

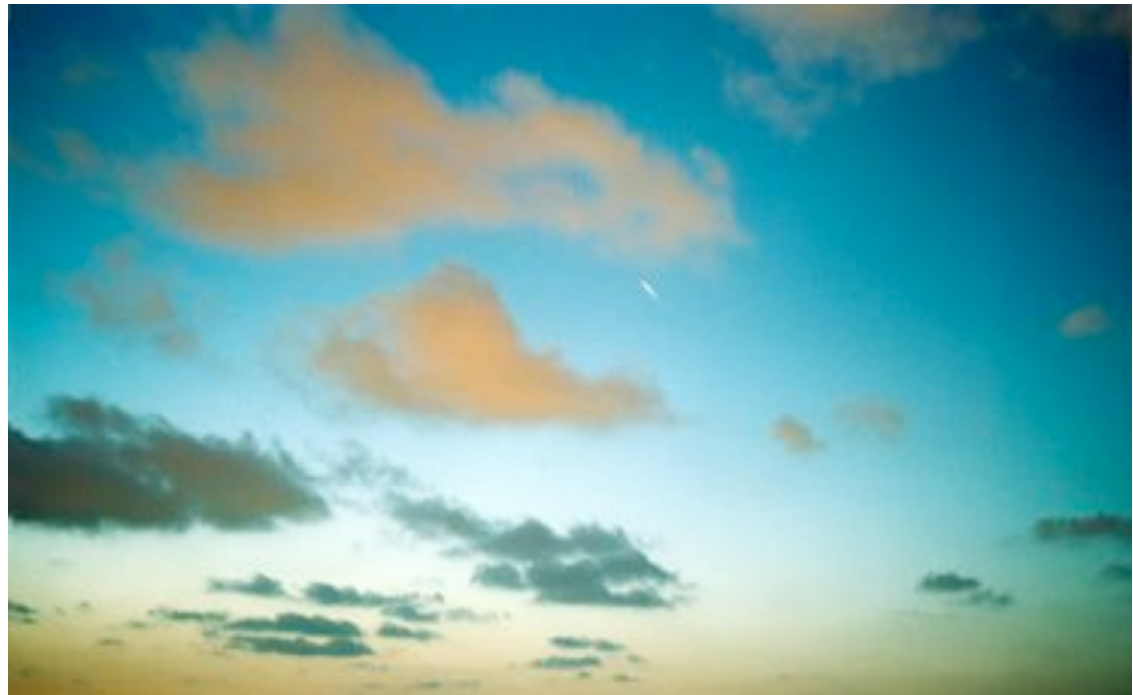


TheArtsCatalyst
the science-art agency



EXECUTIVE SUMMARY

CULTURAL UTILISATION OF THE INTERNATIONAL SPACE STATION





"The International Space Station is a great achievement of human ingenuity and international cooperation, as well as a cutting-edge research facility. But the European Space Agency believes strongly that the cultural world too should have a say in the future of space exploration. We therefore want to open the ISS to a new community of artistic and cultural users."

Daniel Sacotte, Director of Human Spaceflight, Microgravity and Exploration, ESA

"ESA has a unique range of facilities in space and on the ground in Europe and has an obligation to share this with the people on Earth."

Dieter Isakeit, Head, Erasmus User Centre, ESA

"Increasing public awareness and involvement should be an intrinsic part of the exploration programme ... Artistic and cultural activities relating to space are an important way of strengthening public engagement."

The Future of European Space Exploration: Towards a European Long Term Strategy (ESA)

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Jane & Louise Wilson, 'Dream time' (still), 2001

Cover page: Ilana Halperin, 'Iridium Flash', 2002



1 INTRODUCTION

This document summarises the conclusions of the study into Cultural Utilisation of the International Space Station (ISS) conducted by the Arts Catalyst - with a team that includes Delta Utec and Leonardo-Olats - for the European Space Agency.

The study aimed to generate strategies for involving cultural users in the ISS and to identify ready-to-implement projects in arts, culture and media that can tap into the contemporary European public's concerns and interests.

The study involved consultation with a network of artistic and cultural communities in Europe and internationally, including seminars in Berlin, Yverdon and London. A mid-term presentation and workshop was held at ESTEC to which a group of representatives from the European cultural community were invited, along with ESA representatives to discuss the draft policy recommendations. In the final phase of the study, a number of feasibility studies were undertaken.

The full report from the study comprises the following documents:

- Policy Recommendations
 - Selection of Project Ideas by Type/ISS Feature
 - Historical Contextualisation of Space Art
 - Report on Mid-Term Presentation and Workshop
- Feasibility Studies for Selected Proposed Projects



Morag Wightman, 'Gravity - A Love Story', 2001



2 INVOLVING THE EUROPEAN CULTURAL WORLD

The study found that, among the arts and cultural sector, there is currently a low awareness of the International Space Station. They are not really aware of it and don't know what it's for. However, there is a high interest in the opportunity of getting involved with the space programme and potentially with the ISS, this interest being particularly focused on function (science, human factor, space habitat, earth observation, space environment) and symbol (international cooperation, future of space exploration).

Quality is key. The primary goal of a cultural utilisation policy should be to attract and enable first-class art and cultural projects to match, and indeed to complement and highlight, the first-class science on the ISS. To do this, ESA needs to work with professional arts organisations and curators.

A small number of artists contest the notion of selection, but within the arts world a process of selection is generally understood and accepted as a necessary factor in developing an artistic programme.

Galleries, museums and other institutions wishing to develop an artistic or cultural programme employ curators. The art curator's role includes commissioning and working with artists in the creation of new work, conceiving exhibitions and selecting artworks, and the organising and administration of exhibitions.



Jem Finer, 'The Centre of the Universe' (installation shot, detail), 2005



3 MAKING RELATIONSHIPS WITH THE CULTURAL SECTOR

To ensure a long-term cultural user community, the cultural sector needs to be attracted into a relationship with ESA. If work is put into developing this relationship then, once the ISS is fully functional, the cultural sector will be up to speed and able to present better projects to be performed in-orbit.

A ground-based artists' residency programme at ESA, for example, would help to enable artists to acquire knowledge of particular aspects of the space programme so that they may respond to them appropriately. A residency programme would solve the problem that there is an intrinsic difficulty in creating artworks in entirely new environments with facilities designed for scientific experimentation. A programme that enables artists to utilise the ground-based facilities would allow for considerable experimentation and wider artistic programmes of work.

Artists' residencies entail agreed access for an artist to the facilities of an institution, to provide inspiration to create artwork. The benefits of this to an institution can range from publicity to staff development to works of art that end as the property of the institution. Residencies can work in many ways, from occasional visits to full-time posts where the artist engages with the organisation's culture as well as developing their work. The benefits to artists are inspiration, resources, payment and exposure of their work. Currently, artists' residencies in scientific and engineering facilities are gaining a great deal of popularity in Europe, the US, Australia and elsewhere.



Stan's Café, 'Space Station', 2002



4 POLICY RECOMMENDATIONS

4.1 ESA should extend its activities to include the cultural world on a permanent basis.

Space exploration is a cultural activity and therefore cultural utilisation programmes just broadens the scope. As well as the obvious appeal of weightlessness, views from space, and ideas of future space habitats, the ISS is the ideal platform to develop artistic work that explores the different cultures of space exploration and contemplates its future, relating this to the contemporary cultural diversity of Europe and the rest of the world. Such a programme will also raise the public perception of the ISS as more than an example of esoteric science and advanced technology.

4.2 ESA's cultural utilisation programme should use the services of professional art curators

The arts world works in a different way from the scientific community. The type of Announcement of Opportunity (AO) that works for the science community will not work in the same way for the cultural sector. A process of selection (by personal invitation) is necessary. In the arts world, this selection is made by a 'curator'. A curator performs several functions. One of these is selecting the right artist for a particular commissioning, exhibition, residency or other opportunity. This is what we mean by the "curated approach": a process of expert selection. Without appropriate cultural expertise within ESA, this function needs to be contracted externally.

