1996–1998 Polish Visual Meteor Database

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Abstract

The summary of 1996-1998 visual observations collected by the Polish Comets and Meteors Workshop is presented. In total, during 2328.12 effective observing hours 14085 meteors were seen and plotted onto gnomonic starmaps by 41 observers. The date, time, magnitude, angular velocity and equatorial coordinates for each observed event are given. The full 1996–1998 Polish Visual Meteor Database (PVMDB) is accessible via INTERNET

1 Introduction

Since 1994 the Polish Comets and Meteors Workshop (CMW) has been cooperating with the International Meteor Organization (IMO). During the first two years we made mostly visual observations of major showers without plotting the meteors onto the gnomonic star maps. Over time the experience of our observers grew and in 1996 we decided to start visual observations with plotting.

Every year a complete set of our observation reports was sent to the IMO and our results were included in the IMO Visual Meteor Database (VMDB) (see for example Arlt 2000). However we would like to point out that the VMDB contains only the information about hourly rates and magnitude distributions of the observed meteors. Thus, an error in classification of a meteor made by the observer while filling out the report form is included also in the VMDB.

Additionally the VMDB contains the data only about meteor showers from the IMO Working List of the Meteor Showers. Thus it is impossible to get the information about other small or poorly known streams from the VMDB.

The solution to the problem is to publish a full database containing all quantities describing a meteor event including its equatorial coordinates and angular velocity. Such a database can be searched for the presence of any shower in any moment of time.

The database of Polish telescopic observations made in the years 1996-1998 was already published by Olech & Jurek (2000). Following this approach we decided to publish in the same form our visual results from the years 1996-1998. Table 1 summarizes our visual work in this period of time. In a total 14085 meteors were seen during 2328.12 effective observing hours by 41 observers.

Table 2 shows a list of the CMW observers with their effective observing time and number of meteors plotted in each of years 1996-1998.
2 Coordinate files

The files `coor96.txt`, `coor97.txt` and `coor98.txt` contain data for each observed meteor such as the date of appearance, serial number of meteor, its magnitude, its angular velocity (in scale from A to F), time of appearance, equatorial coordinates of beginning and end, IMO code of the observer and three letter code. Below we show a small sample of such a file:

1998 01 01/02  1 4.5 C 00:47 219.20  76.42 237.00 72.38 SKOAN ABZ
1998 01 01/02  2 2.0 B 00:47 321.66  66.76 005.76 59.44 SKOAN ABZ
1998 01 01/02  3 1.5 C 00:47 216.55  52.21 236.21 56.24 SKOAN ABZ
1998 01 01/02  4 1.5 C 00:47 257.92  50.32 266.80 48.49 SKOAN ABZ
1998 01 01/02  5 4.0 D 00:47 211.86  50.55 206.85 51.73 SKOAN ABZ
1998 01 01/02  6 -2.0 B 00:47 097.50  87.00 312.50 81.00 SKOAN ABZ
1998 01 01/02  7 2.0 B 01:37 206.19  78.68 251.99 65.72 SKOAN ACA
1998 01 01/02  8 4.0 C 01:37 181.14  73.42 171.16 74.95 SKOAN ACA
1998 01 01/02 10 4.0 D 01:37 273.52  52.78 269.18 49.60 SKOAN ACA
1998 01 02/03  1 4.5 D 17:01 028.60  43.07 017.24 43.14 OLEAR ACB

and in Table 3 we give byte-by-byte description of these files.

Three letter code shown in the last column of `coor9?.txt` file is used for connecting each meteor with the information about the observation stored in the `head9?.txt` file.

The time of appearance of a meteor, when it is not given exactly in the report form, is assumed as the middle time of each observing period.

All equatorial coordinates were inputed using the CooReader software (Olech & Samujlo 1999).

