

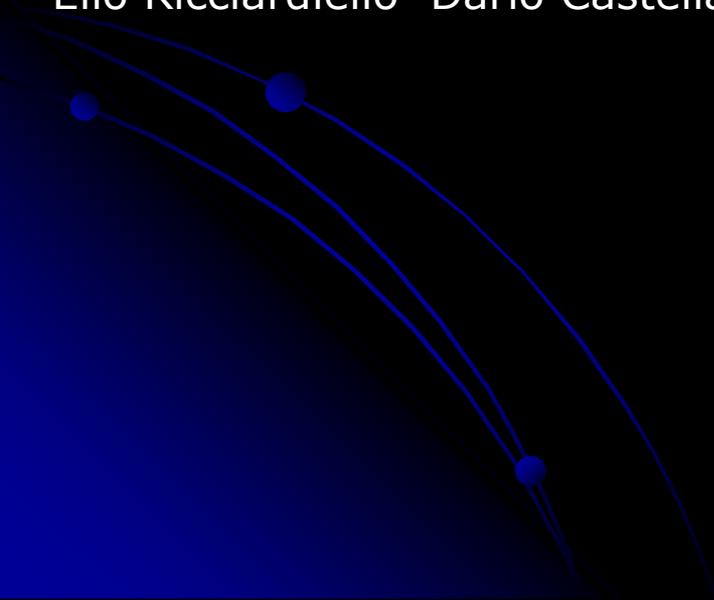


3° Meeting Unione Astrofili Napoletani
INAF – Osservatorio Astronomico di Capodimonte
26 ottobre 2013

Nova in Delfino

Spettroscopia e Fotometria

Elio Ricciardiello Dario Castellano Antonio Marino Antonio Porcelli Carmen Perrella



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AAVSO

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AAVSO Alert Notice 489: Nova Delphini 2013 = PNV J20233073+2046041

August 16, 2013

Event: Nova Del 2013 = PNV J20233073+2046041

Discovered by: Koichi Itagaki (Teppo-cho, Yamagata, Japan), reported by S. Nakano (Sumoto, Japan)

Discovery Magnitude: unfiltered CCD magnitude mag 6.8 using a 0.18-m reflector

Discovery date: 2013 Aug. 14.584 UT

Coordinates: R.A. 20 23 30.73 Decl. +20 46 04.1 (2000.0)

I primi bollettini di The Astronomer's Telegram

Spectroscopic Observation of PNV J20233073+2046041 with the Liverpool Telescope

ATel #5279; [M. J. Darnley \(LJMU\)](#), [M. F. Bode \(LJMU\)](#), [R. J. Smith \(LJMU\)](#), [A. Evans \(Keele\)](#)

on 14 Aug 2013; 22:45 UT

Distributed as an Instant Email Notice Novae

Credential Certification: [Matt Darnley \(M.J.Darnley@ljmu.ac.uk\)](mailto:Matt.Darnley@ljmu.ac.uk)

Subjects: Optical, Nova, Transient

Referred to by ATel #: [5282](#), [5283](#), [5288](#), [5297](#), [5300](#), [5376](#), [5428](#)

 Tweet < 22

 Recommend < 16

An optical spectrum of PNV J20233073+2046041 (<http://www.cbat.eps.harvard.edu/unconf/followups/J20233073+2046041.html>) was obtained (through patchy cloud) by the FRODOSpec instrument on the 2m robotic Liverpool Telescope on La Palma at 2013 August 14.909. The spectrum contains strong Balmer series emission exhibiting P Cygni profiles with velocities ~2000 km/s. A number of Fe II (also P Cygni profiles) and (weak) He I lines may be present. This object is likely to be a newly erupting classical nova (in the early fireball stage) and follow up observations are encouraged.

Optical photometry and spectroscopy of Nova Del 2013

ATel #5288; [T. Tomov, K. Ilkiewicz, E. Swierczynski \(Uniwersytet Mikolaja Kopernika, Torun, Poland\)](#), [M. Belcheva, D. Dimitrov \(Institute of Astronomy and NAO, Sofia, Bulgaria\)](#)
on 15 Aug 2013; 22:34 UT

Credential Certification: [Toma Tomov \(tomtom@astri.uni.torun.pl\)](mailto:Toma.Tomov@astri.uni.torun.pl)

Subjects: Optical, Nova

Referred to by ATel #: [5297](#), [5300](#)

