

Finding comets on SOHO images



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- SOHO
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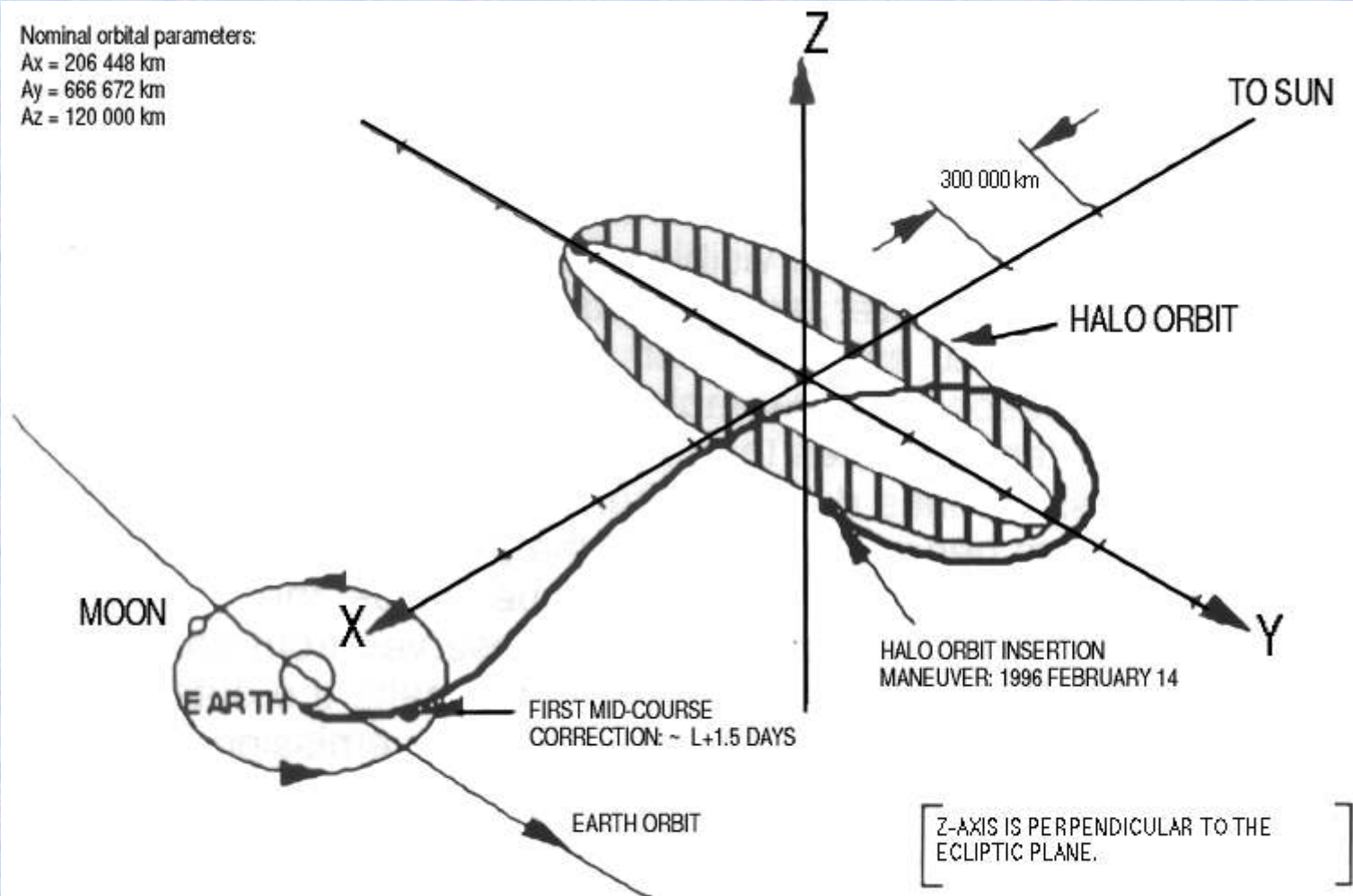
SOHO

Nominal orbital parameters:

