

Name of research institute or organization:

Christian Waldvogel, artist

Title of project:

«As if the Stars were countless»

A simulation of the view of Space from Space according to Astronaut Jim S. Voss

Project leader and team:

Christian Waldvogel, artist

Tobias Madörin, documentation photography & video

Claudia Meier, documentation photography

Project description:

Introduction

Looking at photographs showing the stars we realize that these images depict an imperceivable reality. Longer exposure times yield the appearance of stars which otherwise are not visible to the eye, and the use of telescopes, the image scanning of invisible wavelenghts and the filtering influence of the Earth's atmosphere further add to the fact that these images do not represent «visible truth», but rather are a product of an elaborated design process.

When I set off to find out what space looks from space, I started with designing an experiment involving an astronaut, and ended up dealing with the «human calibration» of photographs, and the question of truth and illusion in imaging and cognition.

Space from Space #1:

Dear Jim Voss, how does space look from Space?

The astronaut Jim Voss, who spent six months aboard the International Space Station, was asked to describe his view of outer space from the space station. I sent him a poster with several images of the same section of the sky, but with a varying number of stars and asked him to mark the image that seemed to best depict what he had seen himself.

In an email confirming that he had mailed my poster (fig. 1), Jim Voss wrote: «*If you go to the highest mountain, on the clearest darkest night, you will see about 1/2 the stars with about 1/2 the brightness of what you see from space.*»

This instruction became the guideline for Space from Space #2.

Space from Space #2:

As if the Stars were countless. A simulation of the view of Space from Space according to Astronaut Jim S. Voss.

To follow Jim Voss' suggestion, I demanded the possibility to conduct Voss' instructions at the High Altitude Research Station Jungfraujoeh.