 Tweet < 5

 Recommend < 0

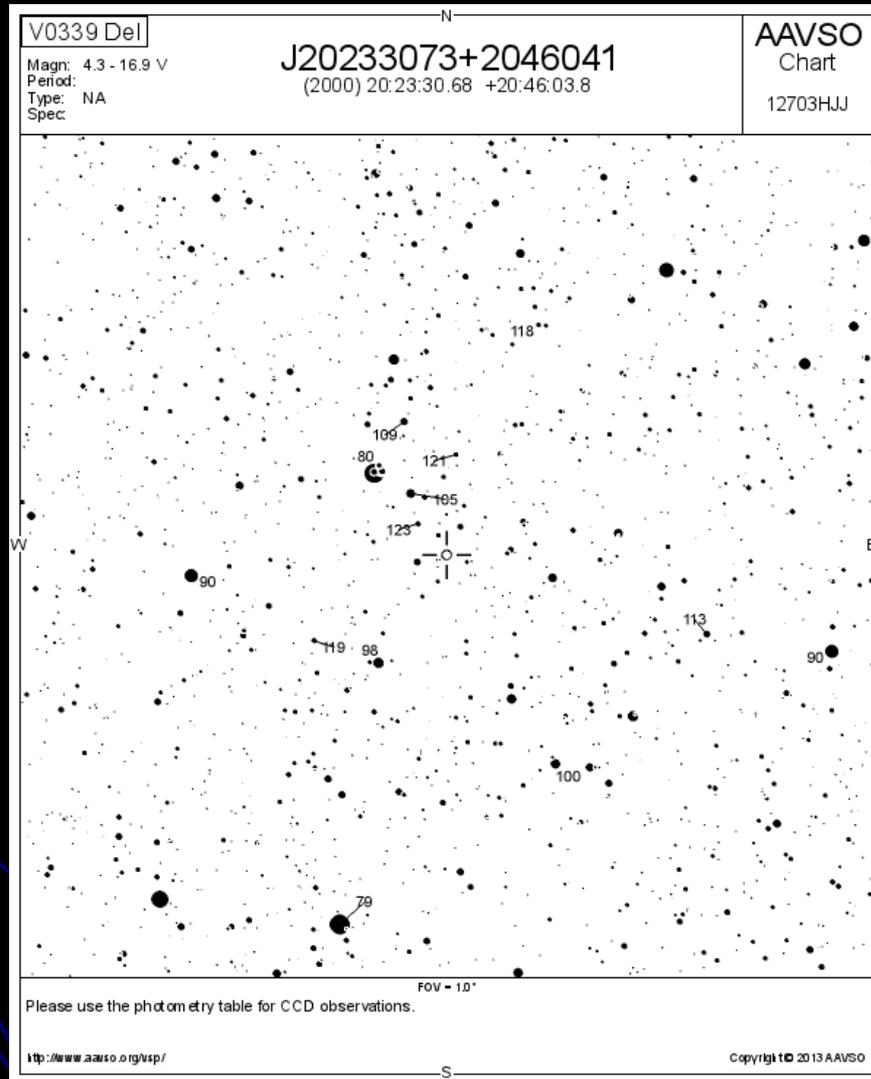
We report optical BV photometry and spectroscopy of Nova Del 2013, carried out between August 14.88 UT and August 15.08 UT. Using a 60 cm Cassegrain telescope at the Nicolaus Copernicus University Observatory (Torun, Poland) we estimated the V brightness of the Nova to be 6.31 \pm 0.02 mag and 6.18 \pm 0.03 mag on Aug. 14.94 UT and Aug. 15.02 UT respectively. HD 194113 (F2, V=8.00 mag) was used as a comparison star. The (B-V) color of the nova was 0.19 and 0.21 mag respectively, showing a reddening of ~0.02 mag in about two hours. Spectral observations were performed in the 4400-7000 AA range using the echelle spectrograph (R~11000) attached to the 60/90 cm Schmidt-Cassegrain telescope (Torun, Poland) and in regions covering ~200 A around Halpha, Hbeta and NaI (R~16000) using the Coude spectrograph of the 2 m RCC telescope at the Rozhen Observatory (Rozhen, Bulgaria). As Darnley et al. (ATEL #5279) and Shore et al. (ATEL #5282) reported the strongest in the spectrum are the Balmer lines demonstrating P Cyg profiles. The Halpha emission shows a flat top. The radial velocity measured at the minima of the P Cyg absorptions is about -1600 km/sec. At the blue edges of these absorptions we measured a velocity of about -2100 km/s. Weaker lines of Fe II, He I, Si II, Mg II, etc., are seen in the spectrum and some of them show apparent P Cyg profiles as well. The mean radial velocity measured for the absorption components of these metallic lines is about -850 km/s. Using the equivalent width of the interstellar NaID1 line and the relation of Munari & Zwitter (1997) we estimated an E(B-V)~0.17 mag.

Strumentazione e Software

- Meade 25 cm su Montatura Skywatcher NEQ6
- CCD Atik 314L+ (sensore monocromatico)
- Reticolo di diffrazione Shelyak Star Analyzer 100 linee/mm
- AstroArt per la riduzione dei dati
- Visual Spec per l'analisi dei dati
- Variable Star Plotter (VSP)



Variable Star Plotter

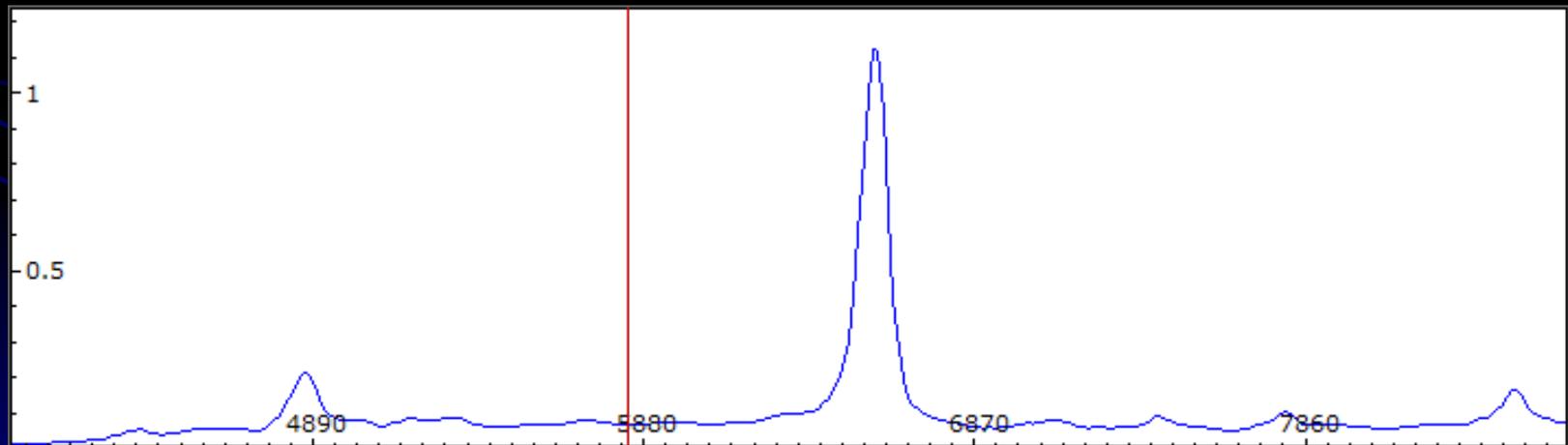
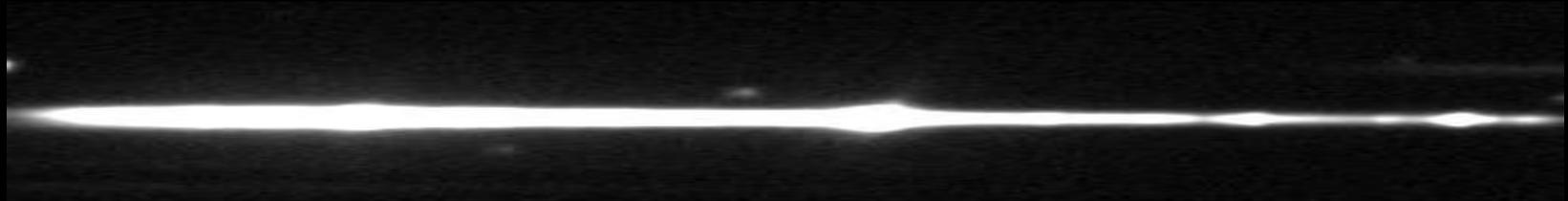