$A_x = 206\,448\text{ km}$

$A_y = 666\,672\text{ km}$

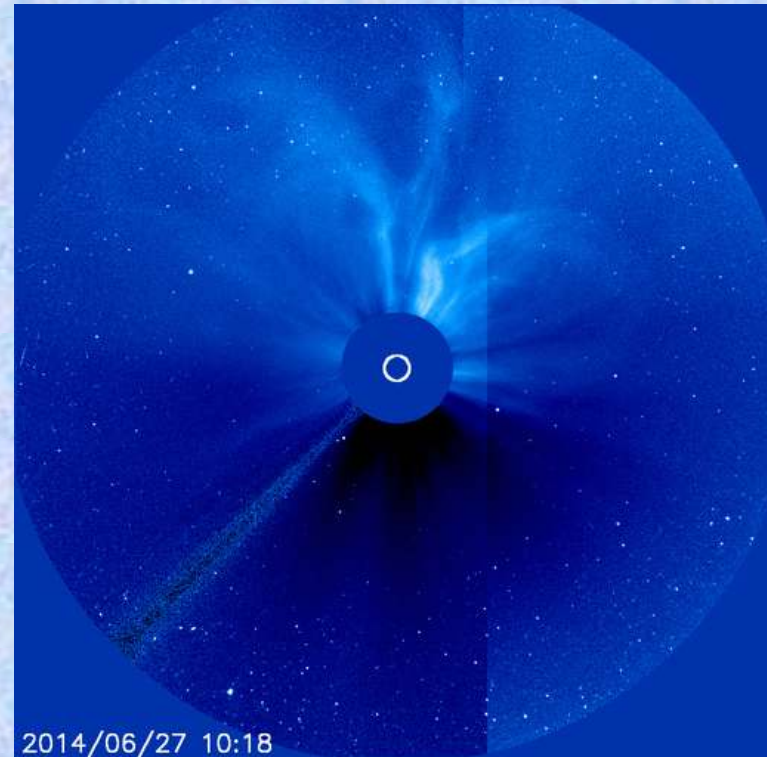
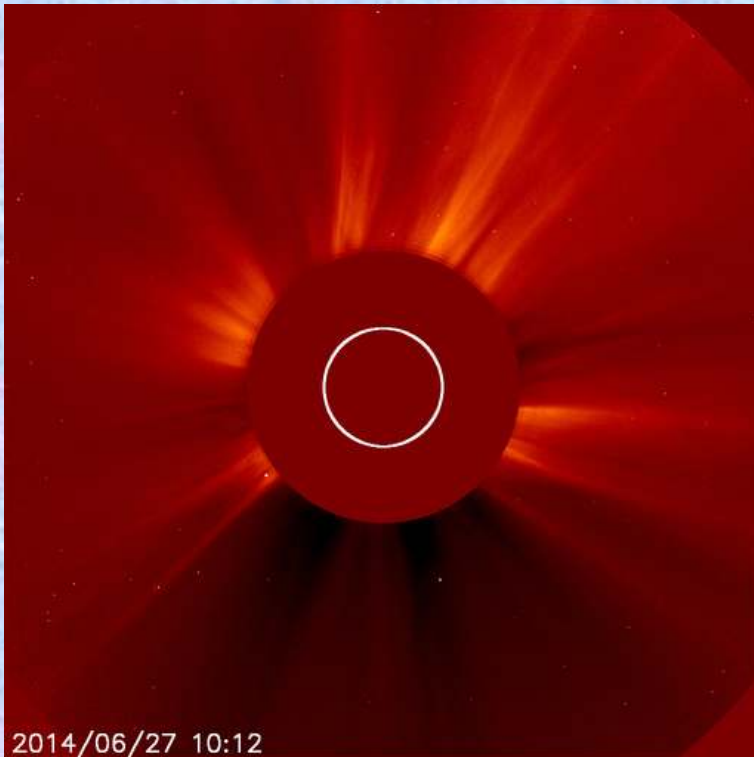
$A_z = 120\,000\text{ km}$



SOHO orbit schematic

LASCO cameras

- C2 – 1.5 to 6 solar radii
- C3 – 3.5 to 30 solar radii



Sungrazers and Sunskirters

- Kracht, Marsden and Meyer groups have perihelion distances < 2 solar radii and don't survive perihelion passage
- Kreutz group have perihelion distances between 6 and 12 solar radii and do survive perihelion passage
- Returning comets will therefore be of the Kreutz group

Basic Steps - 1

- Knowing where to look
- Knowing what to look for
- Finding a comet
- Measuring its coordinates
- Checking for previous observations
- Reporting your observation

The Official Guide to SOHO Comet Hunting is at;

