



# The ALPY 200

## Confirming and Classifying Supernovae using Small Telescopes

## Confirmation et classification des supernovae à l'aide de petits télescopes

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# 2014 - Naissance de l'ALPY 200

(2014-2024 >200 spectra in the BAA spectroscopy database)



Standard  
600l/mm GRISM  
(R~550)

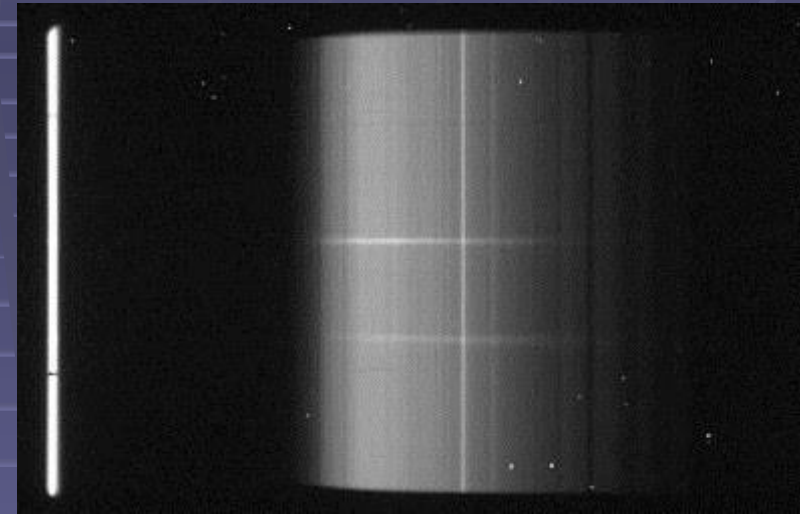
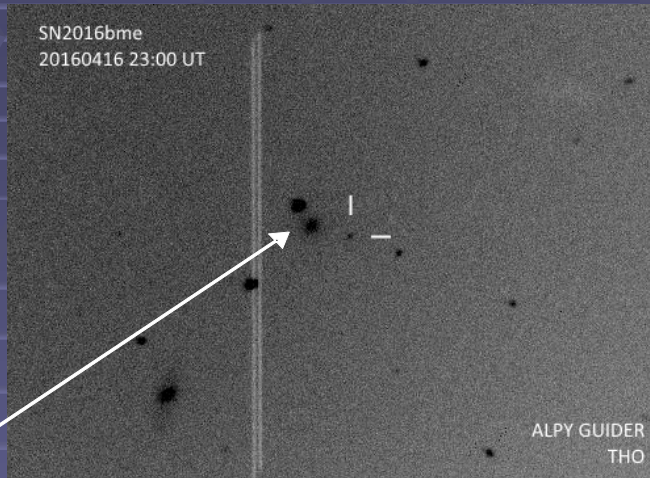
Replacement  
200l/mm GRISM  
(R~130)



[www.threehillsobservatory.co.uk/astro/spectroscopy\\_20.htm](http://www.threehillsobservatory.co.uk/astro/spectroscopy_20.htm)

(Note: The Shelyak commercial version of the ALPY 200 has a “zero angle grism”. The performance is the same.)

# 2016 - SN 2016bme La première supernova officiellement classée par un amateur



## Classification certificate for object 2016bme

TNS Classification Report No. 195

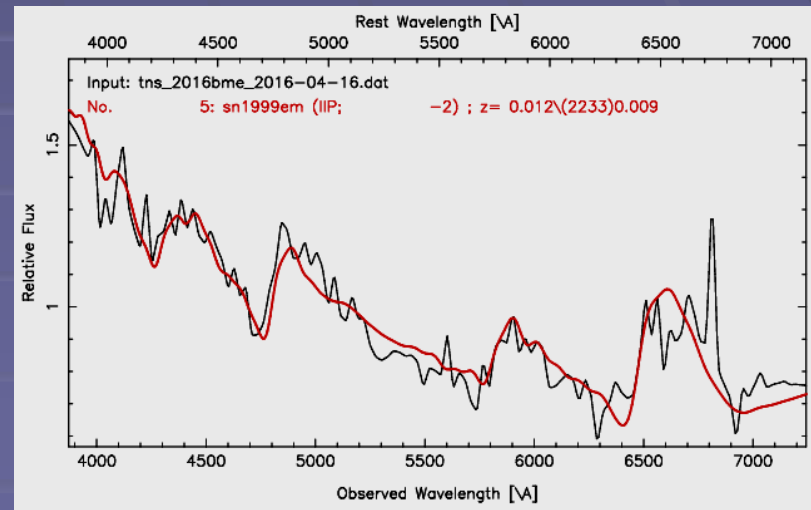
Date Received (UTC): 2016-04-17 11:55:34