Procedura

- Acquisizione delle immagini light (Nova + spettro)
- Acquisizione delle immagini di pre-riduzione (dark frame)
- Pre-processing degli spettri (sottrazione del master dark frame)
- Media delle immagini light per aumentare il rapporto S/N
- Sottrazione del fondo cielo
- Calibrazione in lunghezza d'onda dello spettro e normalizzazione

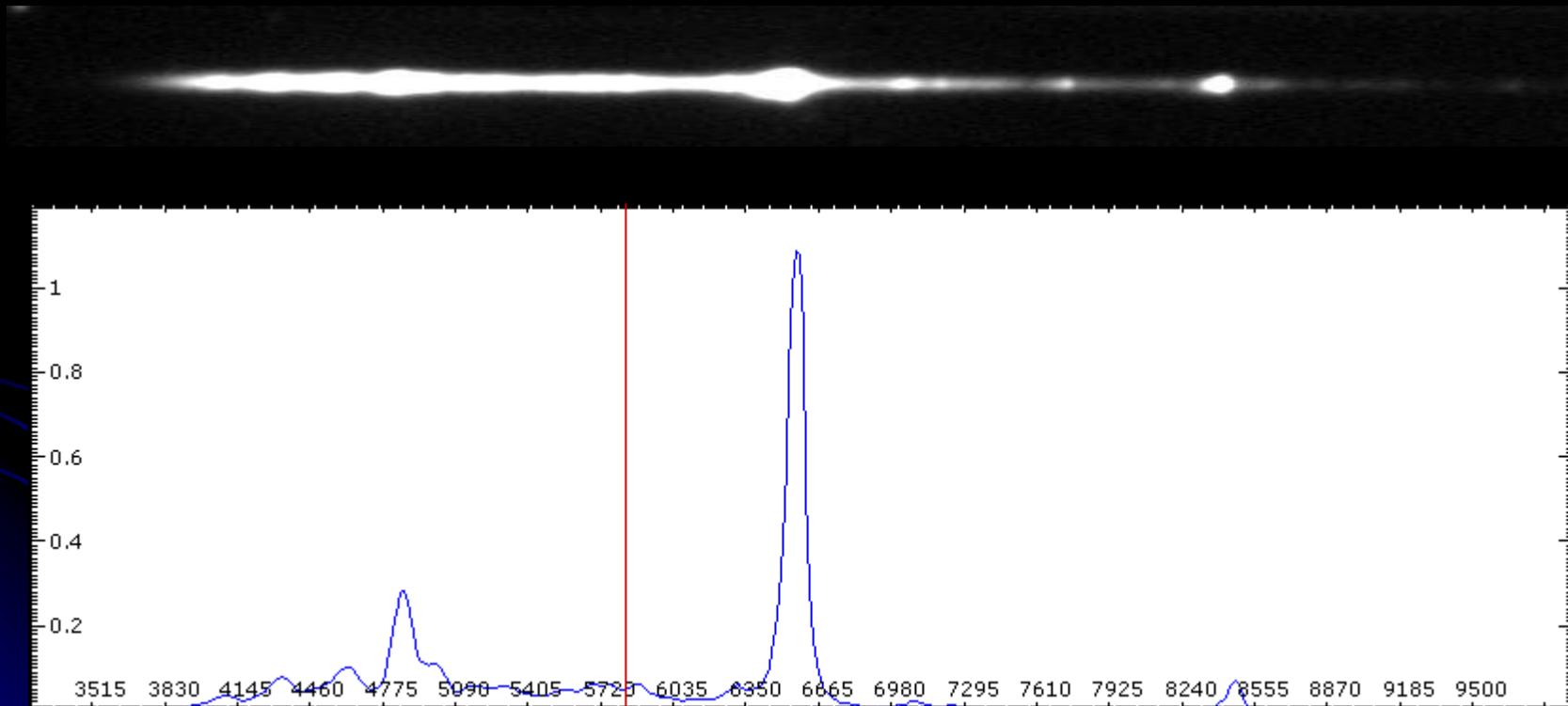
Spettro e profilo del 3/09/2013

Media di 15 frame di 8 sec Master dark di 5 frame



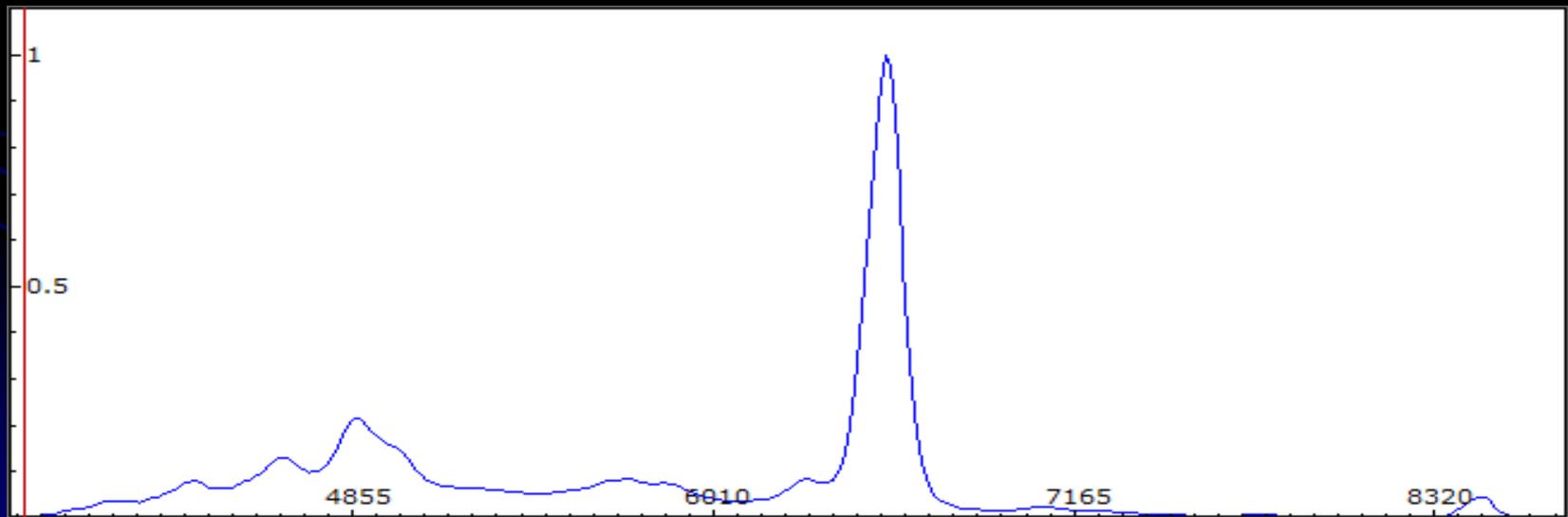
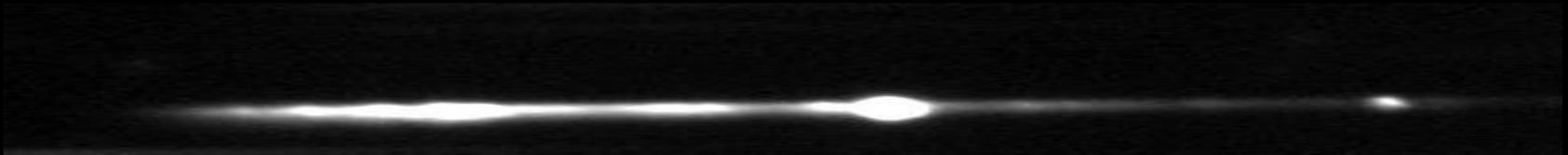
Spettro e profilo del 29/09/2013

