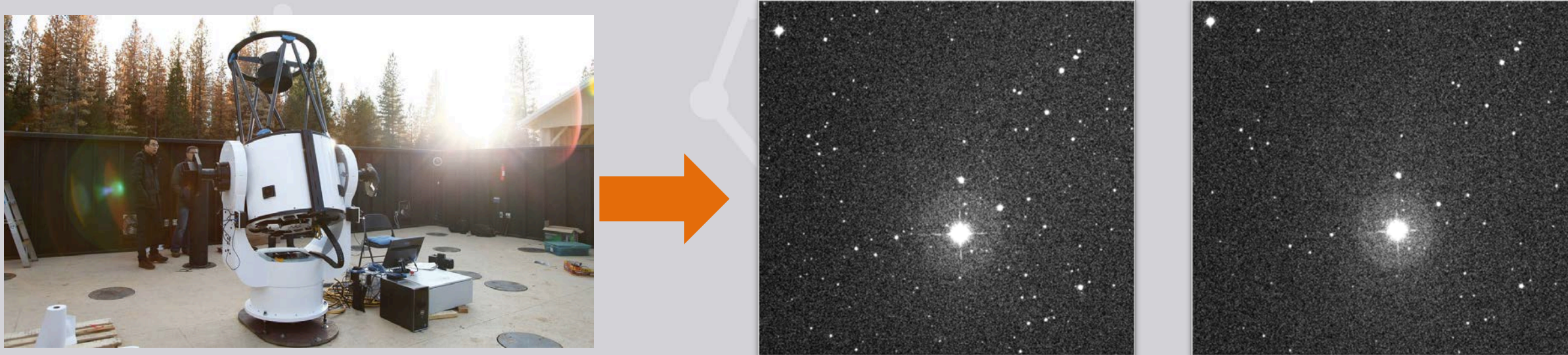
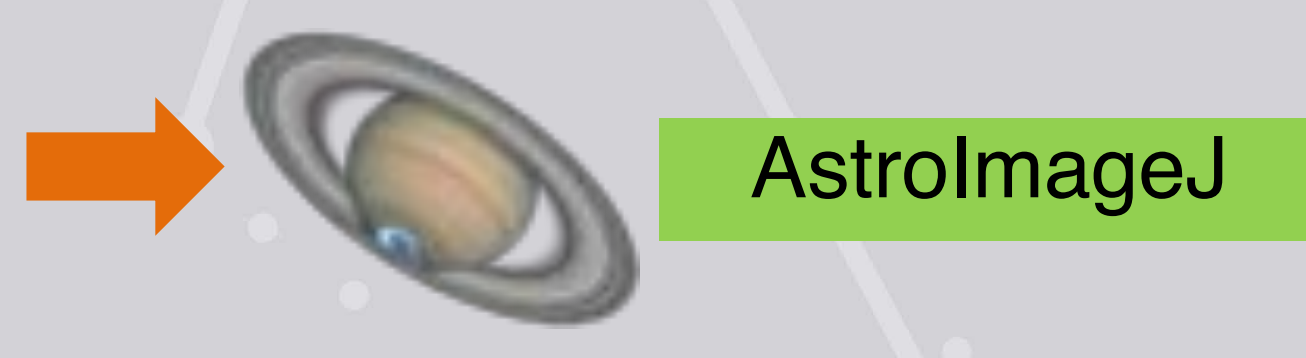


## INTRODUCTION

V1162 Orionis is variable star type delta-scuti with short period 0.078684 days or 1.88 hours. (RA 05h 32m 1.99s, Dec -07° 17' 30.08"). The pulsating star are caused by expansion and collapsing in outer layer. Light curve of pulsating star change brightness over the time. In this study, we will examine the period change of V1162 Orionis.

