



Astronomical Society of Southern Africa
SYMPOSIUM 2002



Recent ASSA Results on Comets and Meteors

Tim Cooper

Director, Comet and Meteor
Section

Agenda

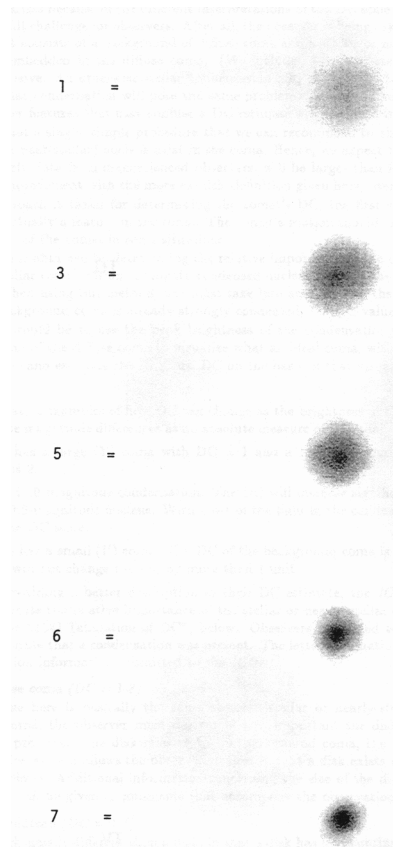
- Methodology of Comet Observation
- Results on a Selection of Comets
- Methodology of Meteor Observation
- Results on some Meteor Work
- Future Programs and Conclusions

Figure 1 Typical Comet Report

IIIIYYMnL YYYY MM DD.DD eM/mm.m:r AAA.ATF/xxxx /dd.ddnDC /t.ttmANG ICQ XX*OBSxx
 12345678901234567890123456789012345678901234567890123456789012345678901234567890

2002C1	2002	02	03.74	S	8.2	AA	5.0B	7	4.5	3			BEG01
2002C1	2002	02	11.75	S	7.5	AA	40.0L 4	72	2	5	20	m	C0002
29	2002	04	23.82	B	11.2	AC	20.0C14	85	5.5	7	1.3		XXX01
2010A1	2010	01	01.80	M	5.5:S	11.2L	8	50	10	2			XXX02
2010A1	2010	01	05.81	S	3.5	S	0.0E	1		5			XXX02

Figure 2 Degree of Condensation Scale



- | | |
|---|--|
| 0 | Totally diffuse without any brightening toward the centre of the coma |
| 1 | Very slight brightening |
| 3 | Obvious brightening but coma still very diffuse |
| 5 | Distinct brightening, would be described as moderately condensed |
| 7 | Sharp brightening with some diffuse coma, would be described as strongly condensed |
| 9 | Star-like or small disk, little if any diffuse coma |