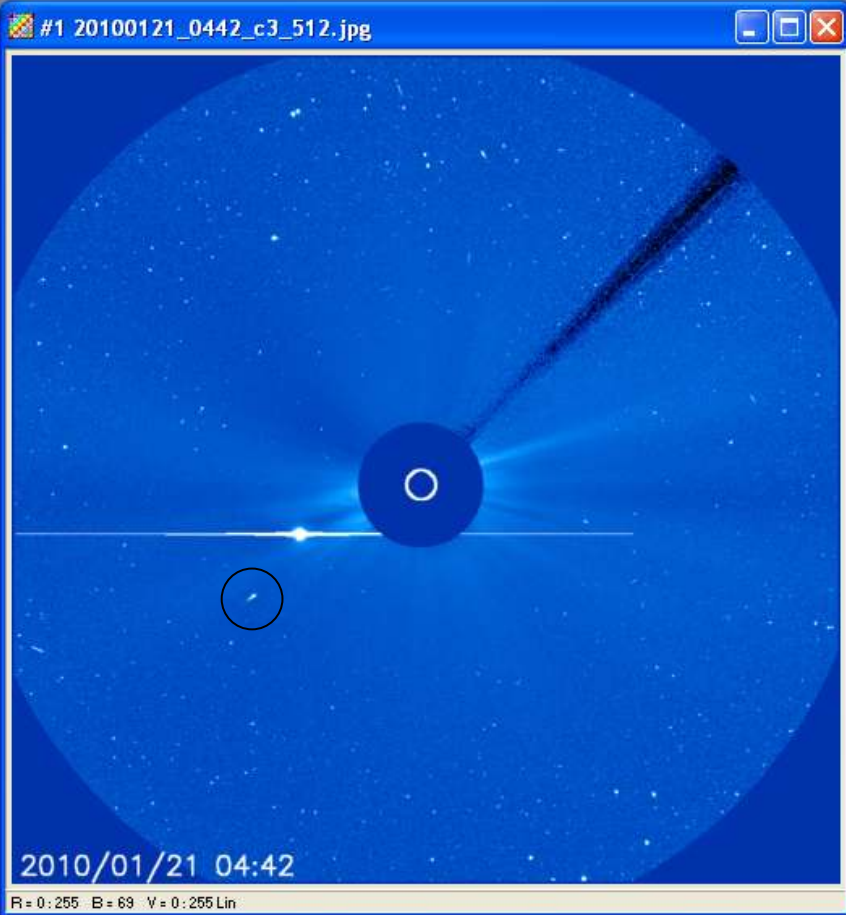
<http://sungrazer.nrl.navy.mil/index.php?p=guide#check>

Basic Steps - 2

MSB Astroart 3.0

File Edit View Image Filters Arithmetic Color Tools Window Help

#1 20100121_0442_c3_512.jpg

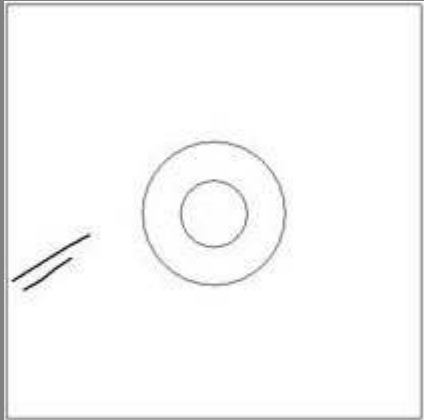


2010/01/21 04:42

R = 0 : 255 B = 69 V = 0 : 255 Lin

Dim.X = 512 Dim.Y = 512 RAM = 3145 Kb

Potential comet:
Images: C3; 510x510 images
(0,0) Lower Left.
20100121
Kreutz group comet
0042 134 162
0242 139 169
0442 148 177



Sungrazer Project



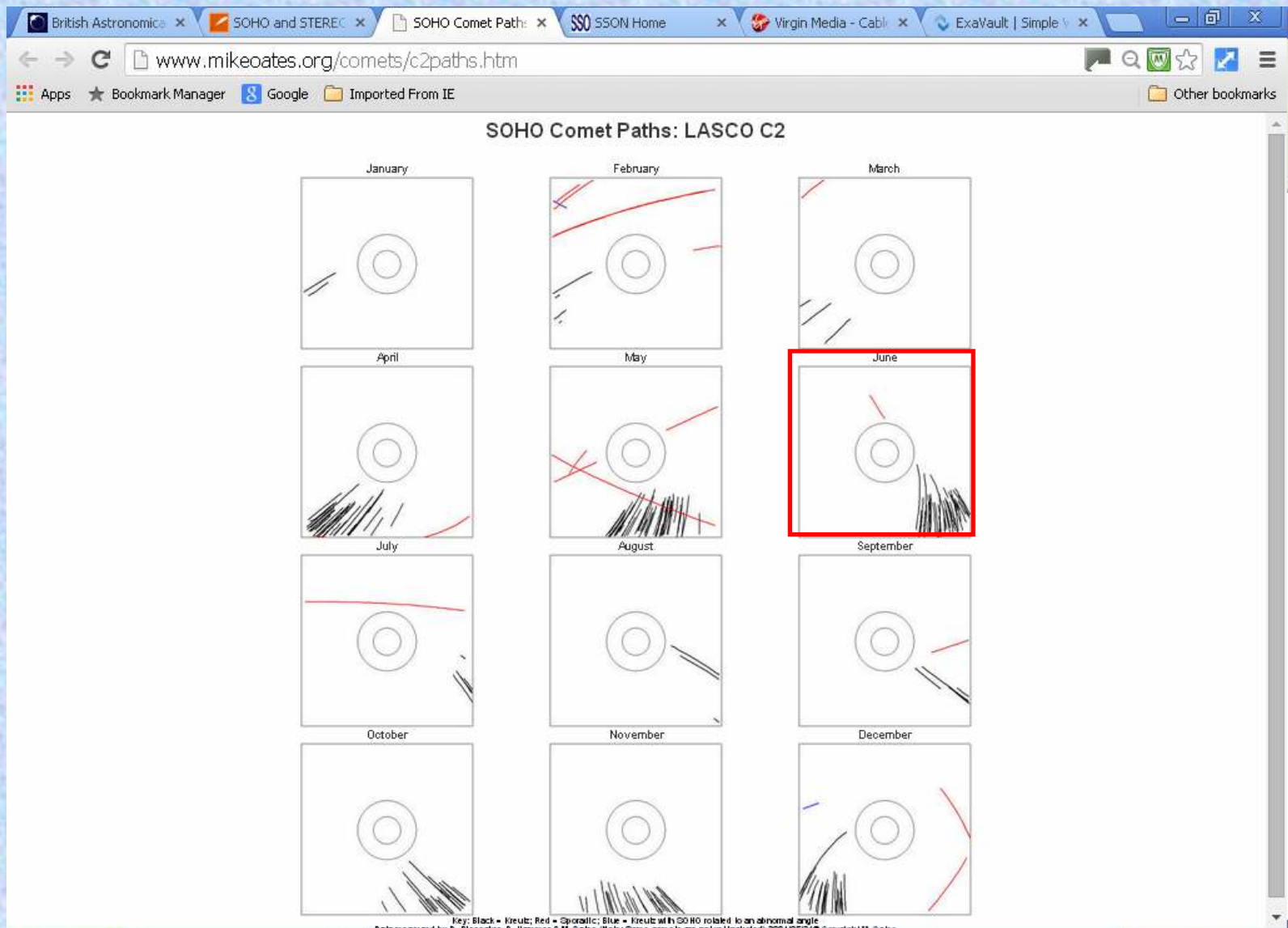
The screenshot shows the Sungrazer Project website in an Internet Explorer browser window. The browser's address bar displays 'sungrazer.nrl.navy.mil'. The website's header features the title 'Sungrazer Project' in a large, white font on a blue background, accompanied by several small, colorful icons representing different solar phenomena. Below the header, a navigation bar includes links to 'NRL', 'LASCO Homepage', 'SECCHI Homepage', and 'Sungrazer Home'. The main content area is organized into several sections, each with a blue header and a list of links:

- Welcome!**
 - [SOHO Introduction](#)
 - [STEREO Introduction](#)
 - [News](#)
- Reporting Objects**
 - [Recent Reports](#)
 - [Report a SOHO Object](#)
 - [Report a STEREO Object](#)
 - [Official Comet Hunting Guide](#)
- Comets**
 - [Basics](#)
 - [Sungrazing Comets](#)
- Comet Discoveries**
 - [SOHO Kreutz-group](#)
 - [SOHO Non-Kreutz](#)
 - [STEREO/SECCHI](#)
- Information**
 - [Data](#)
 - [FAQs](#)
 - [LASCO C3 Transits](#)
 - [SECCHI Asteroids](#)
 - [STEREO L4/L5 Campaign](#)
 - [STEREO JAVA Orbit Tool](#)
 - [C2/C3 Comet Tracks](#)
- Images and Other Links**
 - [SungrazerComets on Twitter](#)
 - [Real-Time Images](#)
 - [SOHO Comet Gallery](#)
 - [Comet McNaught in 2007](#)
 - [15-years of SOHO Comets](#)
 - [Other Links](#)

At the bottom left, there is a link to '@SungrazerComets'. The main content area features a large image of a comet (SOHO-422) in the LASCO C3 coronagraph, with a white circle highlighting the comet's nucleus. Below the image is the caption: 'Non-Group comet SOHO-422 in LASCO C3'. To the right of the image is a light blue box titled 'Featured on the Sungrazer site:' containing a list of news items:

- Feb 2013:** Announcing the [NASA Comet ISON Observing Campaign](#).
- July 2012:** Breaking News: [Comet Machholz had babies!](#)
- July 2012:** Family Ties: [The Complex Machholz Family](#).
- Mar 2012:** Taking a SWAN-dive into the Sun: [Yet another big Kreutz-group comet arrives](#).
- Jan 30, 2012:** The story of a very [shy comet](#).
- Dec 2011:** Comet Lovejoy: [The story begins here...](#)