## METHODS

- 1 Observed V1162 Orionis in filters B and V  


The 0.7-meter telescope at Spring Brook Observatory - NARIT (SBO)
- 2 Reduction and Photometry  

- 3 Created graph between HJD and rel flux. Then fitting 2 linear in increasing and decreasing phase to find the times of maximum light.
- 4 Created O-C diagram. Calculate period change followed this equation of Hintz et al (1998).  

$$T_{max}(HJD) = 2447110.779 + 0.079E$$
- 5 Fitting polynomial curve compare with sinusoidal curve. Finding the best fit.
- 6 Calculate color index (B-V) by using apparent magnitude B minus V.

Table 1 : Shows Linear Equation and the times of maximum light

Tmax	1	2	3	4
Line 1	$Y=4.84x-28.69$	$Y=3.66x-21.77$	$Y=4.62x-31.69$	$Y=3.60x-24.86$
Line 2	$Y=-3.42x+21.51$	$Y=-2.13x+13.82$	$Y=-2.97x+21.55$	$Y=-2.38x+17.61$
HJD+2458490	6.07	6.15	7.02	7.10

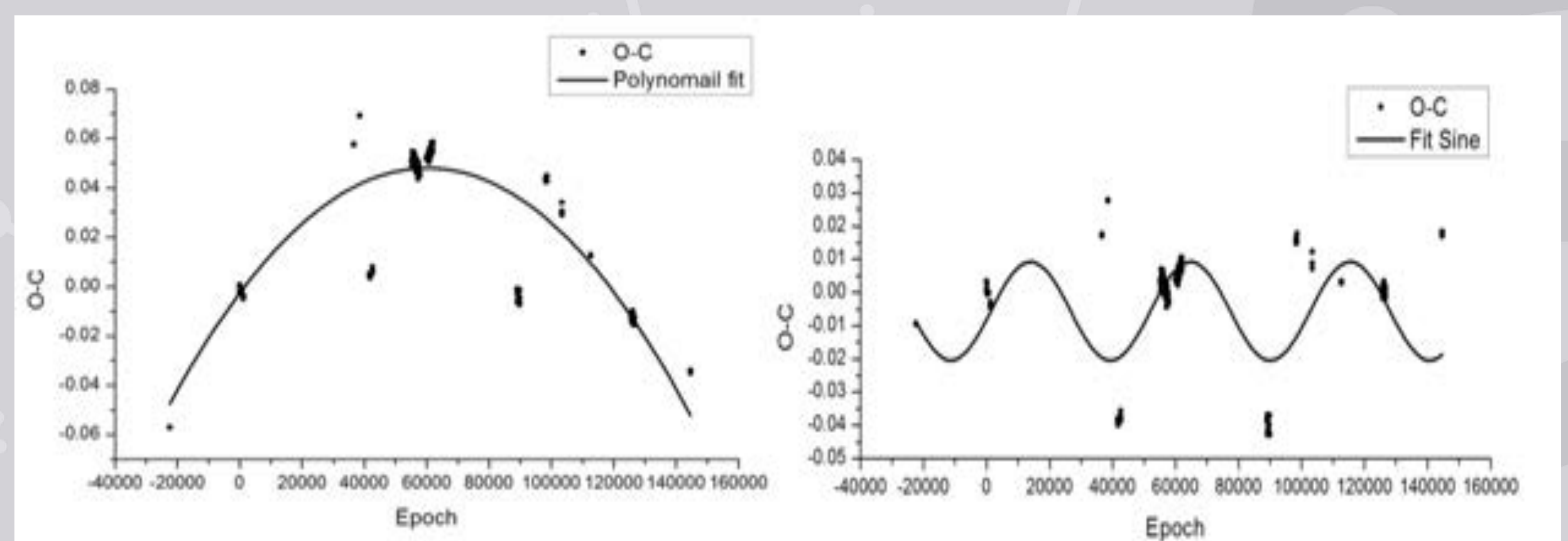
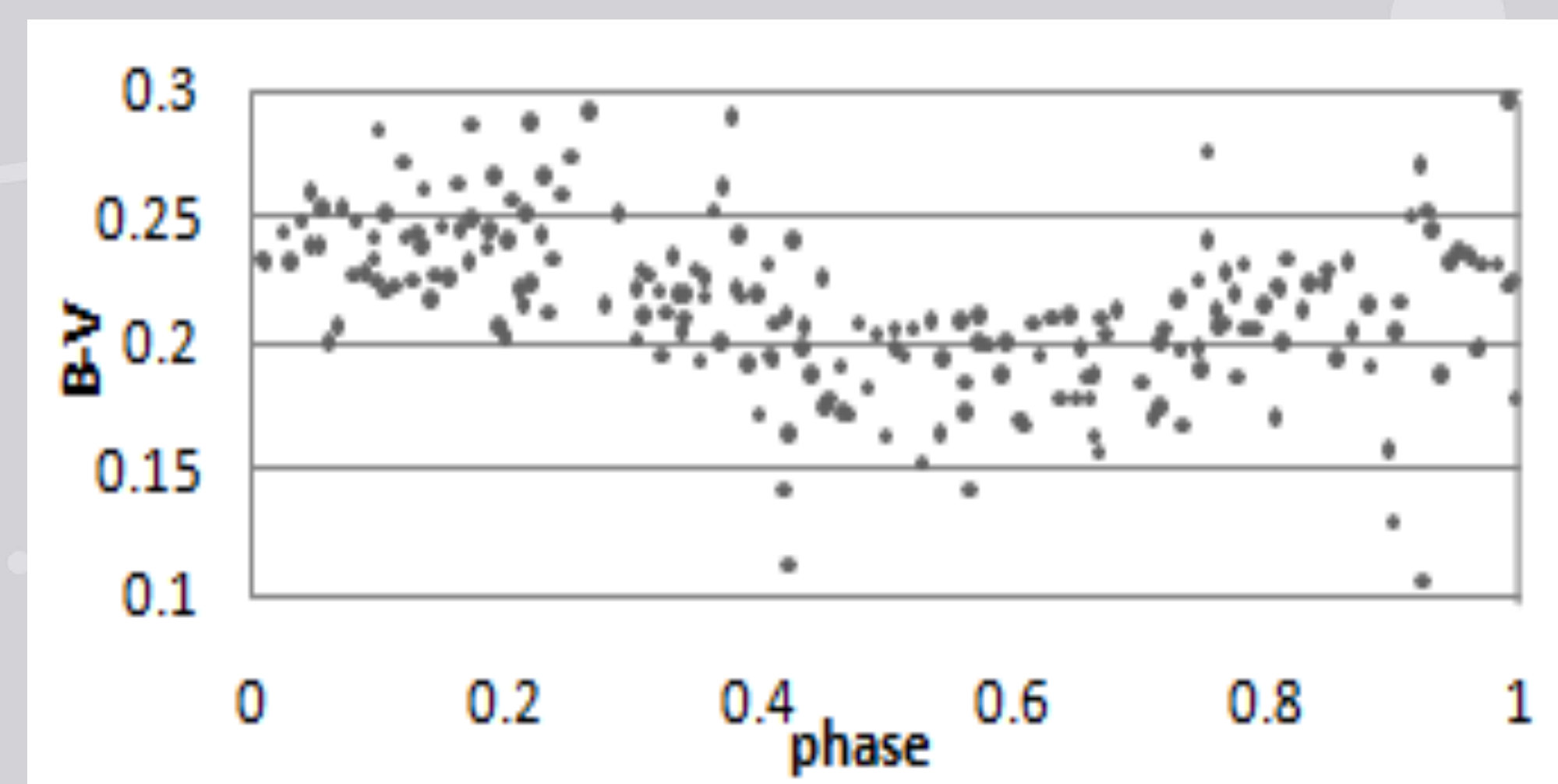


Fig 3 : The O-C diagram of V1162 Orionis in Fitting polynomial and sinusoidal curve.

As show in Fig 2. The equation of Polynomial II is  
 $O-C = (-1.40 \times 10^{-11})E^2 + (1.69 \times 10^{-6})E - (2.65 \times 10^{-3})$   
 The value of  $dp/de = 2a = 2.81 \times 10^{-11}$  day/cycle  
 can be converted to the period change  $1.66 \times 10^{-6} y^{-1}$ .