Figure 3 Comet Hale-Bopp C/1995 O1

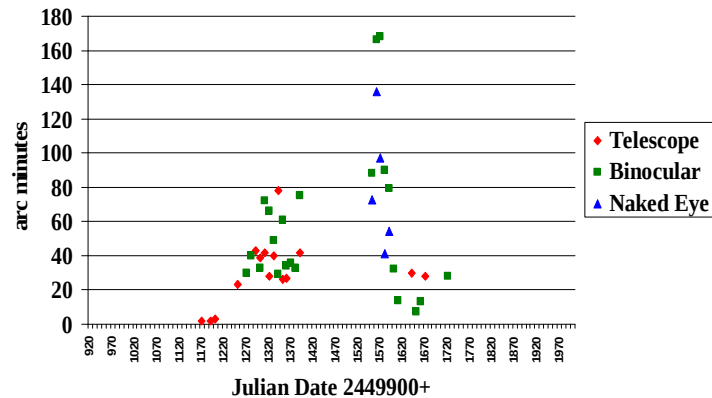
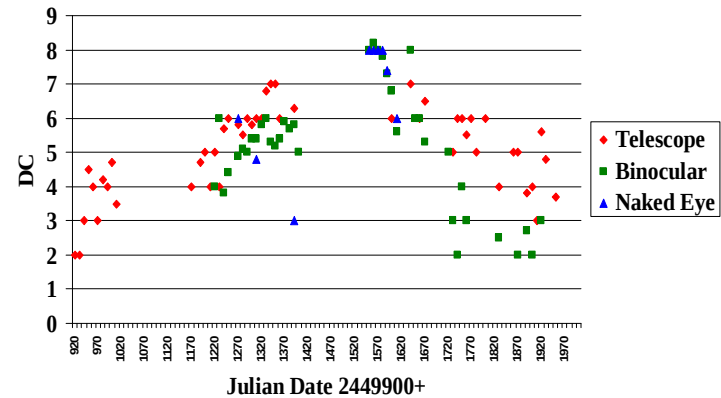
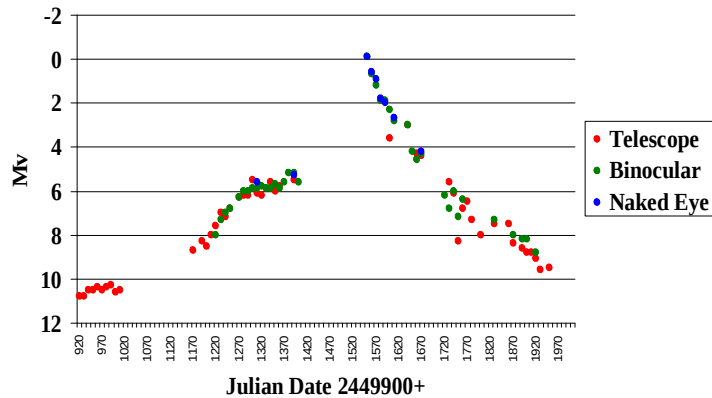


Figure 4 Comet SOHO C/1998 J1

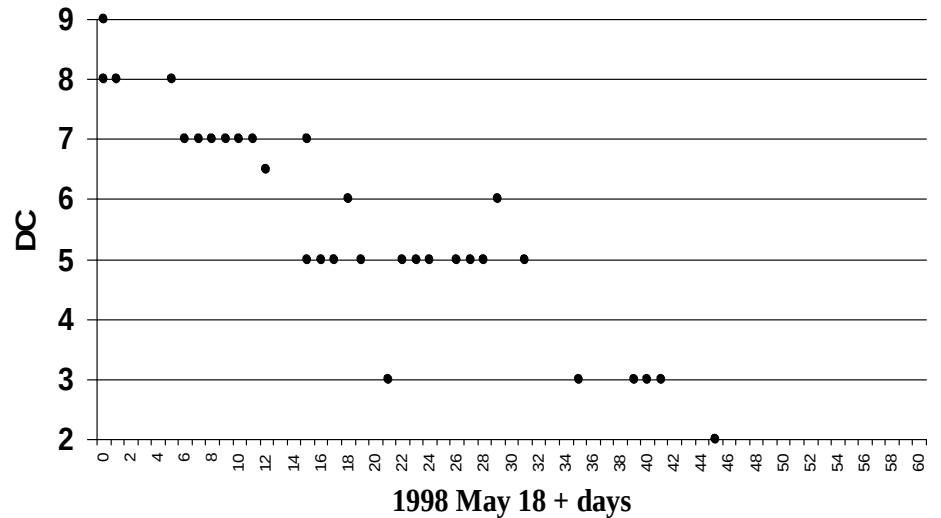
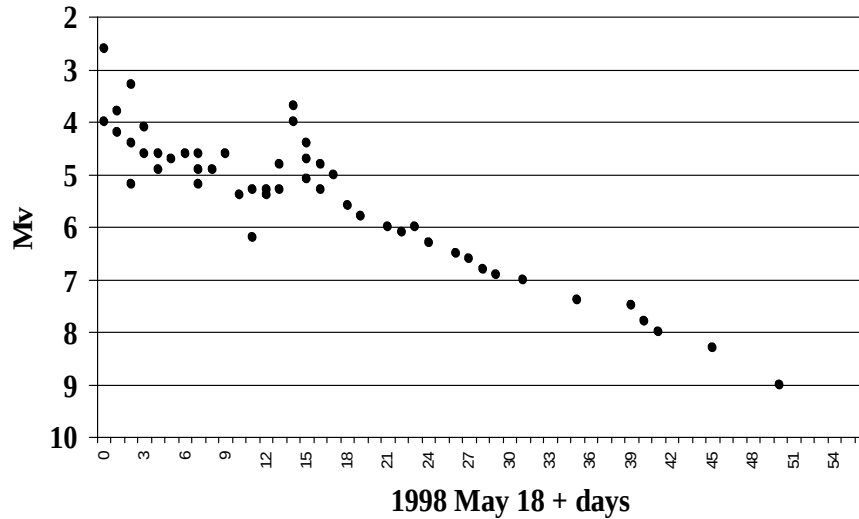


