

# OECD

# ART OF THE STATE

The Kitchen Center for Video and Music  
484 Broome Street  
New York City

We have cooperated with, and would like to thank:  
Charles Bohn and William J. Campbell, Goddard Space Flight Center,  
NASA; Dr. Robert Beckel, University of Vienna; Richard Bongiorno,  
Log/Interpretation Systems Incorporated; Dr. James Bate, SRI, Inc.,  
and Wiloughby Sharp, of Integrated Telecommunications.

John Walczak  
Eve Vachon  
Cohen Pichippan  
Win Knowlton  
Paul Sharitz



# ART OF THE STATE

Produced by SPACE FORCE, OECD

February 4-27

Opening Reception: Thursday, February 4, 6-8pm

Closing Discussion: Sunday, February 28, 6-8pm

Gallery Hours: Tues-Sat, 1-6pm

The Kitchen, 484 Broome Street

Tel: 925-3615

SPACE FORCE, an operation of the Ocean Earth Construction and Development Corporation, OECD, presents:

the state of the art in earth observation.

This also includes advances in the state of the art in digital image processing, in planetary and celestial modeling, in photography and TV.

Since these advances are achieved by governments and their contractors, they comprise not only a state of the art but also an

## ART OF THE STATE.

The State is not just NASA: the military can display much more. The State is not just the U.S.: the Japanese and European space agencies are sending up earth-observation satellites that surpass ours. And the contractors . . . , the contractors are developing new image technologies that can lead to entirely new markets--far beyond the State. Example: combine image memories with interactive videodiscs so that with satellite-data alone one can project a three-dimensional landscape and visually walk through it.

As visual researchers, the artists of OECD have exchanged views with government officials and contractors and have contributed--in the exhibited works--to advances in the manipulation, organization and display of digital color data. The state of the art keeps evolving.

If other artists gain hands-on access to the image processing systems used here, the art of the State would become more flexible, more communicable, more subject to personal expression, more part of the domain of art and media.

These video programs and photographic sequences are first efforts of SPACE FORCE towards production of art that's

direct from outer space.

We begin, being human, with planet Earth. And we are:

Bill Dolson	Wolfgang Staehle
Peter Fend	Glenn Steigelman
Colen Fitzgibbon	Taro Suzuki
Win Knowlton	Eve Vaterlaus
Paul Sharits	Joan Waltemath

We have cooperated with, and would like to thank:  
Charles Bohn and William J. Campbell, Goddard Space Flight Center,  
NASA; Dr. Lothar Beckel, University of Vienna; Richard Pendergrass,  
LogE/Interpretation Systems Incorporated; Dr. Janet Bare, Satlab Inc.,  
and Willoughby Sharp, of Integrated Telecommunications.



## ART OF THE STATE

SPACE FORCE, an operation of the Ocean Earth Construction and Development Corporation, OECD, presents an installation of the state of the art in earth monitoring.

It therefore begins a sequence of inquiries into space technology generally and its appropriation by human consciousness.

Earth monitoring from space is a high-technology form of landscape rendition. As visual researchers, artists can assist in advancing such landscape rendition to a pliable and expressive means of visual communication. Earth monitoring, like most space-vehicle imaging of planetary bodies, involves an elaborate array of sensors, digital data systems, and eventually a mathematically-programmed display of meaningful colors, and it could therefore be seen as part of the general evolution of art.

Now, major questions have arisen as to how to display the earth-monitoring data, what colors to use, what contrasts and field-intensities to employ, what images overall to effect for impact and understanding: altogether, how to organize information through time in a two-dimensional multispectral surface subject, in video at least, to changes through time. The objective is communication; the task is to build a language. This could be considered as a color language, a field density-distribution language, a display language, a visual language.

As The New York Times reports, there is now a "data glut" from earth-monitoring satellites. The chief question is how to make the data usable to intelligent observers. Scientific American remarked, "The eye-brain system will need help." Although the apparatus of image production is vast and astounding, the ultimate task remains one of communicating to a perceiving human with his or her own image-processing system, the eye-brain. Numerical records of data can be accumulated, but they cannot be meaningfully processed by humans except, chiefly, through images. As Remote Sensing of the Environment argues, "An image is, of course, the most efficient way to convey a large amount of information to a human operator."