From Fig 4 display the color index (B-V) in the range 0.17-0.25 mag. That star have an effective temperature about 7500 K.

Fig 4 : The color index (B-V) in the range 0.17-0.25 mag.

## RESULTS

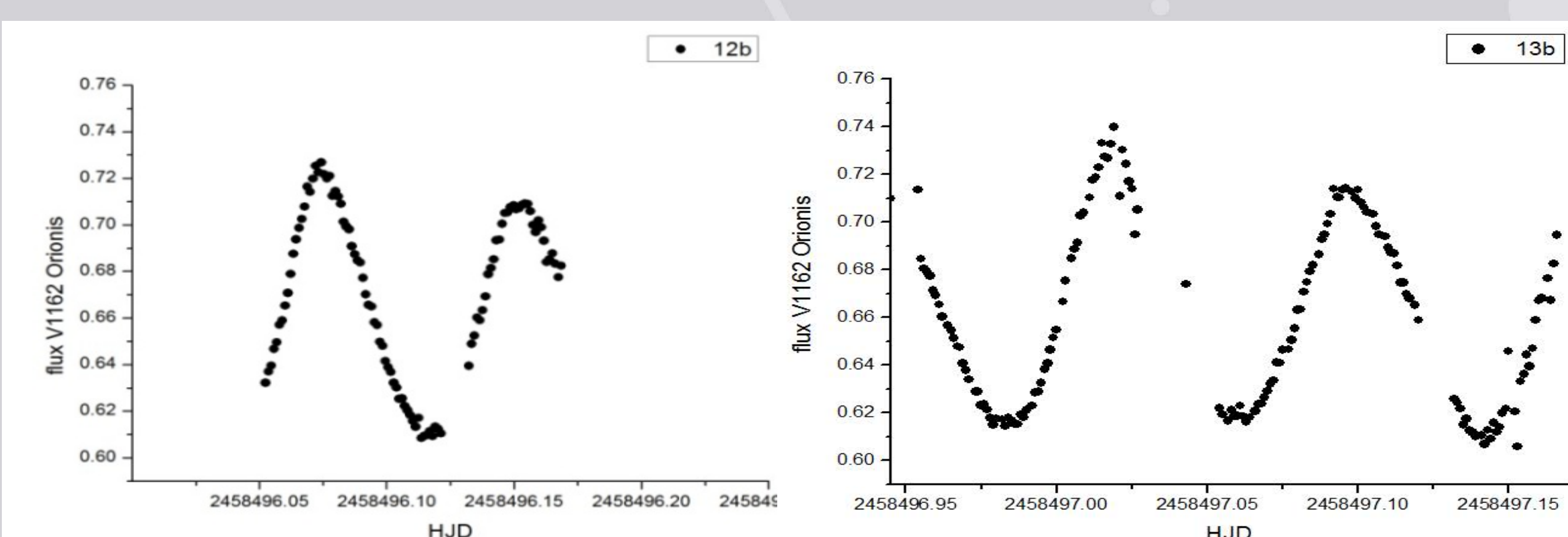


Fig 1 : Light curve of V1162 Ori on 12-13 January 2019.