Figure 5 Comet LINEAR C/2001 A2

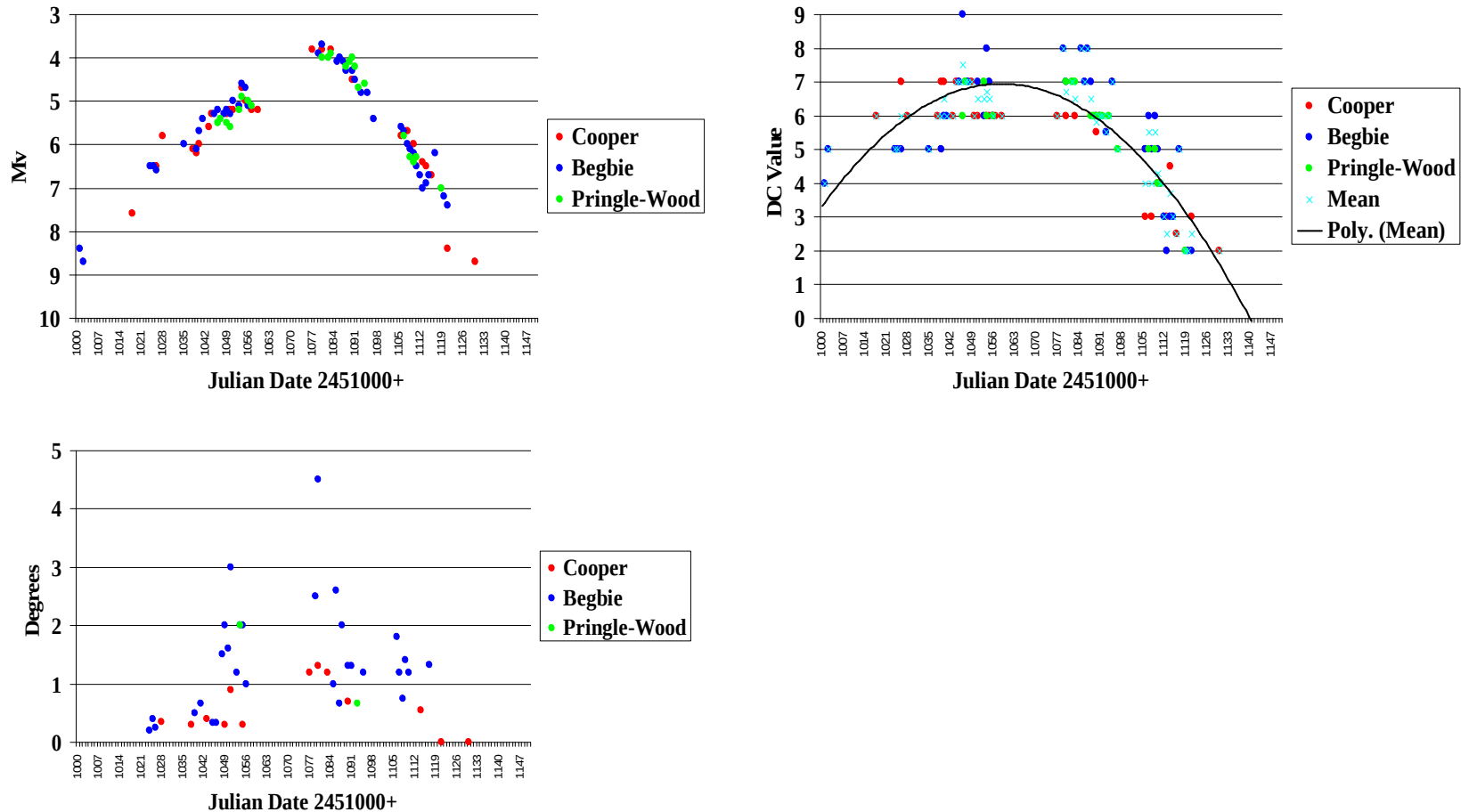
