Data analysis

August 10, 2012

Question 1

- Pontuation
  - 1 : 1.5 (0.5 each plot)
  - 2 : 3.0 (1 each coefficient)
  - 3 : 0.5
  - 4 : 3.0 (1 each plot)
  - 5 : 1.5 (0.5 each)
  - 6 : 1.5 (0.5 each)
  - 7 : 1.5
  - 8 : 0.5
  - 9 : 0.5
- Answers:
  - Itens 1,2 **See Fig. 1-3.**
  - Item 3: **Night B**
  - Itens 4,5,6 **See Fig. 4-6.**
  - Itens 7,8 **See Fig. 7.**
  - Item 9 **Yes**

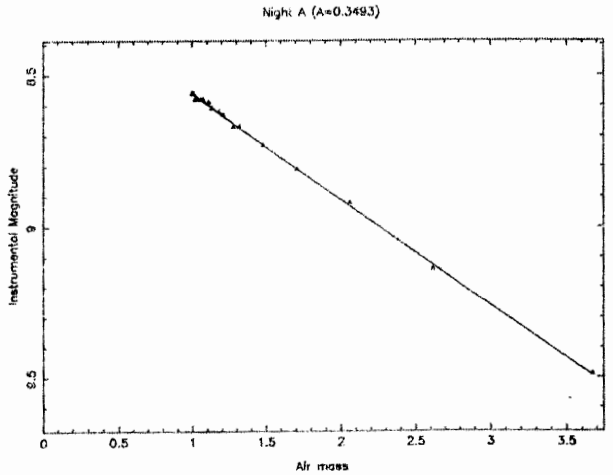

Figure 1:

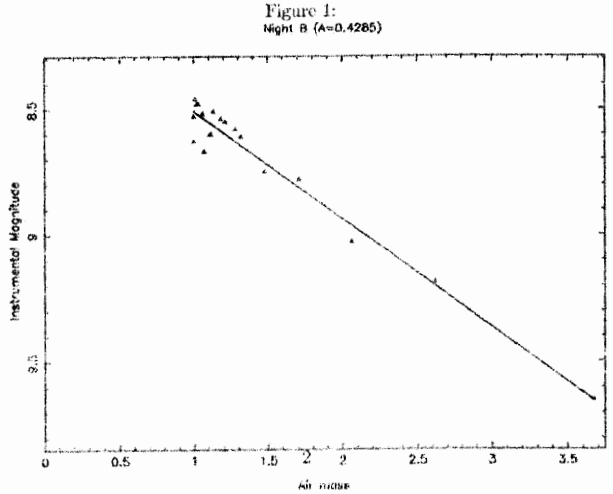

Figure 2:

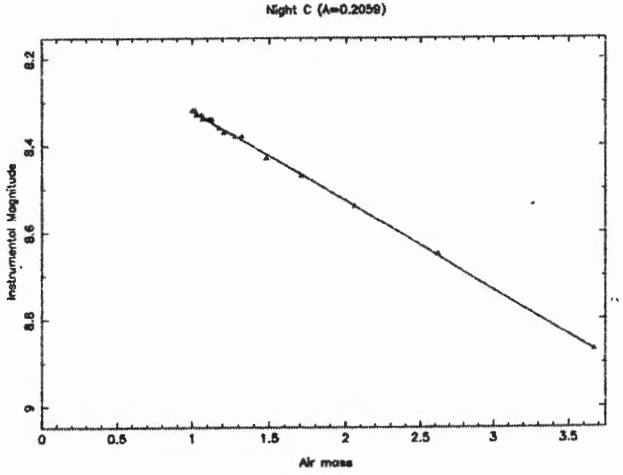

Figure 3:

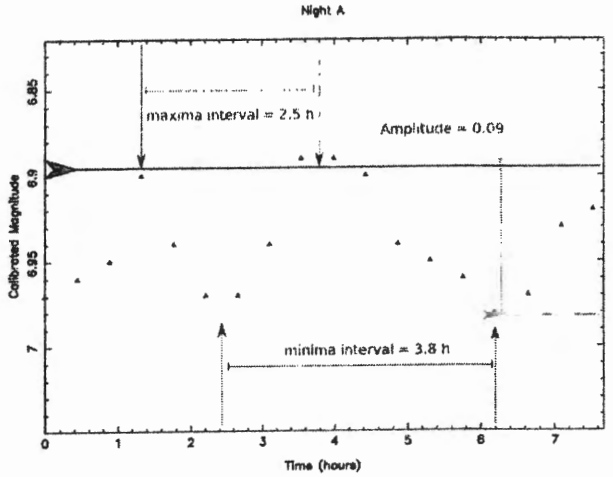

Figure 4:

