Abstract

At the Museum of the Science and the Cosmos (MCC, La Laguna, Tenerife) there is a small planetarium. All the different planetarium shows are carried out entirely by the Museum staff, from the original idea and the script to the final production. In February 2007, *Meteorite, a rock from space*, a new show, specifically for children, was released. The characters (astronomical bodies) are played by puppets, designed and manufactured for this occasion; the script has been carefully written, and introduces many astronomical concepts in the form of an entertaining tale, which encourages the children to participate by crying, counting, helping the characters... just like a traditional puppet show.

The aim of this contribution is to review the different resources (some of them really innovative) used to create this programme, which offers plenty of future possibilities.

Overview

- Title: *Meteorite, a rock from space*
- Original idea and script: Oswaldo González Sánchez & Rubén Naveros Naveiras
- Scientific revision: Inés Rodríguez Hidalgo
- Country: Spain
- Language: Spanish
- Release date and place: February 9 2007, Planetarium, Museo de la Ciencia y el Cosmos (MCC), La Laguna, Tenerife (Spain)
- Genre: Adventure / Comedy / Family
- Plot synopsis: “Old” Meteorite remembers with nostalgia its childhood in the Oort Cloud and how its journey to the inner Solar System began after a collision with a friend-rock while playing. Along the way it meets planets, satellites, comets, and the Sun, it becomes more and more naughty, and wants to make an enormous crater on the Earth. It finally falls on the African desert, from where it is brought to the Museo de la Ciencia y el Cosmos. Meteorite does not fulfill its dream of producing a big cataclysm, but it is really dear and important to us, since we can admire and caress it at the MCC.
- Plot keywords: Meteorite / Solar System / crater
- Runtime: 25 min
- Soundtrack: selected fragments of Copland, Elgar, Bernstein, Gershwin, Enescu, Mozart, Bartok, Anderson, Katchaturian, Bach, Prokofiev, Rossini and Strauss, as well as solar “sounds”.
• Credits:
  • Production, post-production, editing, mixing, special effects, voice recording, and syncing: Planetarium Technicians of the MCC.
  • Dubbing: “Old” Meteorite’s voice belongs to Emilio Aragón, Miliki, a famous Spanish clown, actor, composer and musician. The rest of characters have been dubbed by some friends, including a popular Canary Island humorist.
  • Puppets: Miguel Montoya, The Root Puppets.
  • Manipulation of puppets: Oswaldo González, Rubén Naveros, Miguel Montoya.
  • Narration recording: CRAB Studio (Madrid).

• User comments:
  • No, no, Meteorite, please! Don’t crash with the Earth! (during the show).
  • So, “Meteorite” is that rock out there in the Museum?
  • I finally learned what a cataclysm is.

• Fun stuff:
  • Oswaldo got intense muscle ache after handling the puppets.
  • Children participate by crying, counting, helping the characters (just like a traditional puppet show)... and so do adults!
  • Travelling shots were recorded with funny tours around the Museum on a wheelchair.

• Additional details:
  • Planetarium dome diameter: 6.5 m;
  • Technical facilities of the Planetarium: opto-mechanical star projector GOTO GE2, three tri-tube video-projectors, 5.1 sound system;
  • Technical means employed: chroma-key recording of characters, integration with projected stars and astronomical images through post-production (Autodesk Combustion ® software);
  • Target audience / age group: general public / 3–10 years
  • Estimated audience numbers since the premiere: around 9000 visitors (by October 2007).

Astronomical content
• Meteoroid vs Meteorite;
• Oort Cloud;
• Outermost planet in the Solar System: Neptune;
• Pluto and other TNOs (Trans Neptunian Objects);
• Birth of the Sun and the Solar System from an interstellar cloud;
• Saturn and Mimas, Jupiter, Comet Halley, and their more conspicuous physical features;
• Comet Halley’s (average) period: 76 years;
• Collision of Comet Shoemaker-Levy 9 with Jupiter (16–22 July, 1994);
• The Sun, its enormous mass and gravitational attraction force, which keeps comets, aster-
oids, and planets turning around it;
- Meteoroids impact on planets and satellites, impact craters and cataclysms;
- Dinosaur extinction;
- Earth is, as far as we know, the only inhabited planet in the Solar System;
- Entry of a meteoroid in the Earth atmosphere...

The traditional distance sequence in the Solar System has been deliberately broken: the rock meets only some bodies, including Comet Halley, and the Earth is met after the Sun

10 keys to the making of the show

The making of the show is summarised in the figure by the 10 images to the right with the following captions:

1. 2D animation is really complex, and the level of well-known movie productions difficult to reach: 3D characters (puppets recorded with chroma-key) are an excellent alternative.
2. The “astronomical puppet team”: Jupiter, Saturn, Meteorite, Halley, and Mimas.
3. Becoming intimate with Mimas…
4. Puppets were manipulated in front of a chroma-key screen.
5. Adequate illumination with no shadows is essential for chroma-key recording. Astronomical images were added later, and the result was projected on the planetarium dome.
6. News on Earth about the Shoemaker-Levy 9 — Jupiter encounter: they are introduced by an old-fashioned journalist who types the report on his typewriter for the newspaper “Ciencia & Cosmos Journal”.
7. Recording of voices: narrative and dubbing of characters. In the image, Emilio Aragón “Miliki”, a famous Spanish clown, actor, composer, and musician.
8. This is not an ordinary film, but a planetarium show: the amazing starry night is always present.
9. The hour of truth: the most demanding audience.
10. Local newspaper coverage of the premiere.

1 http://es.youtube.com/watch?v=J1pKHHeRTYQk
2 http://es.youtube.com/watch?v=6yr0D4dXeQ
3 http://es.youtube.com/watch?v=4__C1YWToTVY
Future perspectives

- We are currently working on a book for children, based on the script and images from the planetarium show.
- *Meteorite, a rock from space* is the first programme of a saga in which the characters will continue delighting the audience, while teaching astronomical concepts.

Broadcasting

The interested reader can see the trailer shown on the Museum’s video-wall¹, the spot released on local TVs², and the TV report about the premiere on a local station³.

Acknowledgements

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