Sender: Mr. Robin Leadbeater

Robin Leadbeater report/s a classification of object: SN 2016bme

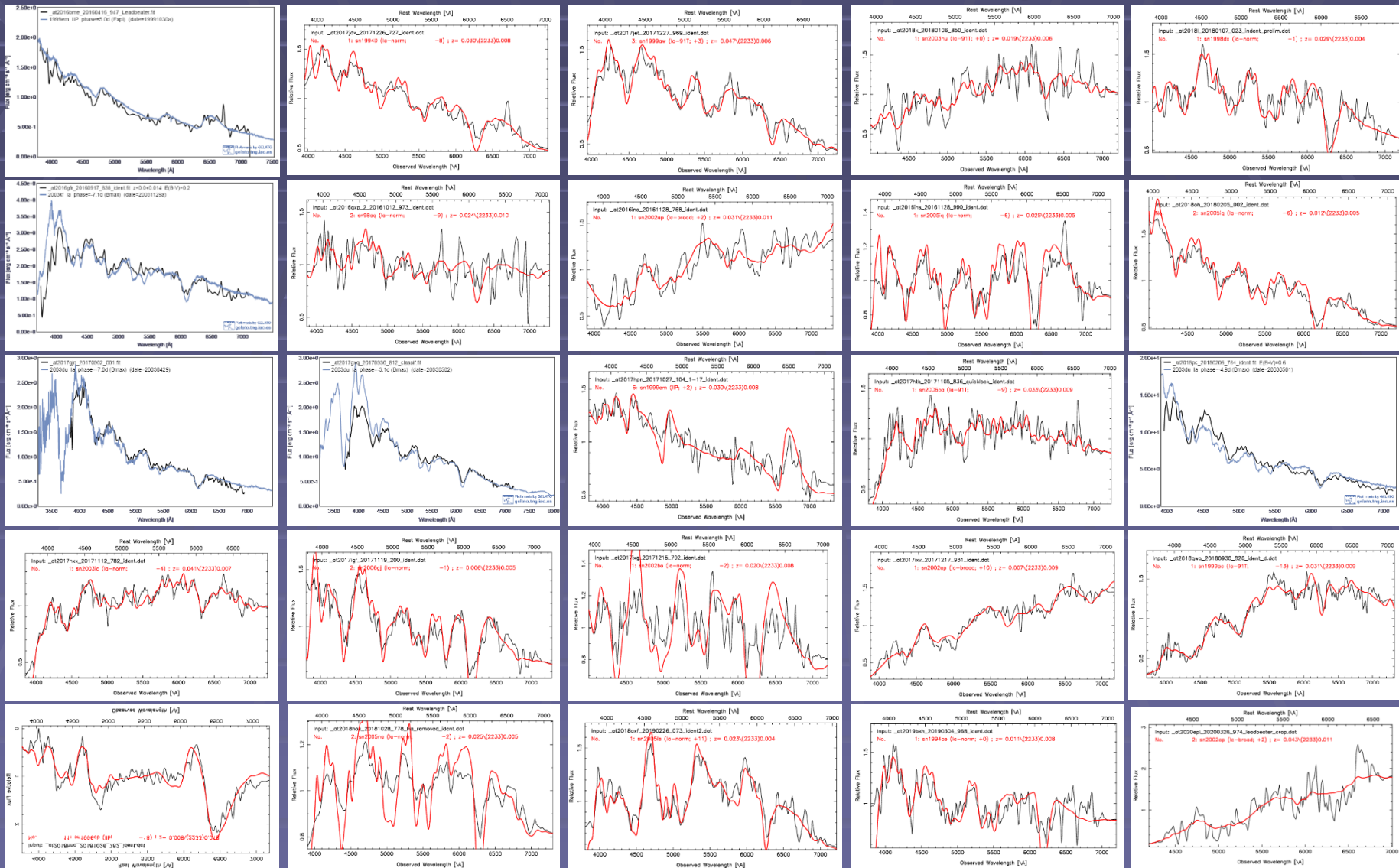
Type: SN II

Redshift: 0.014

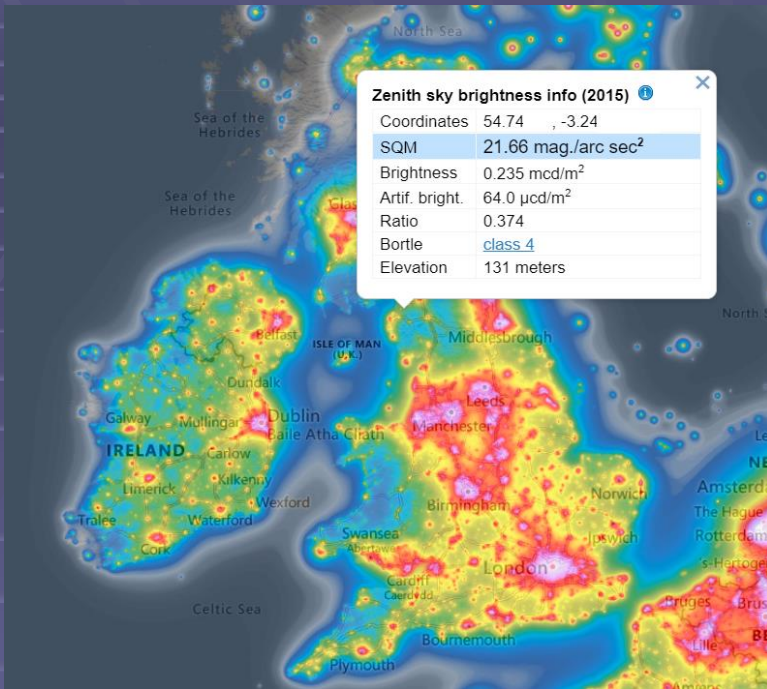




# Quelques supernovae confirmées à Three Hills Observatory



# Three Hills Observatory



Reasonably dark (Bortle 4) skies  
Reasonably good 3 arcsec seeing

But

Clear, dark, transparent skies are rare  
Wettest county in England  
Not fully dark for 3 months



Celestron C11 on EQ6 mount  
(EQMod, ASCOM, Cartes du Ciel)

ALPY (600, 200)