3 Header files

The files `head96.txt`, `head97.txt`, `head98.txt` contain information about the each observing run such as: three letter code allowing to connect each observation with data on meteors presented in coordinate files, IMO code of observer, longitude and latitude of place of observation, date, UT time of begin and end of observation, solar longitude (J2000) of middle time of each run, equatorial coordinates of observed field, effective time of observation, cloud correction factor $F$, stellar limiting magnitude estimated by the naked eye and the IMO code of the place of observation.

Below we show a small sample of such a file:

ABZ SKOAN 21.0 E 50.0 N 02 01 98 0016 0118 281.444 210 75 1.00 1.00 5.80 34029
ACA SKOAN 21.0 E 50.0 N 02 01 98 0016 0118 281.479 210 75 0.60 1.00 5.72 34029
ACB OLEAR 23.5 E 51.1 N 02 01 98 1630 1732 282.133 000 70 1.00 1.00 5.42 34012
ACC OLEAR 23.5 E 51.1 N 02 01 98 2026 2134 282.302 000 70 1.00 1.00 5.70 34012
ACD OLEAR 23.5 E 51.1 N 03 01 98 0005 0108 282.456 000 70 1.00 1.00 6.18 34012
ACE OLEAR 23.5 E 51.1 N 03 01 98 0110 0214 282.502 000 70 1.00 1.00 6.13 34012
ACF OLEAR 23.5 E 51.1 N 03 01 98 0214 0305 282.543 000 70 0.75 1.00 6.15 34012
ACG SZAKO 23.2 E 50.5 N 02 01 98 2003 2124 282.291 181 53 1.30 1.00 6.40 34040

Table 4 gives a byte-by-byte description of the header files.
4 Summary

We have presented the summary of the 1996-1998 visual observations made by the Polish Comets and Meteors Workshop. In total 14085 meteors were observed during 2328.12 effective observing hours collected by 41 observers. The date, time, magnitude, angular velocity and equatorial coordinates for each observed event is given. The full 1996–1998 Polish Visual Meteor Database (PVMDB) is accessible via INTERNET at the following URL: [http://www.astrouw.edu.pl/~olech/VIS/](http://www.astrouw.edu.pl/~olech/VIS/).

The 1999-2000 data are still under review but they will be available to the astronomical community as soon as possible.

Acknowledgements We would like to thank to all observers who sent us their observations. This work was supported by KBN grant 2 P03D 026 20. A.O. acknowledges also support from Fundacja na Rzecz Nauki Polskiej.

References

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Table 1: Polish Visual Meteor Database (PVMDB) grand totals for 1996-1998

| Year | Observers | $T_{\text{eff}}(h)$ | Meteors |
|------|-----------|---------------------|---------|
| 1996 | 18        | 247.86              | 1508    |
| 1997 | 25        | 849.41              | 5269    |
| 1998 | 31        | 1230.85             | 7308    |
| Total| 41        | 2328.12             | 14085   |
Table 2: Total effective observing time in hours ($T_{\text{eff}}$) and number of meteors plotted ($N$) per observer in years 1996-1998.