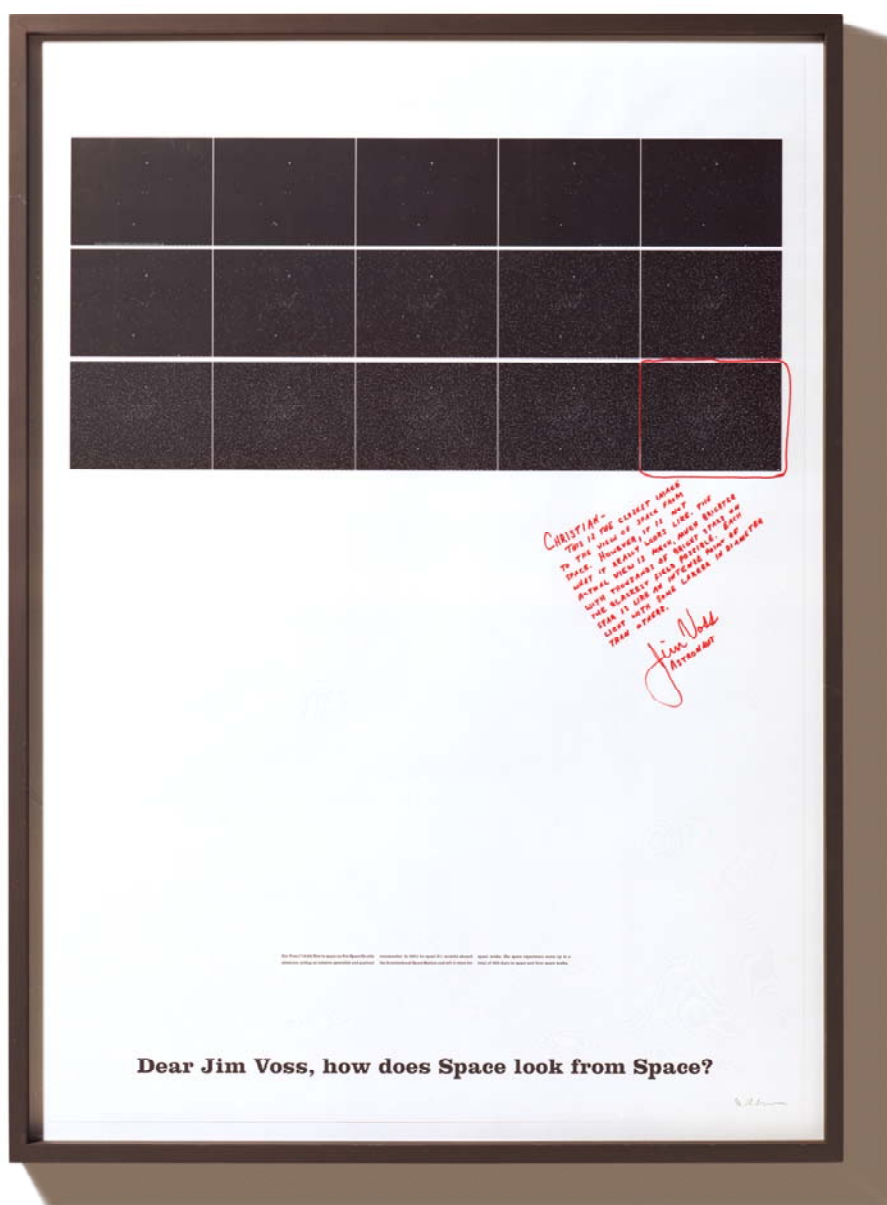


fig. 1) Space from Space #1: «Dear Jim Voss, how does Space look from Space?»

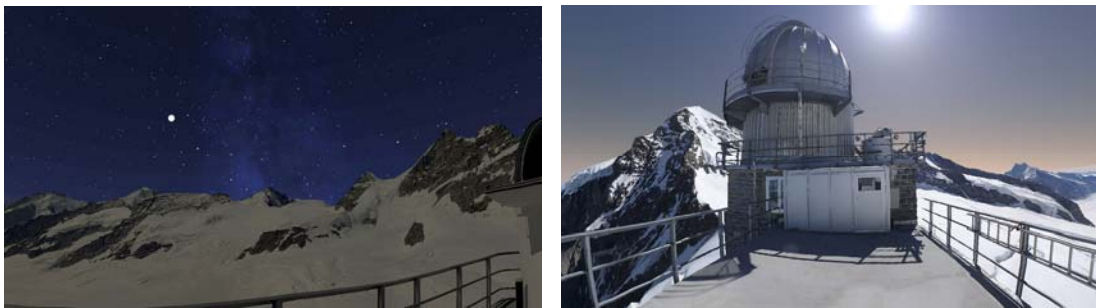
Voss' caption reads: «Christian – This is the closest image to the view of space from space. However, it is not what it really looks like. The actual view is much, much brighter with thousands of bright stars on the blackest field possible. Each star is like an intense point of light with some larger in diameter than others. Jim Voss, Astronaut»

Inkjet print with silkscreen printed stars, astronaut's caption and signature, framed, 1200×840mm, single copy. Collection Museum of Fine Arts, Bern/Switzerland

During June 2008 I've spent a few nights at the High Altitude Research Station Jungfrauojoch waiting for the Sky to clear up during the short time that the night was completely dark and no Moon visible. The days were used to stage and film interior documentary video scenes (fig. 2).



fig. 2) The sphinx observatory at night on Jungfrauoch, Switzerland. Still from the documentary. Watch movie at <http://www.youtube.com/watch?v=-67smgCHVAQ>



figs 3+4) A computer simulation of the night sky at Jungfrauoch for June, 30th, 2008, 01:30 AM UTC+1. and a simulated day view.

Download the landscape plugin for Stellarium at <http://www.stellarium.org/wiki/index.php/Landscapes>

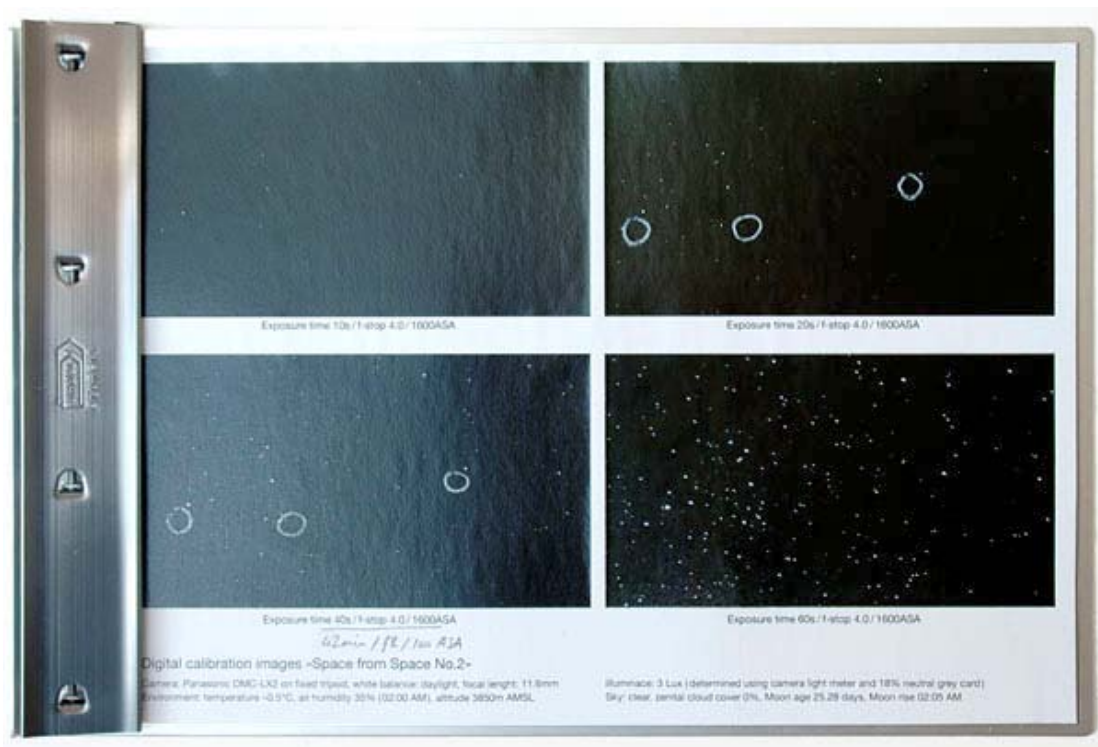
In addition to the documentary movie, a 360° panorama was shot and used to produce a simulation of the terrace (figs. 3+4) which was then programmed into Stellarium, an open source sky simulator, which could give an idea on how the sky would look with the atmosphere removed.