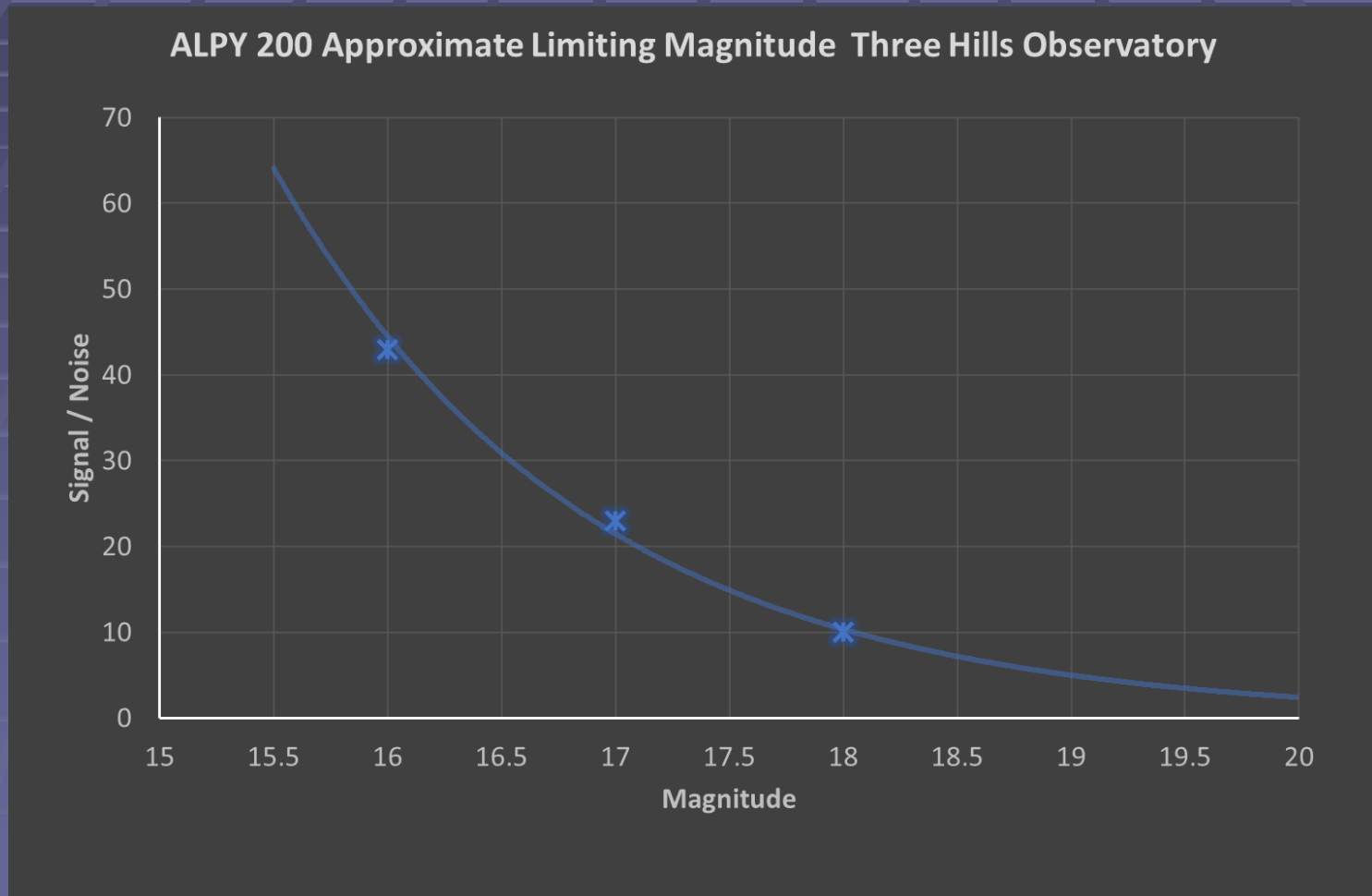
LHIRES III (150,600,1200,2400)  
Star Analyser (100, 200)

Remotely operated