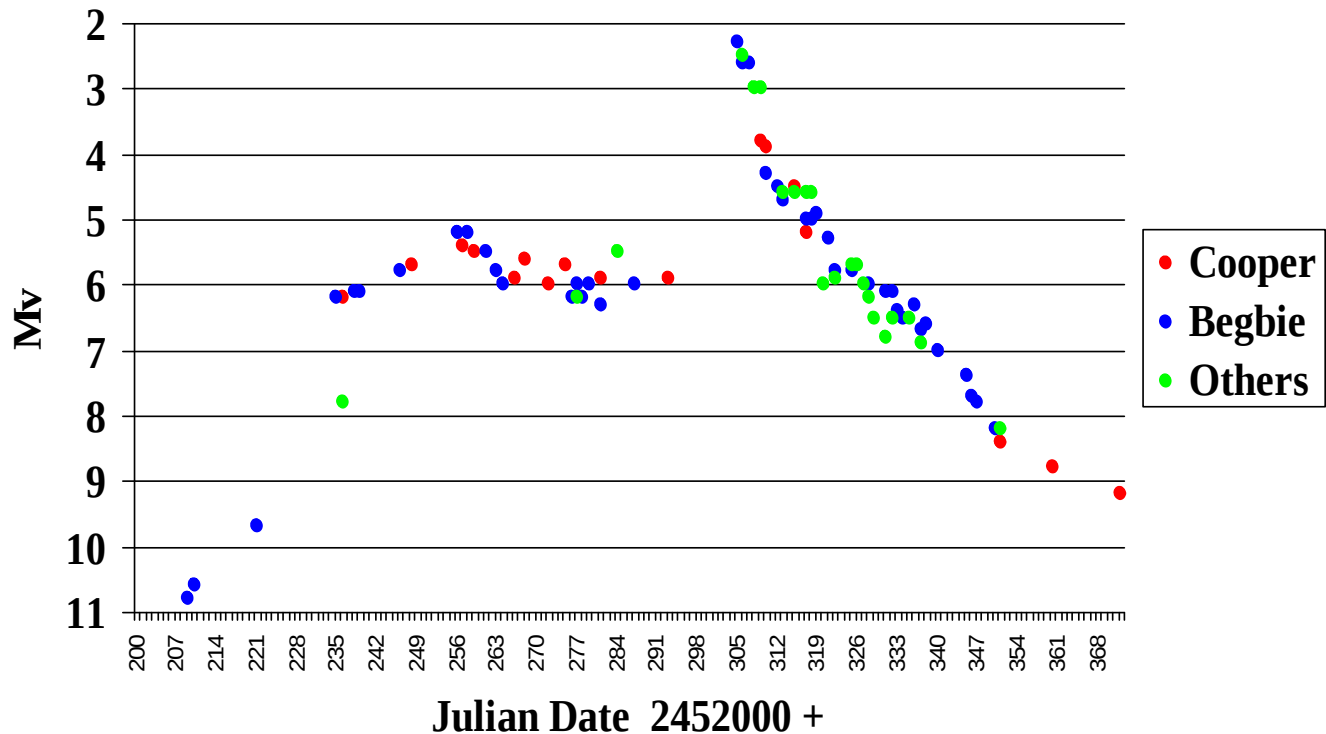