Media di 11 frame di 20 sec Master dark di 7 frame

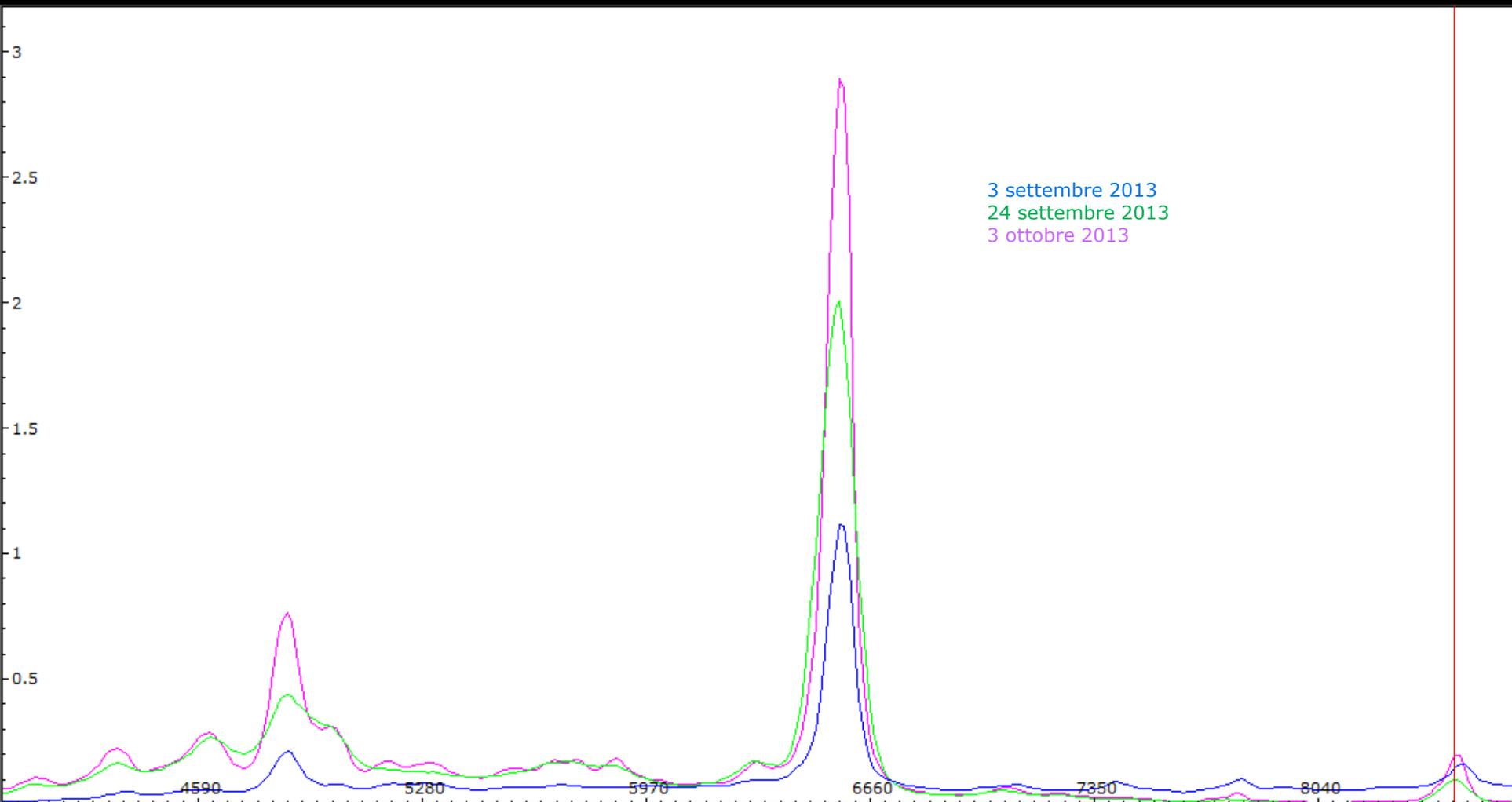


Spettro e profilo del 3/10/2013