via wireless network

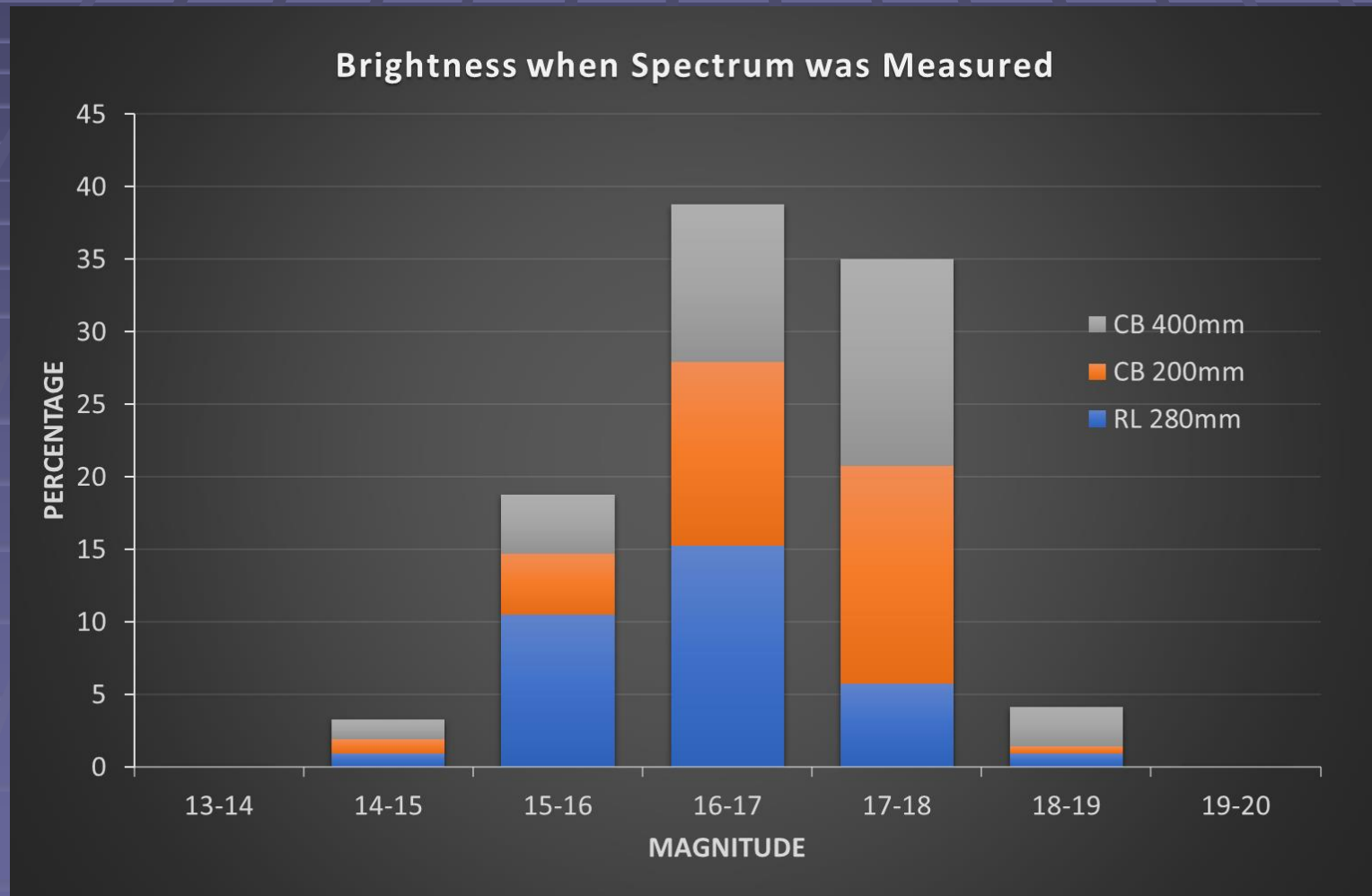
# Les amateurs classent les supernovae par spectroscopie