During our second stay at the end of June the sky was clear. Equipped with an astronomy tripod and a digital camera we determined the exposure time which would yield an image that represents exactly what was seen by the naked eye (figs. 5+6). We took a series of images in which the faintest visible star on the sky was looked up. The exposure time was determined by interpolating between the longest time which did not yield the star and the shortest time which did. Then, the brightness of the stars was measured using a grey card and a light meter (KODAK method).

With the exposure calibrated, a 6x6 Hasselblad camera was mounted on the astronomy tripod and pointed to a random section of the sky.

http://www.waldvogel.com/uploaded/0134_space-from-space/voss-signature.jpg

http://www.waldvogel.com/uploaded/0134_space-from-space/working-on-terrace.jpg
http://www.waldvogel.com/uploaded/0134_space-from-space/stellarium-simulation.jpg
http://www.waldvogel.com/uploaded/0134_space-from-space/landscape_jungfraujoch_tmb.png



figs. 5+6) Digital calibration images (exposure 10s – 60s @ f2.8 / ASA1600). The weakest stars on the 4th image did not show on the 3rd but were visible by the naked eye. This defined the exposure for the final image.

Back in the studio, the resulting image was scanned and traced, so that the pixel stars would become vectors. Due to the pixel nature of the source image, the vector stars appeared in highly irregular shapes. By rotating copies of the stars around their centers they became point-symmetrical (fig. 7).

The paths were then duplicated and scattered randomly accross the image in order to receive twice as many stars than were seen. The final piece is a totally darkened room with a lightbox showing twice the amount of stars glowing at twice the brightness, and a panel documenting the work process, lit by astronomy-type low brightness red light (fig. 8).



fig. 7) Detail view of the final star drawing.

<http://www.waldvogel.com/projects.php?id=36 - 01352-top>



fig. 8) Installation views Helmhaus Zürich, 2008.

Lithographic film on LED lightbox emitting 3 Lux, red lit documentation and video, Edition of 3

Key words:

Art, Space from Space, Photography

Internet data bases:

<http://www.waldvogel.com/projects.php?id=36>

Scientific publications and public outreach 2008:

As «As if the Stars were countless» is an art project, it has not been scientifically published yet. It has been exhibited to the general public in the Exhibition «Werk- und Atelierstipendien der Stadt Zürich 2008», held at the Helmhaus Zürich from 9. August – 28th September.

Moreover, «As if the Stars were countless» was featured in a lecture by the artist at the conference «*Experiments. The transfer of Scientific Methods in Art and Architecture*», held by Prof. Dr. Ákos Moravanszky (gta / ETH Zürich) in Gut Siggen in October 2008. The results of this conference are to be published in a book, scheduled to appear in the second half of 2009.

Edited books

In preparation: A. Moravanszky et. al, *Experiments. Transfer of Scientific Methods in Art and Architecture*, gta publishers, ETH Zürich

Address:

Christian Waldvogel
Msci in Architecture
Luisenstrasse 41
CH-8005 Zürich

Contacts:

Christian Waldvogel
Tel.: +41 78 621 1824
e-mail: hochnebel@waldvogel.com
URL: www.waldvogel.com