The I.A.U. meteor shower nomenclature rules

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The International Astronomical Union at its 2006 General Assembly in Prague has adopted a set of rules for meteor shower nomenclature, a working list with designated names (with IAU numbers and three-letter codes), and established a *Task Group for Meteor Shower Nomenclature* in Commission 22 (Meteors and Interplanetary Dust) to help define which meteor showers exist from well defined groups of meteoroids from a single parent body.

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1 Introduction

Commission 22 of the International Astronomical Union is concerned with all aspects of meteors and with interplanetary dust. It falls under IAU Division III (Planetary Systems Sciences) and is currently chaired by Dr. Pavel Spurný of the Ondřejov Observatory.

The International Astronomical Union has the task of defining astronomical terms and giving names to entities in space whenever needed to further astronomical research. Most recently, it labored over the definition of 'planet' and created a category of 'dwarf planets' to which Pluto belongs. Until now, meteor showers have not been named officially, as a result of which there is much confusion in the literature. Some streams are well defined but have multiple names (Draconids, gamma-Draconids, October Draconids, Giacobinids, Giacobini-Zinnerids), while many others are only ill defined and in each detection are given a different name.

During the IAU General Assembly in Prague on August 24, Commission 22 established a new *Task Group for Meteor Shower Nomenclature*, confirmed at the subsequent Division III meeting, with the objective of formulating a descriptive list of established meteor showers that can receive official names during the next IAU General Assembly (Spurný & Borovička, 2006). The objective of this action is to uniquely identify all existing meteor showers and thus enable studies of associations between meteor showers and potential parent bodies among the many Near-Earth Objects that are being discovered. Each new shower is a historic document of past cometary activity and has the potential to identify what NEOs are now dormant comets.

The *Task Group for Meteor Shower Nomenclature* will work from a working list of $\sim$ 230 showers compiled from past publications (Jenniskens, 2006). Each proposed shower was given a name, as well as a unique number and a three-letter code to be used in future publications that discuss the recovery of the streams in orbit surveys and other types of observations. Many of these showers need further study to establish whether or not they represent streams of meteoroids from a single parent body. The three-letter code is based on the codes used by IMO (in conference with IMO president Jürgen Rendtel), while the IAU numbers go back to a system of numbers introduced in the work at the Harvard Smithsonian Center for Astrophysics and now used by the IAU Meteor Orbit Data Center, by simply adding to the numbers given to potential meteor showers in the past. The designated names are mostly traditional, adhering to a system of nomenclature rules given below, but accepting that it is not always known what is the nearest star to the radiant position at the time of the peak of the shower.

2 Meteor shower nomenclature

The general rule is that a meteor shower (and a meteoroid stream) should be named after the then current constellation that contains the radiant, specifically using the possessive Latin form. The possessive Latin names for the constellations end in one of seven declensions:

- -ae (e.g., Lyrae),
- -is (e.g., Leonis),
- -i (e.g., Ophiuchi),
- -us (e.g., Doradus),
- -ei (e.g., Equulei),
- -ium (e.g., Piscium), or
- -orum (e.g., Geminorum).

Custom is to replace the final suffix with '-id', or plural '-ids'. Meteors from Aquarius (Aquarii) are Aquariids, not Aquarids. An exception is made for meteors from the constellation of Hydrus, which will be called 'Hydrusids', in order not to confuse with meteors from the constellation of Hydra.

When the constellation name has two parts, only the second declension is to be replaced by 'id'. Hence, meteors from Canes Venatici (possessive Canum Venaticorum) would be 'Canum Venaticids'. When two constellations are grouped together, a bracket is used and both constellation names will have 'id'. Hence, Puppids-Velids.

If a higher precision is needed, then the shower is named after the nearest (if in doubt: brightest) star with a Greek letter assigned, as first introduced in the Uranometria atlas by Johann Bayer (1603), or one with a later introduced Roman letter. If in doubt, the radiant position at the time of the peak of the shower

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(in the year of discovery) should be taken. Hence, the meteors of comet IRAS-Araki-Alcock would be named 'eta-Lyrids'.

Following existing custom, one may add the name of the month to distinguish among showers from the same constellation. In this case, one could call the shower from comet IRAS-Araki-Alcock the 'May Lyrids', in order to differentiate from the more familiar 'April Lyrids'.

For daytime showers, it is custom to add 'Daytime', hence the name for the 'Daytime Arietids' in June as opposed to the Arietids in October.

South and North refer to 'branches' of a shower south and north of the ecliptic plane, resulting from meteoroids of the same (original) parent body. Because they have nearly the same longitude of perihelion at a given solar longitude (the argument of perihelion and longitude of ascending node differing by 180° between South and North), the two branches are active over about the same time period.

If the meteoroid stream is encountered at the other node, it is customary to speak of 'twin showers'. The Orionids and eta-Aquariids are twin showers, even though each represent dust deposited at different times and are now in quite different orbits. As a matter of custom, twin showers and the north and south branches of a stream carry different names.

Meteor showers are not to be named after their parent bodies (e.g., Giacobinids, IRAS-Araki-Alcockids). The names of comets tend not to be Latin, making the naming not unique. Also, comet names can change when they get lost and are recovered.

3 Implementation

The Task Group for Meteor Shower Nomenclature will choose among possible alternative proposed names for newly identified meteor showers, in order to establish a unique name for each meteor shower (e.g., eta-Lyrids, not May Lyrids).

This working list and the nomenclature rules below will be posted at the website of the IAU Meteor Orbit Data Center and that of IAU Commission 22, which will also keep a list of the members of the Task Group and contact information. In the coming years, this working list can be extended with newly identified meteor showers, when sufficiently detailed information is available. In two and half years from now, half a year before the next IAU General Assembly in Rio de Janeiro (Brasil), a subset of all showers will be selected for inclusion in the list of established meteor showers. The list of established meteor showers shall also be posted at the IAU Meteor Orbit Data Center website: `http://www.astro.sk/~ne/IAUMDC/Ph2003/` .

References

Jenniskens P. (2006). *Meteor Showers and their Parent Comets*. Cambridge University Press, 790 pages.

Spurný P. and Borovička J. (2006). "Minutes of the Commission 22 business meeting". IAU General Assembly, Prague, August 24, 2006. To be published by IAU, probably in Bulletin 99, 2006 December.