start year	group	classifier	telescope aperture	spectrograph	resolving power	classification in TNS
2016	-	Robin Leadbeater	0.28m f5	ALPY200	R~130	37
2019	ISSP	Claudio Balcon	0.2/0.41m	Slit Transmission Spectrograph	R~100	152

# SNR typique en 90 min (approximatif et spécifique à THO)

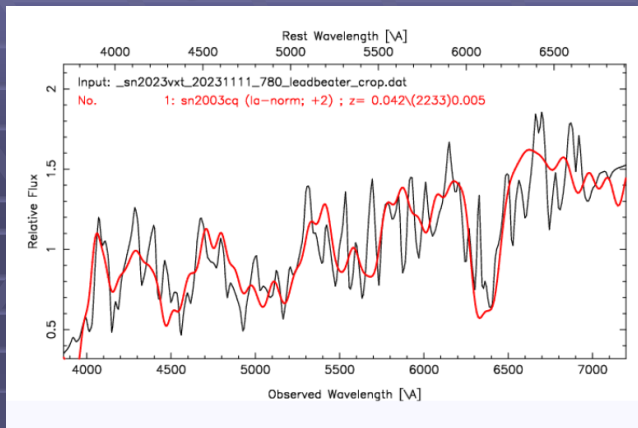


# Magnitude lorsque la supernova a été classée spectroscopiquement

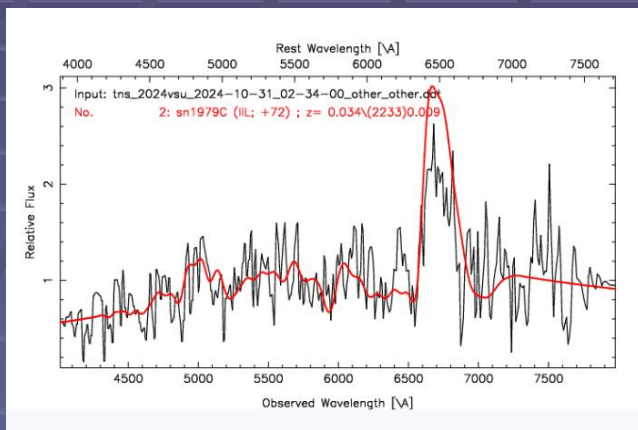




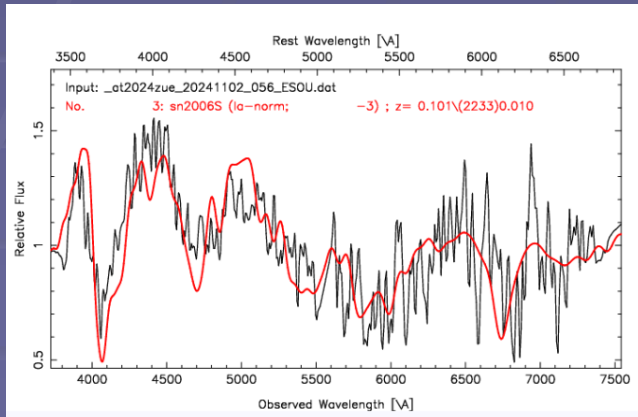
# Spectres de supernovae les plus faibles



**Mag 18.5** SN 2023vxt 2023-11-11 type Ia  
280mm aperture 100min exposure  
R. Leadbeater Three Hills Observatory



**Mag 18.3** SN 2024vsu 2024-10-31 type II  
410mm aperture 90min exposure  