Figure 6 Comet LINEAR C/2000 WM1



Meteor Rate Calculation

$$\text{Rate} = N / T \quad (1)$$

$$\text{ZHR} = \frac{N \cdot F \cdot r^{(6.5-LM)}}{T_{\text{eff}} \cdot \sin h \cdot C_p} \quad (2)$$

$$\Delta\text{ZHR} = \text{ZHR} / \sqrt{N} \quad (3)$$

Figure 7 eta Aquarid Activity Profiles

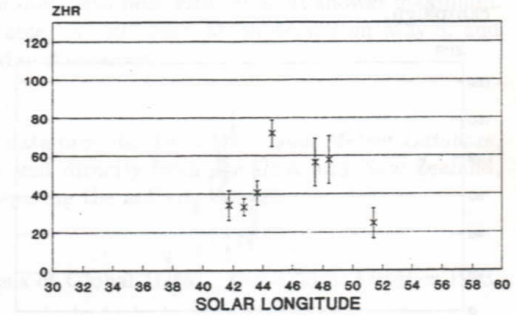
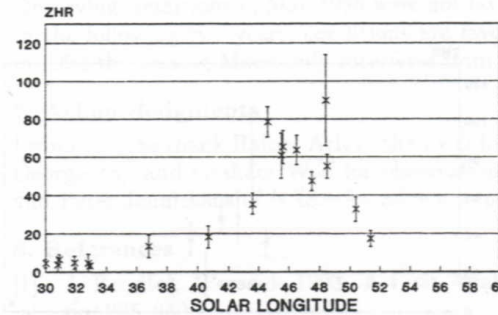


Figure 1 - Southern hemisphere rate profile of the 1986 (left) and the the 1988 (right) η -Aquarids.

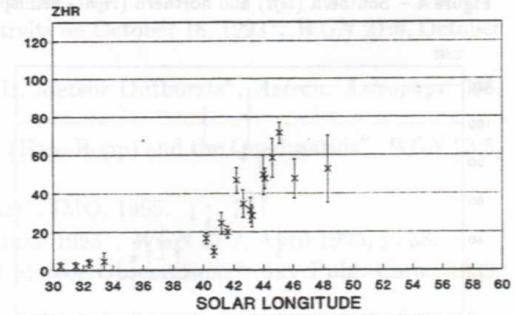
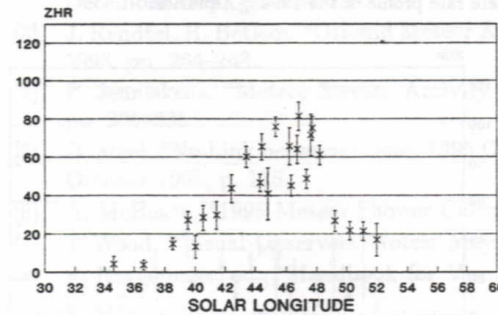


Figure 2 - Southern hemisphere rate profile of the 1989 (left) and the the 1990 (right) η -Aquarids.

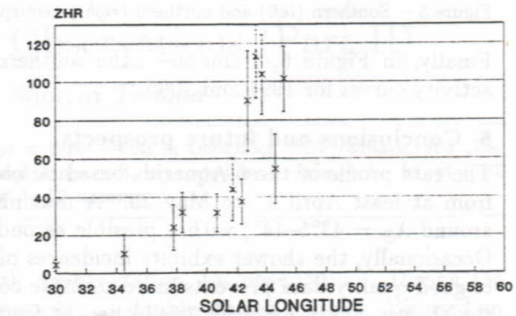
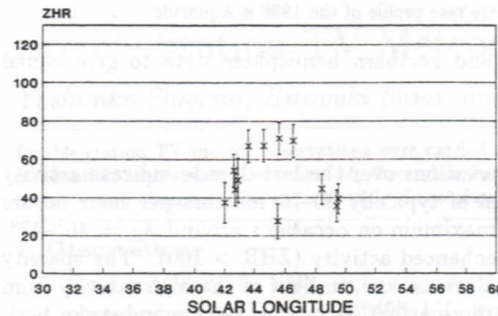


Figure 3 - Southern hemisphere rate profile of the 1992 (left) and the the 1993 (right) η -Aquarids.

