CCD Views

Special Edition

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THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS
25 Birch Street, Cambridge, MA 02138 USA
Tel. 617-354-0484 Fax 617-354-0665
http://www.aavso.org

C C D V I E W S

Special Issue

1. INTRODUCTION - SPECIAL ISSUE

This is a special special issue of CCD Views. The February issue of CCD Views will be out soon. However, because of the timeliness of the SN 2002ap campaign we are issuing this special issue immediately.

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2. SN 2002ap AND POSSIBLE GRB ASSOCIATION

On Tuesday, January 30 2002 the CBAT announced the discovery of supernova 2002ap in M74 (News Flash #904). This bright supernova (V=14.5 at discovery and later reported at 13.7 [unfiltered]) was quickly observed by professional telescopes. Their results, reported in IAUC 7811, described the supernova as a rare Type Ib/c with a spectra similar to SN1998bw.

SN1998bw is a widely studied supernova which many believe was associated with GRB980425. SN1998bw occured in the same region of the sky and near the same time as GRB980425. The location of the supernova has been determined to be 140 million light years away. If the GRB was associated with the supernova, that means GRB980425 was significantly less powerful than most GRB models predicted at the time. Thus many scientists consider GRB980425 to be a GRB of an entirely different class than most others. The "collapsar/hypernova" model was developed in response to this association. Recent GRB "jet" models also can account for the relationship.

The recent SN2002ap bears two striking similarites to SN1998bw. First, the spectra of both objects show similar absorption features. However, SN2002ap is noticeably bluer, suggesting that it is perhaps at a younger stage of evolution than SN1998bw. Secondly, both are remarkably bright in radio. SN19998bw was the brightest supernova ever detected via radio. SN2002ap has been detected via radio at an earlier stage than most supernova.

AAVSO CAMPAIGN

SN2002ap appears to have been detected before it has reached peak brightness. It increased from 14.5 to 13.7 over the course of a day (IAUC 7810) and could continue to get very bright. We encourage all CCD observers to observe this object as closely as possible.

Observations should be made first in V. Please make at least one observation per night with one every 2-3 hours if possible. After you have an observation in V, please try B and R if those filters are available. Please be as accurate as possible. Carefully make and apply flat, dark, and bias frames.

An f-scale chart is available at the following URL:

http://www.aavso.org/charts/PSC/SN2002AP/

The chart uses Henden data to .1 mag. Please use this chart to report V observations until a new chart with .01mag comp stars and color becomes available, which may be in quite some time.

It is important that you SAVE YOUR IMAGES. This way you can recalibrate your photometry when a new chart is available. Also, professionals may want to look at the image itself to make their own estimates since doing photometry on supernova is difficult due to the interference from the galaxy.

Send observations to the AAVSO using 0131+15 as the designation and "SN 2002AP" as the name. You can also use our new CCD batch upload program at this URL: http://www.aavso.org/cdata/webobsccd.shtml . If you have any problems sending the data please contact aaronp@aavso.org .

A REAL CHALLENGE

This is a chance to build an accurate light curve of a very exciting object. Astronomers all over the world are observing SN2002ap, but none of them have the ability to build a continuous lightcurve of the object that covers all day and all night. This is a real challenge for the AAVSO. If we can build a successful light curve of this object then we can really help out the professionals and become involved in other exciting projects like this.

Please use the AAVSO GRB Discussion Group for discussion about this campaign. Much has already been discussed on this group so you may want to read the archives at this URL:

Archives: http://mailman.McMaster.CA/mailman/wilma/aavso-grb-list
To Sign Up: http://mailman.McMaster.CA/mailman/listinfo/aavso-grb-list

Good luck!!

Current AAVSO observations of SN 2002ap:

JAN 31.7870	2452306.287	13.4	MLF	CCD
JAN 31.9027	2452306.4028	13.0	RMQ	
FEB 01.0646	2452306.5646	13.3	VWA	CCDV
FEB 01.2916	2452306.7916	13.3	LMK	B

For more information:

Recent IAUC's:
http://cfa-www.harvard.edu/iauc/RecentIAUCs.html

GCN Circulars:
http://lheawww.gsfc.nasa.gov/docs/gamcosray/legr/bacodine/gcn3_archive.html

"A Strange Supernova" by Henry Gee, Nature Science Journals.
http://www.nature.com/nsu/981022/981022-2.html

"Supernova Science"
http://www.phy.ornl.gov/tsi/pages/sn.html

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Good observing!

Aaron Price, AAVSO Technical Assistant (PAH)
Gary Walker, Chairman of the AAVSO CCD Committee (WGR)

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