

The 2011 outburst of the Draconid meteor shower: an opportunity for education and outreach

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Abstract

One of the major astronomical events in 2011 was the outburst of the Draconid meteor shower. The public's interest for this event has resulted in several outreach activities in different countries. One of these was developed by a researcher working in meteor science in collaboration with the online site of the Spanish public television with the aim to get a wide audience and provide useful and accurate information to observe this outburst. For this purpose multimedia material describing the event was produced and distributed online as streaming video. This initiative is described here.

1. Introduction

The parent body of the Draconid meteoroid stream is the short period comet 21P/Giacobini-Zinner. This cometary debris gives rise to an annual display of meteors from about October 6 to October 10, with a maximum activity around October 8. Although the Draconids is a minor meteor shower, sometimes it has produced brief but spectacular meteor storms. Two of these storms took place in 1933 and 1946 [1]. Several researchers predicted the encounter of Earth on October 8, 2011 with different dust trails ejected by comet 21P/Giacobini-Zinner in the late 19th and early 20th century. According to this, an outburst with an activity of several hundred meteors per hour was expected [2, 3]. The interest of the public for this event resulted in the development of a wide number of outreach activities in many countries and, obviously, press, television and other media had a key role to increase the potential audience of these initiatives and make the corresponding information more accessible. However, in order to guarantee that this information is reliable, correct and accurate, it is very important to involve researchers working in meteor science. With this aim, an initiative was developed by a researcher in collaboration with the

Spanish public television that resulted in the production of a short documentary entitled "Draconids: the comet's storm" (Fig.1). This was distributed as streaming video through the television's website (<http://www.rtve.es>), which is also the main online news website in Spain. The idea succeeded and during several days the video was among the 10 most viewed news on this site.



Figure 1: Screenshots from the video "Draconids: the comet's storm".

2. Contents

The 5 minutes video produced within the outreach initiative exposed here describes the origin of the Draconids meteoroid stream, explaining how the activation of comet 21P/Giacobini-Zinner produces these particles of interplanetary matter and how the Earth intersects the dust trail on Oct. 8, 2011. Information is also given on how the ablation of meteoroids in the Earth's atmosphere produces the expected Draconid meteor outburst. In the last part, several hints are given for a better visualization of the event. The full video sequence can be accessed (in Spanish language) at the following URL: <http://www.rtve.es/noticias/20111007/draconidas-tormenta-del-cometa/464778.shtml>

3. Methods

A virtual scene was created with 3D Studio Max software for every sequence in the video. This implied a careful selection of proper materials, textures, illuminations, objects and effects. The scenes were then animated by creating proper cameras and paths for the corresponding objects. As, once the scenes were fully created, several days were necessary to perform the whole renderization process, several computers were used at the same time for this task in order to decrease the production time. Instead Subtitles were used to describe the contents of each scene and a soundtrack was inserted.

4. Summary and conclusions

An outreach activity has been developed in collaboration with the spanish public television in the context of the 2011 Draconid outburst. For this purpose a documentary has been produced by using advanced computer animation techniques. The success of this initiative provides an example of how important is synergy between media and researchers to promote the interest for astronomical events.

5. References

- [1] Jacchia L.G. et al. ApJ 111, 104, 1959
- [2] Vaubaillon J. et al. WGN 39:3, pp. 59-63, 2011
- [3] Maslov M. et al. WGN 39:3, pp. 64-67, 2011