SPACE FORCE feels that questions on image-making and communication raised by space scientists can be answered effectively through consultation with artists. It feels compelled to respond to these concluding statements in Remote Sensing of the Environment:



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February 4-7

Opening Reception

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Gallery Hours

The Friends

Tel: 922-3613

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Clayton Kopp and William J. Campbell, Goddard Space Flight

Center; v. Loether Beckel, University of Virginia; Richard Pease,

University of Maryland; Dr. Janet Sara,

University of Maryland; and

Dr. Robert Sharp, of International Telecommunications

Additional research is needed in three areas: (1) determining which wavelengths of the electromagnetic spectrum are most useful for identifying each earth resource . . .; (2) determining which color combinations, of the many that can be used in producing image enhancements, are most easily and accurately discerned by the image analyst; and (3) determining in representative instances the net gain, if any, resulting from the use of such image enhancement techniques.

It is concluded that a great deal of work must be done not so much with the image-processing and production hardware as with the image-processing software--the programs by which intelligible color displays convey a great deal of information in a brief period of time. The "image analysts," or viewers, are now inundated with very often incomprehensible imagery, and it seems appropriate to call on artists to begin working with the imaging systems.

Art history suggests the trend. Four hundred years after the beginning of the Renaissance, the pictorial inventions of the Renaissance were mechanized and made automatic with photography. Since then, artists have undertaken new researches. Pointillists determined how to render an image with points of color, much like the pixels in digital-data imaging. Futurists and Suprematists extolled aerial photography and tried to create in paintings the sensation of looking down, upon a field, rather than into a box-space. The Futurists proceeded to call for organization of color and "lines of force" in "force-fields," and they theorized that a motile, flexible medium could render changes in color and perception of color through time. This medium would be more elastic and dynamic than cinematography: it is present now, in the computer displays for satellite digital data, and in video. Through the 50s and 60s, field-theory became a dominant concern, particularly in Europe, and in the 70s there emerged, in the US and UK, color-field studies through time conducted solely in film, video and computer console displays. While these progressions in artistic inquiry have occurred, meantime the camera has been perfected to such an extent that it has become a video or photograph image scanning instrument, notably in Landsat and other earth-observation systems, and it seems natural that visual researchers would soon want to gain hands-on access to such an elaborate instrument. Landsat has been said to be the "most important photographic experiment in history": it would follow that it can become a basis for an important experiment in art.



## SPACE FORCE

Ventures into space have opened to mankind frontiers and possibilities previously unimaginable. The technology of space exploration has provided us with a plethora of new information, images and perspectives. Humans have gone from seeing the planet as a vast, open expanse to seeing it as a single sphere, with delicate energy balance, moving among many in space.

Ultimately, humanity has changed its own nature through the use of its imagination. It now begins to control its evolution. Space exploration and space technology have radically changed human perspectives, and could therefore affect human conduct.

Science and art have in tandem been responsible for cultural change. Now, as scientific knowledge advances, as the flow of information increases, it becomes crucial that artists increase their correlative rate of synthesis. Scientific and artistic inquiries often remain confined to the circles in which they develop; consequently, scientific advances into outer space are still extraneous abstractions for most of the planet.

We seek to expand the cultural response to space technology. We seek an expressive use of the hardware and software used by science and industry. We initiate a dialogue of artists and scientists--with benefits for science, for art and for the public.

As a group, Space Force expects to broaden the scope of understanding in our culture. It seeks to realize the primary role of the artist--as presenter, disseminator and demystifier of new thought. We see outer space to be a limitless arena for humanitarian, cultural and utilitarian functions, and we intend to present ideas towards construction of civilizations oriented within outer space.

In the spirit of Vanguard and Pioneer, Space Force starts a series of artist-designed projects. These projects utilize the great log of scientific and technological discovery with the goal of preparing mankind to manage its future in a responsible and creative manner.