| Observer                  | IMO Code | 1996 | 1997 | 1998 | Total |
|---------------------------|----------|------|------|------|-------|
|                           |          | $T_{\text{eff}}$ | $N$  | $T_{\text{eff}}$ | $N$  | $T_{\text{eff}}$ | $N$  | $T_{\text{eff}}$ | $N$  |
| Jarosław Dygos             | DYGJA    | 44.99| 181  | 308.98| 1324 | 353.97       | 1505 |
| Tomasz Fajfer              | FAJTO    | 84.50| 382  | 185.50| 862  | 22.50        | 115  | 292.50       | 1359 |
| Konrad Szaruga             | SZAKO    | 26.14| 144  | 108.15| 659  | 88.35        | 437  | 222.64       | 1240 |
| Krzysztof Socha            | SOCKR    | 17.31| 102  | 87.47 | 616  | 105.11       | 769  | 209.89       | 1487 |
| Maciej Kwinta              | KWIMA    | 4.67 | 19   | 71.24 | 438  | 68.08        | 540  | 143.99       | 997  |
| Gracjan Maciejewski        | MACGR    | —    | —    | —    | —    | 49.17        | 219  | 81.17        | 394  | 130.34       | 613  |
| Marcin Konopka             | KONMA    | —    | —    | —    | —    | 36.39        | 349  | 81.59        | 450  | 117.98       | 799  |
| Arkadiusz Olech            | OLEAR    | 20.92| 248  | 42.88 | 540  | 49.75        | 1359 | 113.55       | 1251 |
| Andrzej Skoczewski         | SKOAN    | —    | —    | —    | —    | 11.83        | 76   | 43.49        | 282  | 55.32        | 358  |
| Paweł Trybus               | TRYPA    | —    | —    | 2.17 | 8    | 90.55        | 587  | 92.72        | 595  |
| Wojciech Jonderko          | JONWO    | 2.20 | 5    | 22.17 | 137  | 39.12        | 155  | 63.49        | 297  |
| Marcin Gajos               | GAJMR    | 6.29 | 37   | 35.17 | 248  | 17.63        | 104  | 59.09        | 389  |
| Albert Krzyśki             | KRZAL    | —    | —    | 11.83| 76   | 43.49        | 282  | 55.32        | 358  |
| Aleksander Trofimowicz     | TROAL    | —    | —    | —    | —    | 38.47        | 229  | 38.47        | 229  |
| Krzysztof Wtorek           | WTOKR    | 23.00| 140  | 11.99| 78   | —           | —    | 34.99        | 218  |
| Łukasz Raurowicz           | RAULU    | —    | —    | 23.62| 163  | 6.09         | 41   | 29.71        | 204  |
| Michał Jurek               | JURMC    | 8.52 | 43   | 14.66| 93   | 6.00         | 53   | 29.18        | 189  |
| Cezary Gałan               | GALCE    | —    | —    | —    | —    | 28.85        | 204  | 28.85        | 204  |
| Łukasz Pospieszny           | POSLU    | 20.68| 158  | 6.91 | 30   | —           | —    | 27.59        | 188  |
| Luiza Wojciechowska        | WOJLU    | —    | —    | —    | —    | 25.32        | 168  | 25.32        | 168  |
| Mariusz Wiśniewski         | WISMA    | —    | —    | —    | —    | 20.86        | 342  | 20.86        | 342  |
| Maciej Reszelski           | RESMA    | 7.86 | 89   | 8.77 | 99   | —           | —    | 16.63        | 188  |
| Paweł Brewczał             | BREPA    | —    | —    | —    | —    | 16.52        | 81   | 16.52        | 81   |
| Łukasz Sanocki             | SANLU    | 5.77 | 39   | 4.34 | 40   | 6.17         | 28   | 16.28        | 107  |
| Tomasz Ramza               | RAMTO    | 7.00 | 32   | 5.98 | 19   | —           | —    | 12.98        | 51   |
| Artur Szaruga              | SZAAR    | —    | —    | 10.17| 37   | 2.12         | 8    | 12.29        | 45   |
| Tomasz Dziubiński          | DZITO    | 3.50 | 21   | 8.00 | 42   | —           | —    | 11.50        | 63   |
| Krzysztof Kamiński        | KAMKR    | —    | —    | —    | —    | 7.60         | 45   | 1.35         | 8    | 8.95         | 53   |
| Jarosław Nocoń             | NOCJA    | —    | —    | —    | —    | 6.35         | 21   | 6.53         | 21   |
| Waldemar Drozdowski        | DROWA    | —    | —    | —    | —    | 1.00         | 3    | 5.40         | 19   | 6.40         | 22   |
| Rafał Kopacki              | KOPR    | 5.50 | 30   | —    | —    | —           | —    | 5.50         | 30   |
| Krzysztof Murarczyk       | MULKR    | —    | —    | —    | —    | 4.00         | 17   | 4.00         | 17   |
| Mariola Czubaszek          | CZUMA    | —    | —    | —    | —    | 2.80         | 40   | 2.80         | 40   |
| Adam Pisarek               | PISAD    | —    | —    | —    | —    | 2.71         | 8    | 2.71         | 8    |
| Marek Piotrowski           | PIOMA    | —    | —    | 2.56 | 11   | —           | —    | 2.56         | 11   |
| Jacek Kluczewski           | KLUJA    | —    | —    | —    | —    | 2.00         | 21   | 2.00         | 21   |
| Sylwia Chelmoniak          | CHESY    | —    | —    | —    | —    | 1.50         | 11   | 1.50         | 11   |
| Krzysztof Gdula            | GDUKR    | 1.50 | 4    | —    | —    | 1.50         | 11   | 1.50         | 4    |
| Paweł Musiałski            | MUSPA    | 1.50 | 11   | —    | —    | —           | —    | 1.50         | 11   |
| Sylwia Hołowacz            | HOLSY    | —    | —    | —    | —    | 1.00         | 9    | 1.00         | 9    |
| Robert Sołtys              | SOLRO    | 1.00 | 4    | —    | —    | —           | —    | 1.00         | 4    |
| **Total**                  |          | —    | —    | —    | —    | 247.86       | 1508 | 849.41       | 5269 | 1230.85      | 7308 | 2328.12      | 14085 |
Table 3: Byte-by-byte description of coor9?.txt files