Figure 8

April Lyrid Activity Profiles

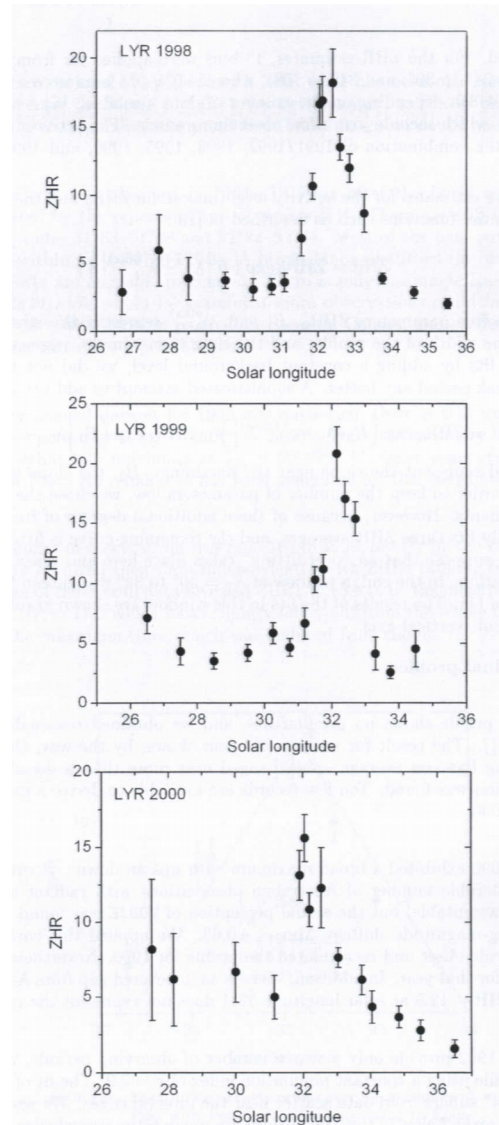


Figure 9
Virginid Plots