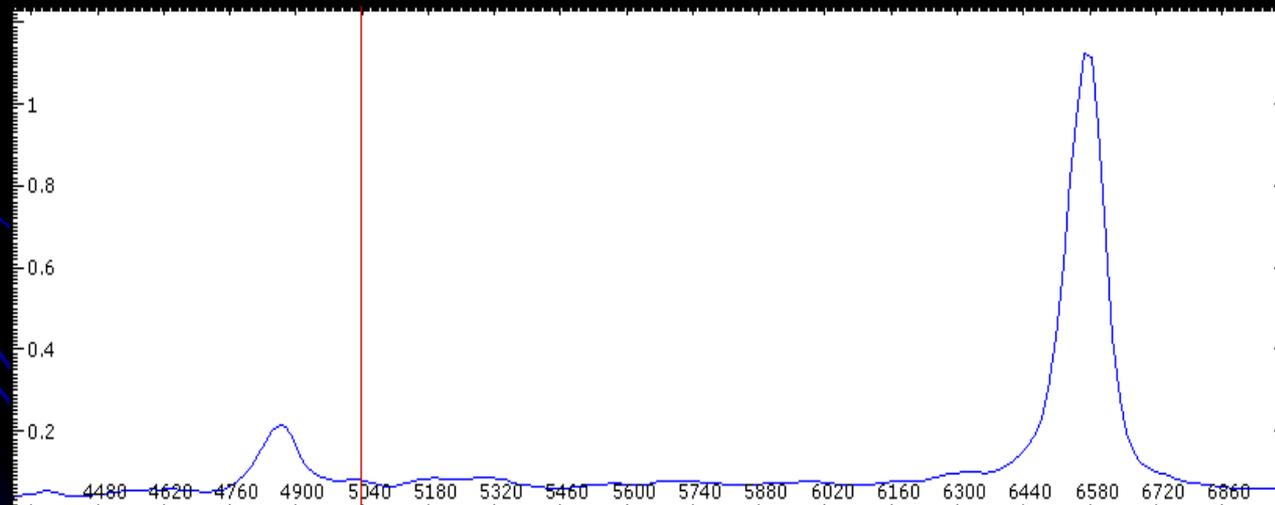
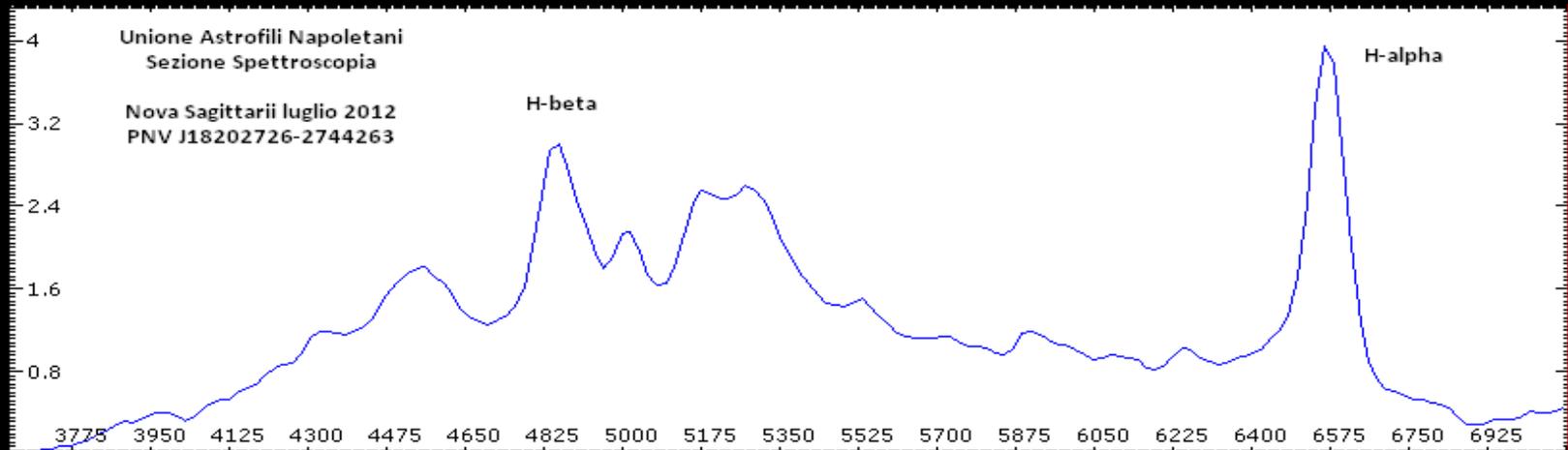
Media di 21 frame di 40 sec Master dark di 7 frame