C. Balcon Italian Supernova Search Project



**Mag 19** SN 2024zue 2024-11-02 type Ia  
300mm aperture 150min exposure  
E. Soubrouillard

(Le spectre de supernova amateur  
le plus faible et le plus éloigné (z=0.1))

Un spectrographe efficace n'est qu'un début !  
(maximiser le signal mais aussi **minimiser le bruit**)

Camera noise

Sky brightness (sky noise, artifacts)

Transparency

Atmospheric extinction

Seeing

Focus

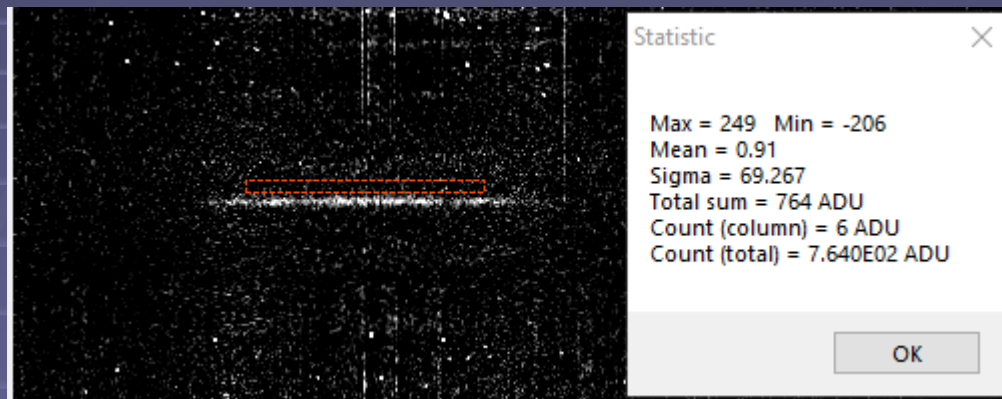
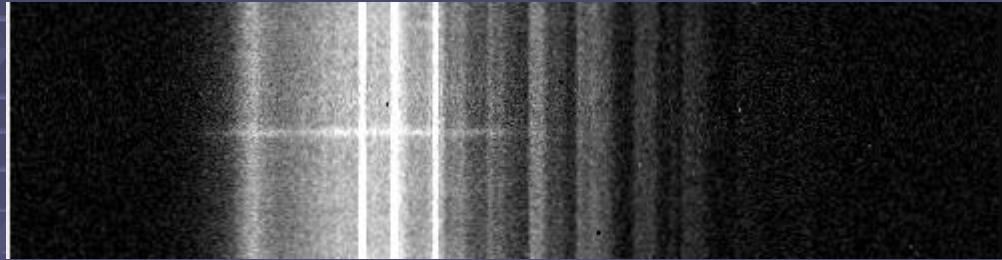
Guiding

A smaller star image allows a larger aperture telescope to be used with the same slit size and less sky background is included with the spectrum

Data Reduction

Etc..