Where to look



Knowing what to look for Recent reports

British Astronomical Asso x SOHO and STEREO Sung x SSO SSON Home x Virgin Media - Cable broa x ExaVault | Simple Web B x

sungrazer.nrl.navy.mil/index.php?p=recent

Apps ★ Bookmark Manager Google Imported From IE Other bookmarks

Kreutz group comet.
1006 602 703
1018 602 702
1030 602 701
--Masanori Uchina

Jun 17 2014 16:40:10 Rob Matson

Confirming comet of:
Images: C2; 1024x1024 images.
(0,0) Upper Left.
20140617 11:58:36
Kreutz group comet.
--Rob Matson

Jun 17 2014 13:01:38 Peiyuan Sun

Further to my post of...
Images: C2; 1024x1024 images.
(0,0) Upper Left.
20140617 11:58:36
Kreutz group comet.
1604 873 977
1635 872 958
1648 870 951
--Peiyuan Sun

Jun 17 2014 11:58:36 Peiyuan Sun

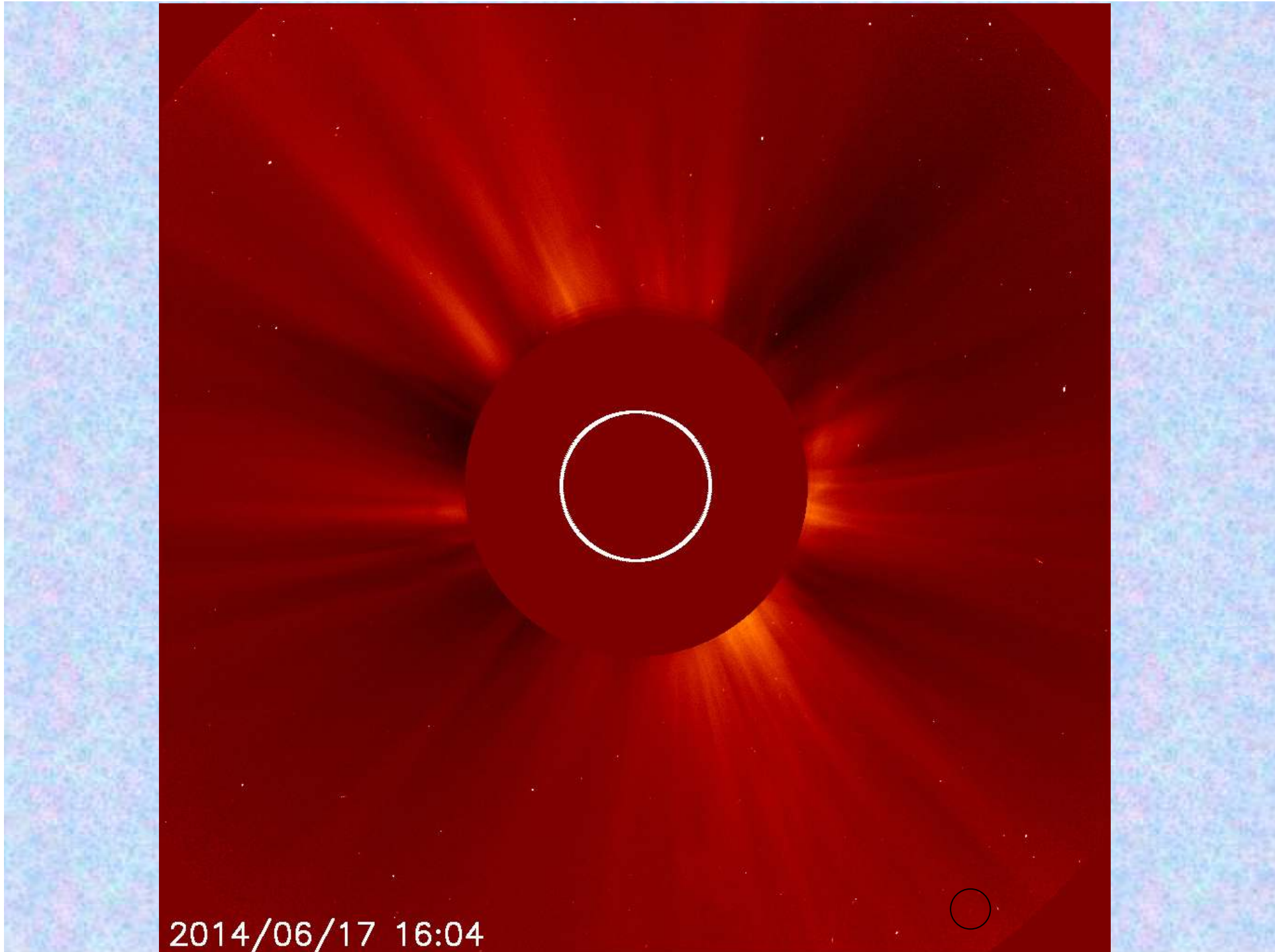
Potential comet:
Images: C2; 1024x1024 images.
(0,0) Upper Left.
20140617
Kreutz group comet.
1536 874 995
1548 876 989
--Peiyuan Sun