Confronto dei profili

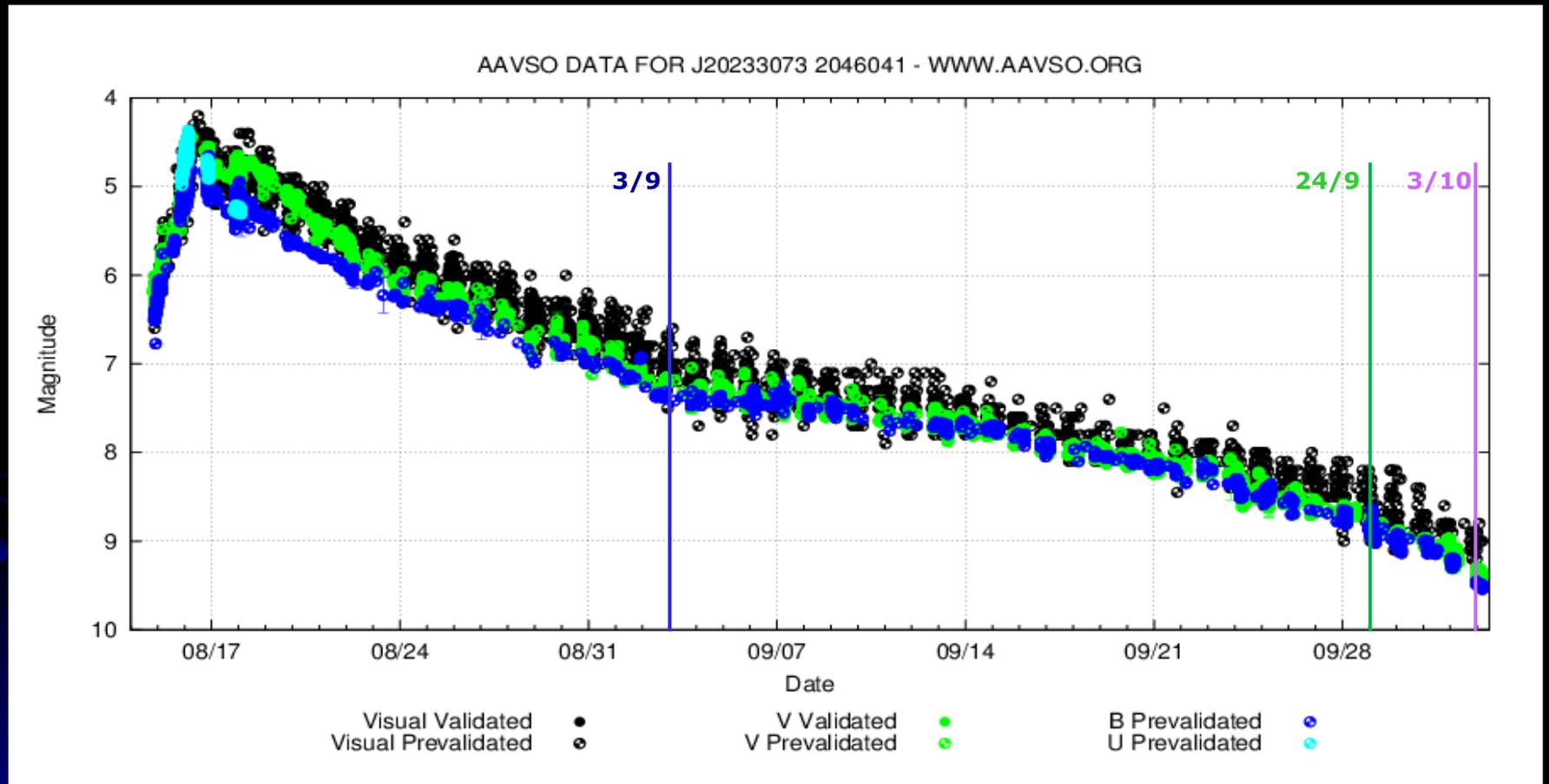


Profili di NovaSag e NovaDel



Curva di luce dal LCG

AAVSO Light Curve Generator

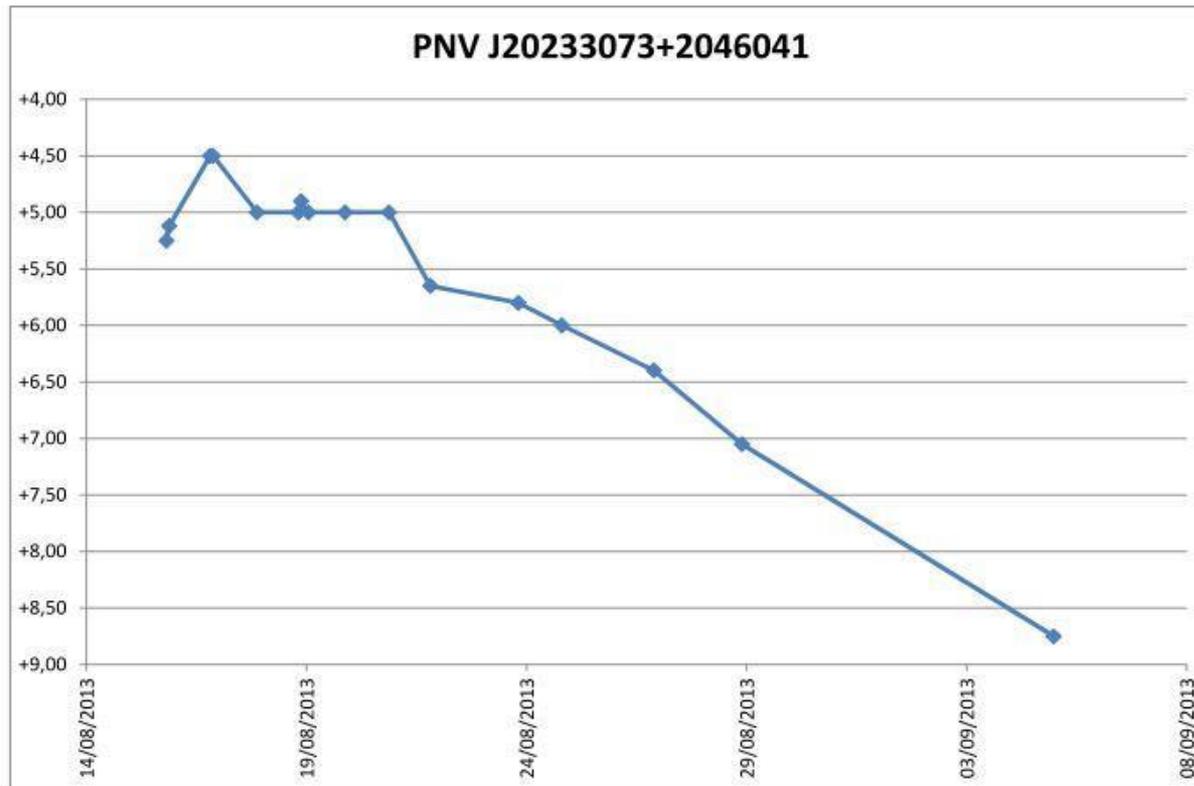


Curva di luce UAN

Elaborazione dei dati a cura di Luigi Candurro

Nova Delphini PNV J20233073+2046041

Diagramma di magnitudine - Osservazioni a cura dell'UAN



Data_Ora_UTC	Magnitudine visuale
15/08/2013 19:35	+5,25
15/08/2013 21:10	+5,12
16/08/2013 19:30	+4,50
16/08/2013 21:00	+4,50
17/08/2013 21:00	+5,00
18/08/2013 19:30	+5,00
18/08/2013 21:00	+4,90
19/08/2013 01:00	+5,00
19/08/2013 21:00	+5,00
20/08/2013 21:00	+5,00
21/08/2013 19:30	+5,65
23/08/2013 19:30	+5,80
24/08/2013 19:15	+6,00
26/08/2013 21:30	+6,40
28/08/2013 21:25	+7,05
04/09/2013 23:30	+8,75

Stima della distanza della Nova

Edgardo Filippone, AstroUANews n. 36/2013

Dalla relazione di **Evans & Bode (2008)**

$$M = - (11.32 \pm 0.44) + (2.55 \pm 0.32) * \log(t_2) \quad [1]$$

e dal modulo di distanza

$$m - M = 5 \log(d) - 5 \quad [2]$$

ricaviamo la distanza della Nova come

$$d = 10^{[(m - M + 5) / 5]}$$

Nel nostro caso $t_2 = 10$ gg e quindi $M = -8.77$ dalla [1] e stimando una $m = 4.5$ dalla [2] risulta

$$d = 4.5 \text{ kpc}$$

Tenendo conto dell'assorbimento $A = 0.56$, alle coordinate della Nova, la magnitudine apparente diventa 3.94, e quindi la distanza

$$d = 3.5 \text{ kpc}$$

Pubblicazione sul sito UAI

Elio Ficciandello, Antonio Porcellì, Dario Castellano, Antonio Marino, Carmen Ferrella