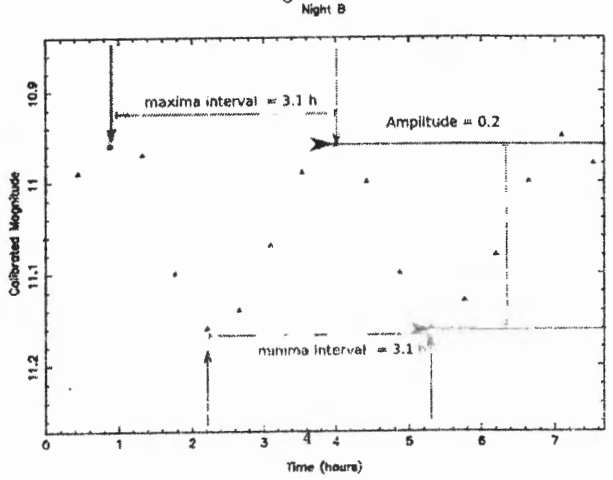

Figure 5:

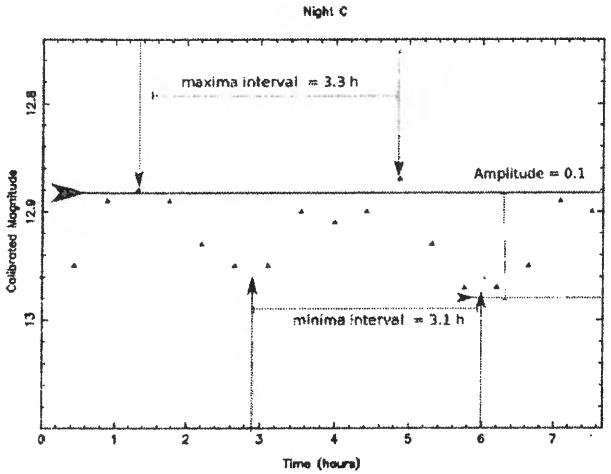

Figure 6:

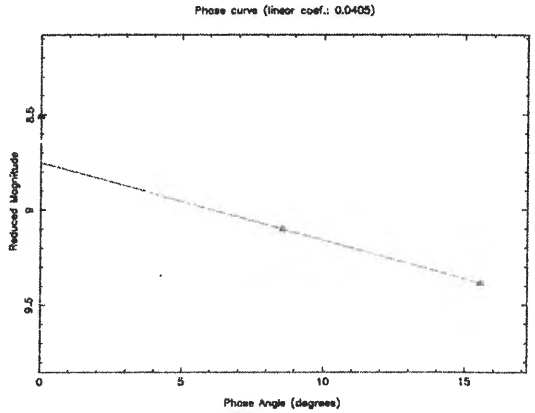

Figure 7:

Data analysis

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Question 2

- Pontuation

  1 : 1.0

  2 : 1.0

  3 : 3.0 (1.5 each star)

  4 : 0.5

- Answers:

  - Itens 1,2 : Figure 1
  - 3:

  Star1 : $m = 25.35$, $P = 48\,days$, $M = -6.06 \pm 0.05$, $d = 19.1 \pm 0.4\,Mpc$

  Star2 : $m = 26.25$, $P = 22\,days$, $M = -5.08 \pm 0.05$, $d = 18.4 \pm 0.4\,Mpc$

  - 4: $\Delta d = 0.67\,Mpc$. If one considers that a typical galaxy has a $100\,Kpc$ radius, then it is possible that they are in the same galaxy, considering the $0.4\,Mpc$ uncertainty of each distance.

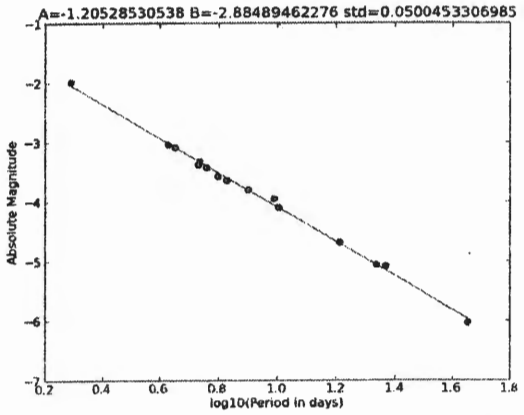

Figure 1: