and C/2002 O4 (lower panel).