



FOOTPRINTS: TRACKING REPORT

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Purpose

Science on a Sphere has been utilized at SMM to display a variety of visualizations. A regular playlist plays continually for visitors. The playlist is composed of three thematic groups of visualizations covering the solar system, water, and Earth surface dynamics. This winter, SMM began showing the NASA-produced film *Footprints* on the Sphere. A study was carried out to understand how visitors view a movie on the Sphere to help inform the development of a future film tailored to the Water Planet exhibition.

Methodology

For the purpose of the study, *Footprints* was set up to run continuously. Visitors were unobtrusively observed when they entered the exhibit area to understand visitors' viewing behaviors and how long they watched the film. A continuous random sampling method was used in which the first visitor to walk over an imaginary line near the exhibit entrance was observed. The sample included all visitors ages 8 and above. Observations took place December 26, 2006 to January 7, 2007. A total of 73 visitors were observed. Visitor demographics can be found on page 3.

Observation Results & Discussion

Time Spent Viewing Footprints

The duration of *Footprints* from the beginning of the film to the start of the credits is 15 minutes, 17 seconds. The entire duration from beginning to the end of the credits is 16 minutes. Visitors were selected within the first six minutes of the movie so they would still be able to watch at least nine minutes of it before the credits rolled. Visitors viewed the movie for a median total time of 2 minutes, 40 seconds, with a minimum time of 7 seconds and a maximum time of 22 minutes, 9 seconds. For comparison, visitors viewed the regular playlist for a median total time of 3 minutes, 29 seconds, with a minimum time of 30 seconds and a maximum time of 30 minutes, 17 seconds (slightly more than half of an entire playlist).

Most visitors did not stay until the end of *Footprints* with 73% leaving before the credits started rolling. The remainder of visitors either left when the credits began (19%), or stayed to watch the beginning of the film (8%).

How Visitors Viewed Footprints

A previous study of the regular playlist found that visitors tend to stay longer when they sit at some point during their visit to the Sphere. Open seating was available when most visitors (89%) were viewing *Footprints*. Of these 65 visitors, slightly over half (57%) took advantage of

the seating. There were also two instances where all the seating was taken, but the visitors decided to sit on the floor and view the movie. The percent of visitors sitting is similar to the tracking study of the regular playlist where 60% of visitors sat to view the visualizations.

An independent-samples *t* test was carried out to compare the mean total times of visitors who sat down to those who did not sit down. There was a statistically significant difference between the mean total times, $t(71) = 6.71, p < 0.001$. The mean total time of visitors who sat down was significantly higher ($m = 8$ minutes, 30 seconds, $sd = 6$ minutes, 2 seconds) than the mean total time of visitors who did not sit ($m = 1$ minute, 17 seconds, $sd = 1$ minute, 48 seconds). The table below also illustrates the differences in median, minimum, and maximum times the two groups spent viewing *Footprints*.

| | Median Time | Minimum Time | Maximum Time |
|-------------------------|-----------------|--------------|-----------------|
| Sat Down (n=34) | 6 min., 37 sec. | 30 sec. | 22 min., 9 sec. |
| Did Not Sit Down (n=39) | 40 sec. | 7 sec. | 8 min., 58 sec. |

How Visitors Viewed Footprints

Visitors were observed to understand how they viewed *Footprints*, specifically if they came in and stayed in one place or if they circled the Sphere at any point. As illustrated in the table below, most visitors (82%) viewed the sphere from one place whether sitting or standing. Only 3% of visitors circled the entire Sphere. This is in contrast to observations of the regular playlist of visualizations where only a quarter of visitors (26%) stood in one place and around a third (36%) circled the entire sphere. However, *Footprints* is set up so visitors can see the features of most images from where they are seated and so there is no need to circle the Sphere during most of the movie.

| | Percent of Visitors |
|------------------------|---------------------|
| Stood/sat in one place | 82% |
| Circled less than half | 12% |
| Circled half or more | 3% |
| Circled entire Sphere | 3% |

Visitors were also observed to see if they pointed to images on the Sphere. Around a quarter of visitors (26%) pointed to the Sphere during the *Footprints* movie. For comparison, almost two-thirds of visitors (62%) pointed to the Sphere when viewing the regular playlist of visualizations.

Visitor Demographics

Visitor demographic information is based on observation.

Sex (n=73)

Female 66%

Male 34%

Age Range (n=73)

8-16: 16%

17-24: 6%

25-34: 26%

35-44: 32%

45-54: 12%

55-64: 6%

65+: 3%

Group Composition (n=72)

Adults and kids 68%

Adults only 22%

Alone 4%

School/tour group 4%