Tim Cooper
1998 March 31 - Apr 5

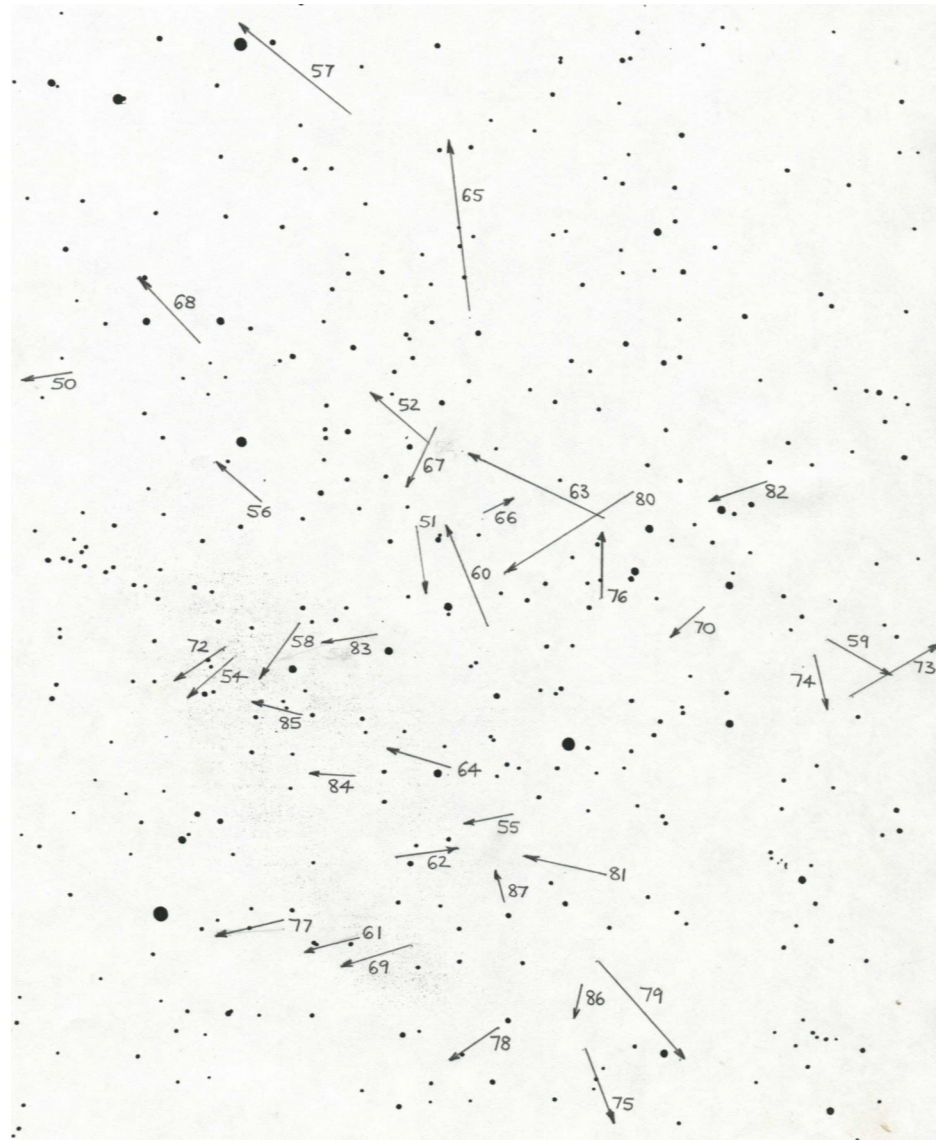
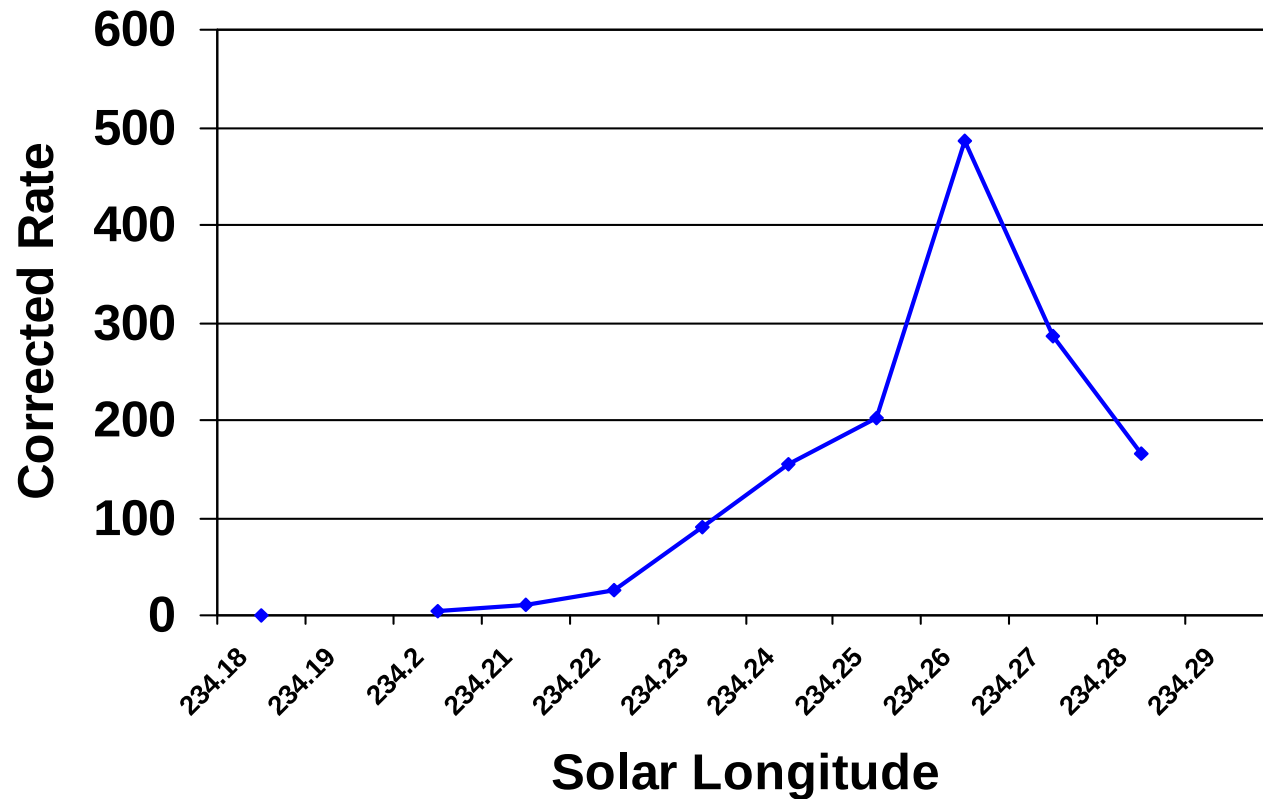