Jun 17 2014 07:36:50 Zhijian Xu

Retracting my claim of:
20140616 11:45:02
--Zhijian Xu

Jun 17 2014 03:07:34 Qinpo Zheng

Retracting my claim of:



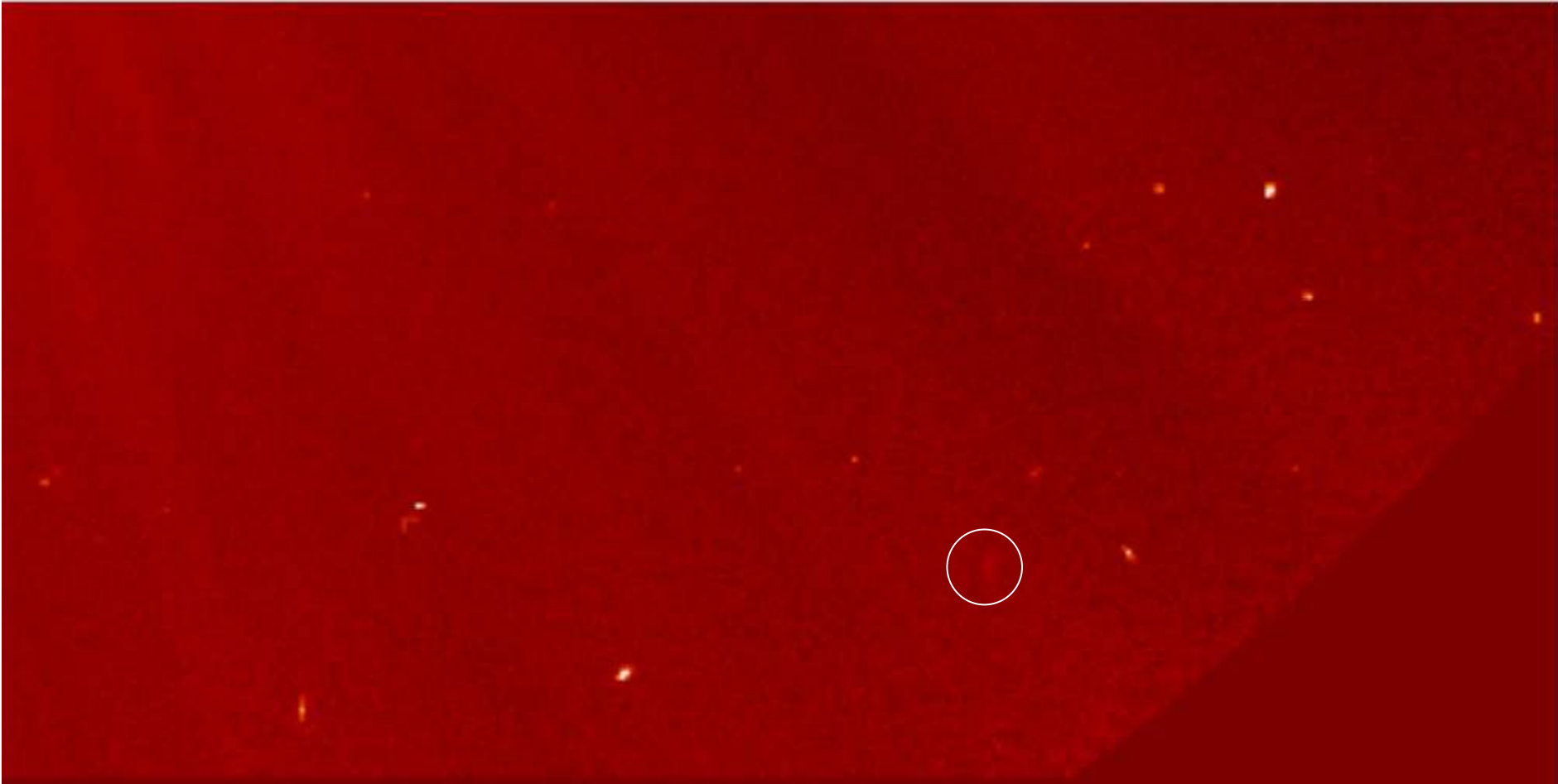
2014/06/17 16:04



British Astronomica x SOHO and STEREC x SOHO Movie Playe x SSO SSON Home x Virgin Media - Cabl x ExaVault | Simple x

sohodata.nascom.nasa.gov/cgi-bin/data_query_search_movie

Apps ★ Bookmark Manager Google Imported From IE Other bookmarks




The image displays a full-disk view of the Sun in a red color channel. The solar surface is covered with numerous bright, point-like features, likely sunspots or active regions. A white circle is drawn around a specific feature located in the lower-right quadrant of the solar disk. The bottom portion of the image is obscured by a black horizontal bar, which is part of a video player interface. Below the black bar is a video progress bar with a playhead and a volume icon.

British Astronomica x SOHO and STEREC x SOHO Movie Playe x SSO SSON Home x Virgin Media - Cabl x ExaVault | Simple x

sohodata.nascom.nasa.gov/cgi-bin/data_query_search_movie

Apps ★ Bookmark Manager Google Imported From IE Other bookmarks




The image displays a solar field of view (FOV) in red, showing numerous bright spots (sunspots) and a white circle highlighting a specific region. The image is presented in a browser window with a video player interface at the bottom.

4

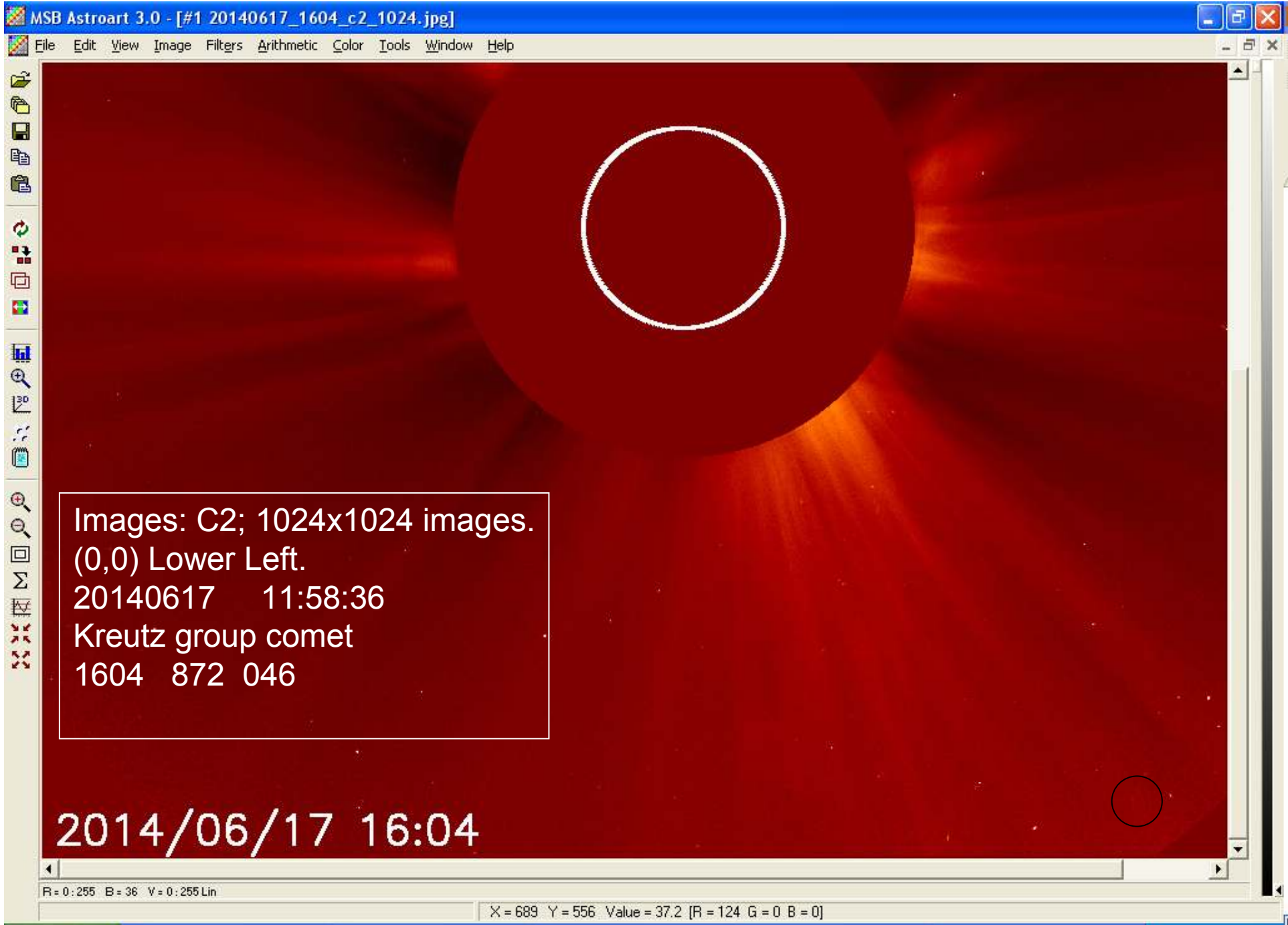
British Astronomica x SOHO and STEREC x SOHO Movie Playe x SSO SSON Home x Virgin Media - Cabl x ExaVault | Simple x

sohodata.nascom.nasa.gov/cgi-bin/data_query_search_movie

Apps ★ Bookmark Manager Google Imported From IE Other bookmarks



The image displays a full-page view of a red-tinted astronomical image, likely a solar observation. A white circle is drawn on the image, highlighting a specific feature. The image is displayed in a browser window with multiple tabs open at the top. The browser's address bar shows the URL: sohodata.nascom.nasa.gov/cgi-bin/data_query_search_movie. The browser interface includes a search bar, navigation buttons, and a bookmark manager. The image itself shows a dark red background with numerous bright spots and a white circle highlighting a specific feature.