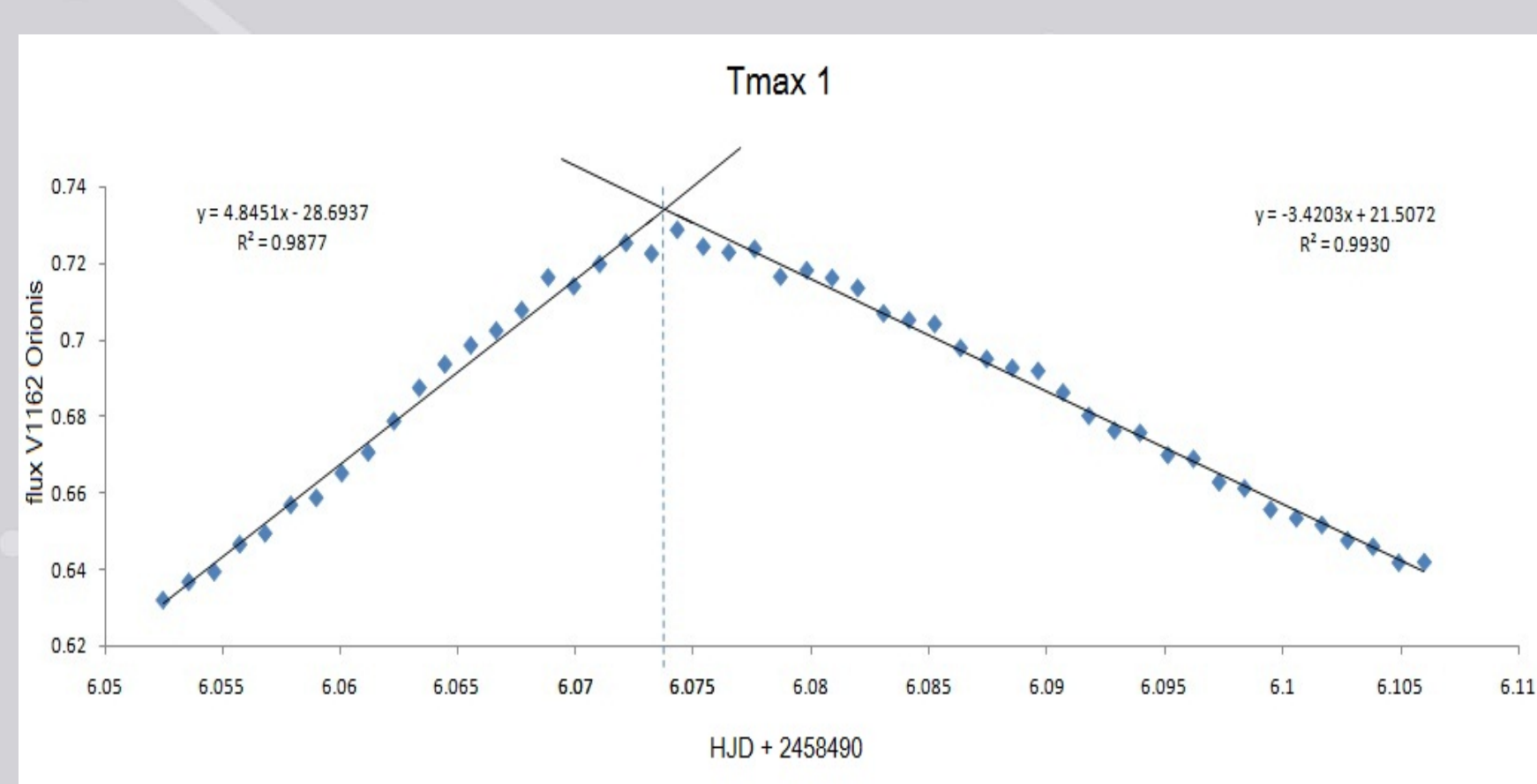


Fig 2 : Example graph between HJD and rel\_flux to find the times of maximum light.

## CONCLUSIONS

V1162 Orionis is  $\delta$  Scuti-type star. The O-C diagram show a combination of a downward parabolic variation with a period decreasing rate of  $2.81 \times 10^{-11}$  day/cycle or  $1.66 \times 10^{-6} y^{-1}$ , mean V1162 Orionis was provided in pre-main sequence star according to predicted theoretically from Breger & Pamyatnykh (1998). The color index (B-V) in the range 0.17-0.25 mag. That star have an effective temperature about 7500 K.

## REFERENCE

- Arentoft, T., Sterken, C., Handler, G. et al. 2001, A&A, 374, 1056.
- Breger, M., & Pamyatnykh, A. A. 1998, Period Changes of  $\delta$  Scuti Stars and Stellar Evolution, A&A 332, 958.
- Seung-Lee Kim.(2016). Three-Site Photometric Monitoring of  $\delta$  Sct-Type Pulsating star V162 Orionis.