Figure 10 The Leonids in 1999



Future Programs

- CCD photometry of faint comets
- Comet search and discovery
- Radio monitoring of meteors
- Video observation of meteors
- Double station photography of meteors



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Figure 1 Typical Comet Report

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2010A1 2010 01 05.81 S 3.5 S 0.0E 1 5 XXX02
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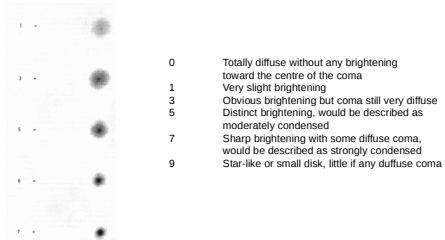




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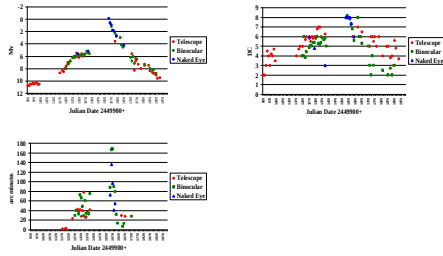




Figure 4 Comet SOHO C/1998 J1

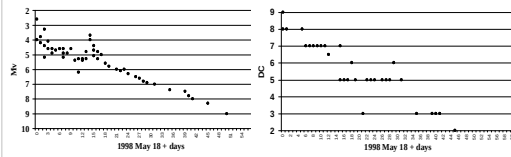




Figure 5 Comet LINEAR C/2001 A2

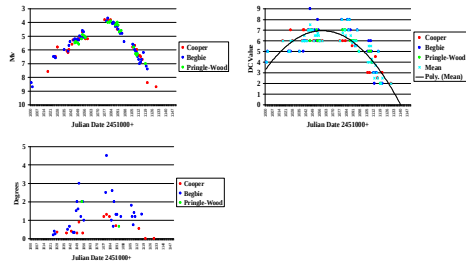
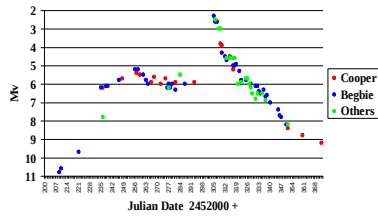




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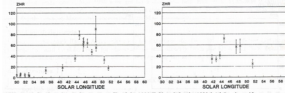


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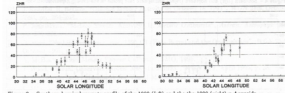


Figure 2 - Southern hemisphere rate profiles of the 1989 (left) and the 1993 (right) η -Aquarids.

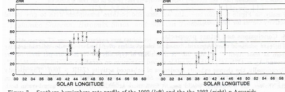


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April Lyrid
Activity Profiles

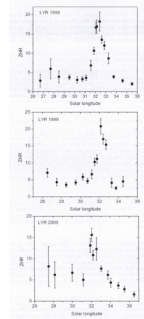


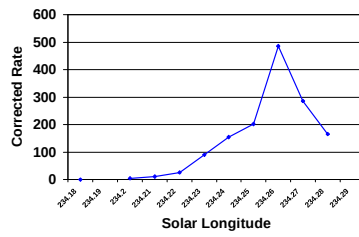


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