# La soustraction précise du fond du ciel est très importante!

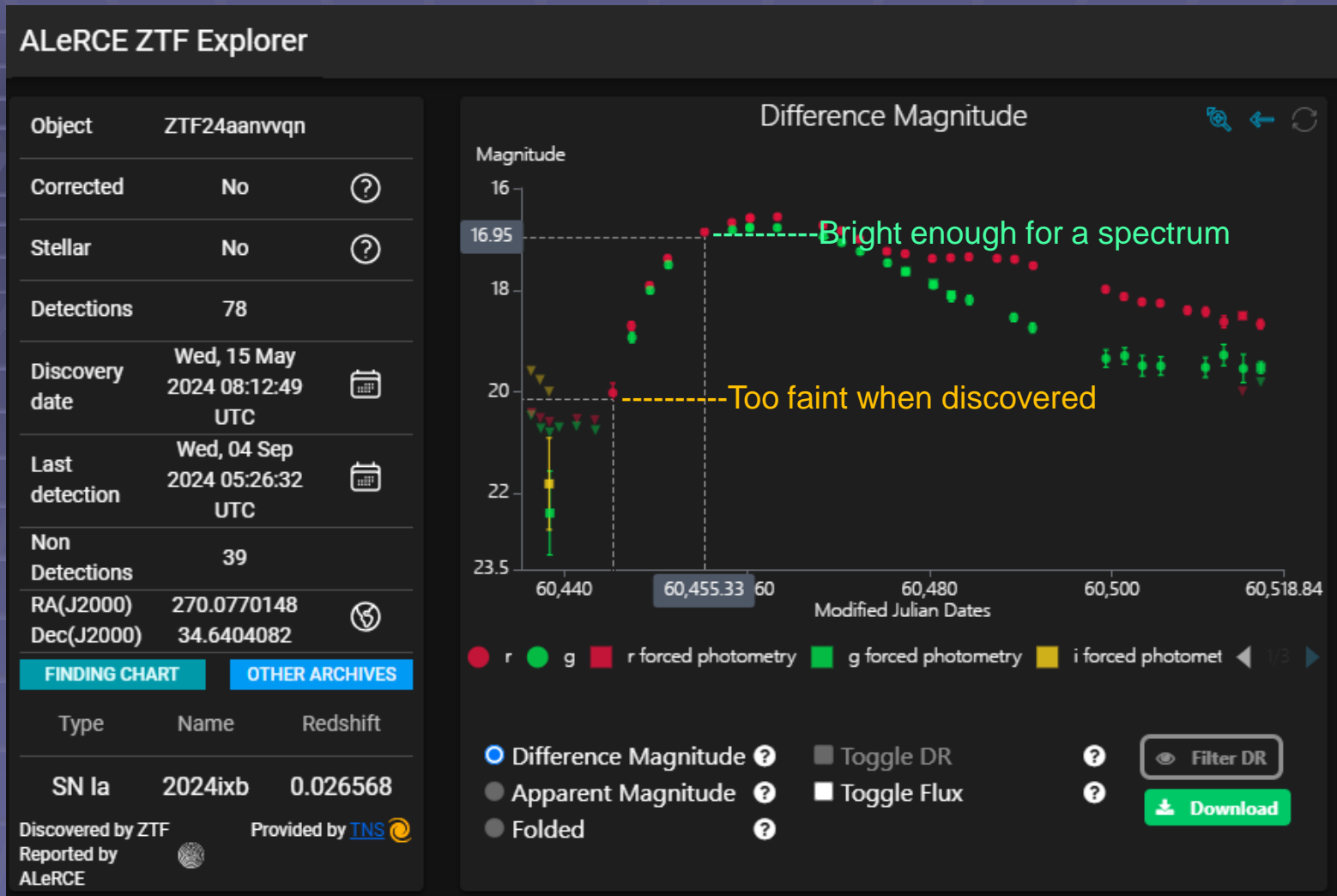


After subtraction,  
the sky near the spectrum  
Should be ~zero +/- noise  
with no features

The sky background signal (air glow, light pollution, moonlight, host galaxy etc) can be much larger than the target signal. Any remaining sky spectrum after subtraction will appear in the target spectrum.