| Bytes | Format | Units | Explanations                   |
|-------|--------|-------|--------------------------------|
| 1-4   | I4     | -     | Year                           |
| 6-7   | I2     | -     | Month                          |
| 9-13  | A5     | -     | Day/Day                        |
| 15-17 | I3     | -     | Number of meteor in report     |
| 19-21 | F5.1   | mag   | magnitude of meteor            |
| 25    | I1     | -     | Velocity in scale form A to F  |
| 27-31 | A5     | UT    | Time                           |
| 33-38 | F6.2   | °     | RA of the beginning of meteor (J2000) |
| 40-45 | F6.2   | °     | Decl. of the beginning of meteor (J2000) |
| 47-52 | F6.2   | °     | RA of the end of meteor (J2000) |
| 54-59 | F6.2   | °     | Decl. of the end of meteor (J2000) |
| 61-65 | A5     | -     | IMO Code of observer           |
| 67-69 | A3     | -     | Three letter code              |

Table 4: Byte-by-byte description of head9?.txt files

| Bytes | Format | Units | Explanations                   |
|-------|--------|-------|--------------------------------|
| 1-3   | A3     | -     | Three letter code              |
| 5-9   | A5     | -     | IMO Code of observer           |
| 11-15 | F5.1   | °     | Longitude of place of observation |
| 17    | A1     | -     | Hemisphere designation        |
| 19-22 | F4.1   | °     | Latitude of place of observation |
| 24    | A1     | -     | Hemisphere designation        |
| 26-27 | I2     | -     | Day                            |
| 29-30 | I2     | -     | Month                          |
| 32-33 | I2     | -     | Year                           |
| 35-38 | I4     | -     | Time of beginning of observation (UT) |
| 40-43 | I4     | -     | Time of end of observation (UT) |
| 45-51 | F7.3   | °     | Solar longitude of middle time of observation (J2000) |
| 53-55 | I3     | °     | RA of center of field of view (J2000) |
| 57-59 | I3     | °     | Decl. of center of field of view (J2000) |
| 61-64 | F4.2   | h     | Effective time of observation  |
| 66-69 | F4.2   | -     | Cloud correction factor $F$    |
| 71-74 | F4.2   | mag   | Limiting magnitude estimated in field of view |
| 76-80 | I5     | -     | IMO code of the place of observation |