Sezione Spettroscopia, Unione Astrofili Napoletani

Luogo osservazione: INAF Osservatorio Astronomico di Capodimonte, Napoli

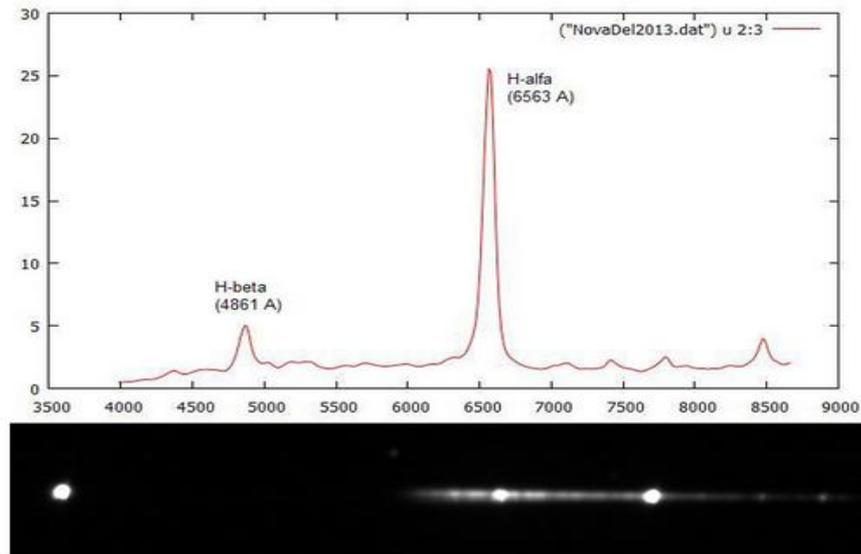
Osservazione del 3 Settembre 2013 -

Ottica Meade SCT da 25cm f/10

Montatura Skwatcher NEQ6

CCD Atik 314L+ b/h

Spettrografo Shelyak StarAnalyzer 100



Pubblicazione su ARAS

Re: Nova Del 2013 *EDIT "QUOTE

Da **Elio Ricciardiello** » gio set 05, 2013 10:56 am ONLINE

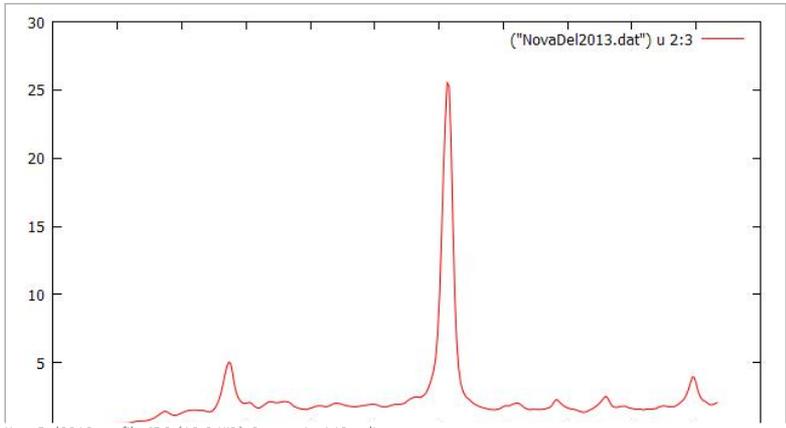
hi,
your links (I thank you for them) have not removed my doubts about the identification of 8500 lines in infrared. Is it Call or H I? We, Section of Spectroscopy members of Unione Astrofili Napoletani, guests of Osservatorio Astronomico di Capodimonte in Napoli, have shot the Nova Del 2013 on 3 september and a discussion is opened among us and also a debate in Spectroring UAI (Unione Astrofili Italiani) Forum. I ask you for an opinion.
I seize opportunity and send you our spectrum.
Elio Ricciardiello (Sezione di Spettroscopia dell'UAN)

[Equipment:
Scope Meade SCT da 25cm f/10 on Skwatcher NEQ6
CCD Atik 314L+ b/n
Spectrograph: Shelyak StarAnalyzer 100

Median of 20 frames/8 seconds
Master Dark Frame median of 5 frames
Profile obtained by vspec e plotted by gnuplot

Authors: Elio Ricciardiello, Antonio Porcelli, Dario Castellano, Antonio Marino, Carmen Perrella]

ALLEGATI



NovaDel2013-profilo.JPG (18.8 Kib) Osservato 142 volte

Commenti

The screenshot shows a Gmail interface. At the top, there's a navigation bar with 'Gmail', 'Rimuovi etichetta', and other icons. Below that, a search bar contains the text 'Risparmia sulla Bolletta - Altroconsumo.it/Abbassa-la-Bolletta'. The main content area shows an email thread titled 'Fwd: Nova Del' with a label 'Spettroscopia/Nova Del 2013'. The email is from 'Edgardo Filippone' and is dated '4 set'. The body of the email contains the following text:

Cari, ho ritenuto opportuno inviare al Direttore dell'OACN il

Cari,

ecco la rapida risposta del Direttore:

ottimo lavoro. sia $H\alpha$ che $H\beta$ non mostrano P-Cyg pronunciati. $H\beta$ un accenno e $H\alpha$ un accenno di doppio P-Cyg. Non è rarissimo ma comunque non frequentissimo. continuate a monitorare. l'evoluzione è rapidissima.... tenetemi informato. Se raccogliete un po' di materiale scrivete una nota - in caso posso darvi una mano. ciao, mdv

On the right side of the interface, there's a sidebar with 'Persone (4)' and a list of contacts including 'presidente uan' (presidente@unioneastrofilinapole...). Below that, there are advertisements for 'Jiffy Clothes Steamers', 'Università Online a Roma', and 'Scandinavia 25'.

Commenti

SCRIVI

Posta in arrivo
Posta inviata
Bozze
[Imap]/Sent
[Imap]/Trash
Astronomia (103)
Comete (11)
ConsorzioCim (14)
COOP
FedericoMail (38)
Personale (57)
PostalviatalInterfree...
Spectroring (4)
▼ **Spettroscopia (111)** ■
 Nova Del 2013
 Altro ▼

Scandinavia 25 - www.alech.it - sistema gestione clienti in attesa report dettagliato tempi di attesa [Perché questo annuncio?](#)

Riga di emissione ad 8500 A  Spettroscopia/Nova Del 2013 x   

 **elio ricciardiello** <elio.ricciardiello@gmail.com> 9 set ☆  

a UAN ▼

ciao,
vi riporto di seguito il parere, da me richiesto, di Francois Teyssier dell'ARAS (Astronomical Ring for Acces to Spectroscopy) a proposito della riga di emissione a 8500

da Francois Teyssier >> gio set 05, 2013 11:16 pm
Nice spectrum with a SA, Elio.
In fact the highest line in that region is OI 8446 - Near 8500, there's Ca II 8498, but to faint for a SA.
These lines are in William's list...

Ciao
Francois

...

 **presidente** tramite yahooogroups.com 9 set ☆  

a AstroUANlink ▼

persone (2)

presidente uan
presidente@union
  
[Mostra](#)

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