More ALPY 200 user discussions on the ARAS forum  
<http://www.spectro-aras.com/forum/viewtopic.php?t=3117>

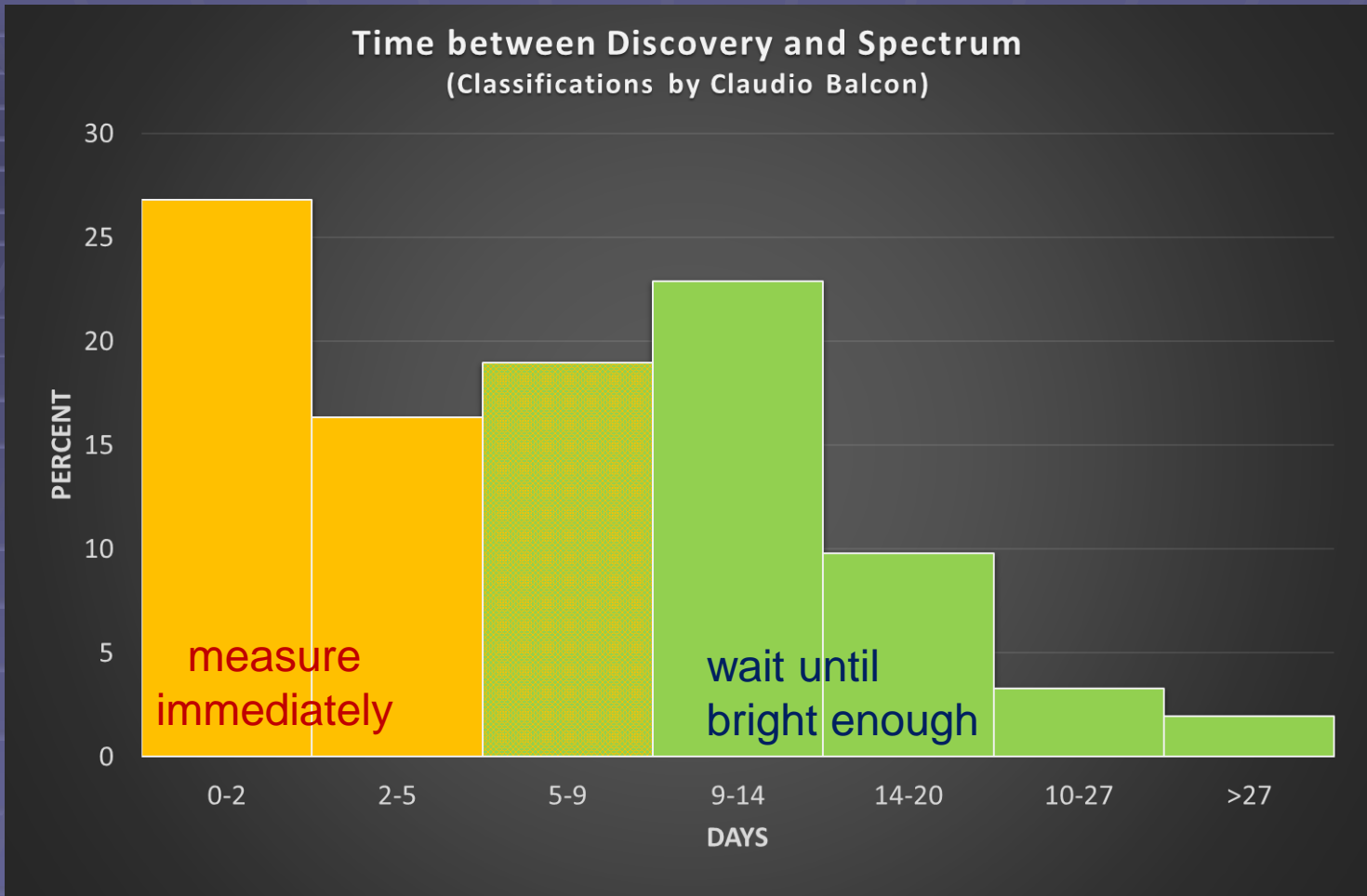
# Mesurez immédiatement si la luminosité est suffisante



Attendez et suivez la courbe de lumière si elle est trop faible



# Attendez si elle est trop faible



Need a system to alert when the target brightness is reached.

Could AstroColibri do this?

(The ATLAS Survey and its Virtual Research Assistant Dr Heloise Stevance – BAA meeting)



Bonne chance à RAPAS !  
Hope to see you on TNS !

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