Reporting a SOHO object

British Astronomical Asso x SOHO and STEREO Sung x SSO SSON Home x Virgin Media - Cable broa x ExaVault | Simple Web B. x

sungrazer.nrl.navy.mil/index.php?p=cometform

Apps ★ Bookmark Manager Google Imported From IE Other bookmarks

Use this form to report a new comet

Please fill out the appropriate fields below:
You **must** select your name from the **name** field. If your name is not in the list, please select "New User". You **must** click "Preview" before "Submit" to send your information.

You are strongly encouraged to read [this page](#) for instructions on filling out the below form, and also some rules and restrictions on reporting comets. You can also click on the blue "?" next to each field for help on what to put in the boxes.

*Please choose your name from below. If this is your first time, choose "New User". A window will later appear, requesting you send an email to the sungrazer webmaster. Sending this email is entirely optional, however **WE ARE UNABLE TO CREDIT YOU WITH A COMET DISCOVERY IF YOU DO NOT TELL US YOUR NAME!** If "New User" window doesn't appear when you click "Preview", click [here](#).*

Has your name disappeared from the list? We periodically remove names from this page that have been inactive for a long time. (The list gets too messy, otherwise.) If your name used to be on the list but has since disappeared, use the "New User" option to submit your report and then send an email to sungrazer@nrl.navy.mil asking for your name to be re-listed.

Name: -- ?

Potential comet: ?

Time: e.g. hh:mm:ss, hhmmss, etc
(NOTE: 'Time' NOT NEEDED for "Potential Comet" posts) ?

Date: e.g. yyyyymmdd, yy/mm/dd, etc ?

Camera and image size: -- -- ?

Your (0,0) position: -- ?

Comet group (if known): -- ?

Frame time: **X pos:** **Y Pos:** (1st Position) ?

Frame time: **X pos:** **Y Pos:** (2nd Position)

Frame time: **X pos:** **Y Pos:** (3rd Position)

Frame time: **X pos:** **Y Pos:** (4th Position)

Frame time: **X pos:** **Y Pos:** (5th Position)

Frame time: **X pos:** **Y Pos:** (6th Position)

When you press the "Preview" button, your report preview will appear below. Only then will the "Submit" button appear to allow you to submit your report.

Can we discover a comet ? - 1

- Go to Real-Time Images from the Home Page
- Under Data/Archive select Search & Download Data
- Under Image Type select LASCO C2 or C3
- Set Resolution to 1024
- Under Display select Movie
- Enter Start and End dates or enter a number in the Latest n images box
- Click on search
- If you think you have found a comet go to next slide

Can we discover a comet ? - 2

- Measure its coordinates (4-6 images)
- Check for previous reports
- Report your observation
- Simple init !!!

Using the web based tool to measure positions

- Go to the 'Report a SOHO Object' page from the Sungrazer Home Page
- Select 'Click here to use a web based tool...'
- Select;
 - File Type: JPG (1024 x 1024)
 - On-Screen Controls 'Yes'
 - C2 or C3
- Latest 25 images will cycle through - Find your comet
- Copy the data displayed in the Java Console window to the on-line form at;
<http://sungrazer.nrl.navy.mil/index.php?p=cometform>

Websites

- SOHO home page; <http://sohowww.nascom.nasa.gov/home.html>
- LASCO; <http://lasco-www.nrl.navy.mil/>, <http://star.mpae.gwdg.de/>
- Sungrazer home page; <http://Sungrazer.Nrl.Navy.Mil/Index.php>
- The Official Guide to SOHO Comet Hunting;
<http://sungrazer.nrl.navy.mil/index.php?p=guide#check>
- Kreutz comet trajectories - <http://eww.mikeoates.org/comets/c2paths.htm>
- Report a SOHO object page' - <http://sungrazer.nrl.navy.mil/index.php?p=cometform>
- Recent reports; <http://sungrazer.nrl.navy.mil/index.php?p=recent>
- Real time images; <http://sohowww.nascom.nasa.gov/data/realtime-images.html>)
- Search and Download Data; http://sohodata.nascom.nasa.gov/cgi-bin/data_query
- Report a SOHO object page; <http://sungrazer.nrl.navy.mil/index.php?p=cometform>

The end