The study team recommends that ESA gives contracts to cultural organisations, or professional teams of curators/arts producers and artists, to support ESA in the management of its programme of cultural activity.

4.3 ESA should adopt a system for dealing with unsolicited cultural proposals

We recommend that unsolicited enquiries are directed, in the first instance, to ESA staff with responsibility for cultural utilisation. If they fit with ESA's cultural policy, that is, they reflect the ISS's function or mission and they have the potential to further the strategic initiatives outlined below, then they could be forwarded to the relevant contracted arts company or individual.



Kodwo Eshun, Anjalika Sagar, Richard Couzins, 'Otolith' (video still), 2003



4.4 A structure should be set up to facilitate cultural utilisation of the ISS.

The cultural sector needs to have clear communication with ESA and will expect to deal with people with appropriate cultural expertise. ESA should put in place a structure that enables an effective interface between the ISS programme and the cultural community.

4.5 The artistic programme should be linked closely to the function and mission of the ISS.

4.6 A working group of art/cultural experts should be set up to advise ESA on the selection of cultural programmes.

Financing

4.7 A start-up budget should be allocated for the strategic development of cultural utilisation.

This budget should allow for:

- Strategic initiatives for cultural development
- Contracting companies to implement the curator function
- Integration of cultural activities into ongoing programmes
- The activities of the cultural expert group
- Providing necessary in-kind resources (upload, download, communication, astronaut time, etc)

4.8 Part of the requirements within some ITTs should be for tendering organisations to contributing or fund-raising a proportion of the finance for the programme.

ESA should work with contracted companies to seek external funding and sponsorship for cultural utilisation.



Stefan Gec, 'Sputnik', 2004



Kitsou Dubois



5 STRATEGIC INITIATIVES FOR CULTURAL DEVELOPMENT

Cultural utilisation should look at the ISS programme as a whole. Within this approach, ESA's involvement in the ISS programme extends beyond Columbus and the ATV to include other ISS related flights and the ground-based facilities.

Using this systems approach, we recommend 6 strategic initiatives for the long-term development of a cultural user community:

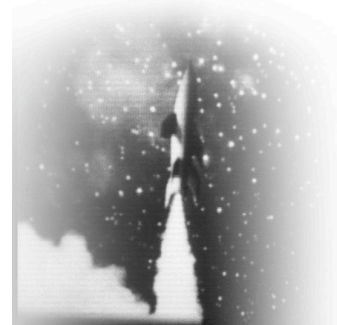
5.1 Cultural utilisation of the ISS ground-based facilities, to include an ISS artist residency programme

Such a programme could include artists' access to facilities such as parabolic flights, droptowers and hydrolabs for artistic experimentation and projects. Specific programmes could be contracted to cultural organisations for the selection of artists and advice on project development, although of course ESA would be the main source of expertise to advise on the practical set up of projects.

An artist residency programme would create a lot of visibility in the cultural world throughout Europe, as artist residencies are popular, relevant and contemporary. The potential for photographers, filmmakers, painters, sculptors, theatre-makers, choreographers, writers and musicians to draw inspiration from ESA's facilities and to create and present work is enormous.

5.2 Development of projects using the ISS

Despite the delays and the strong limitations, cultural utilisation of ISS is already possible and should be investigated. The systems approach incorporates, and builds up to, cultural utilisation of the ISS, in particular Columbus and ATV. Cultural projects using these facilities will require a long development time. The available resources and time for the crew actually to perform any cultural projects at present, and in the foreseeable future, are extremely limited. Any work that will use onboard ISS facilities and resources must be high quality and have artistic/cultural significance and benefit. As with high quality, significant science, this will take time and strategic development.



L Andrew Kotting, 'Too G' (still), 2001



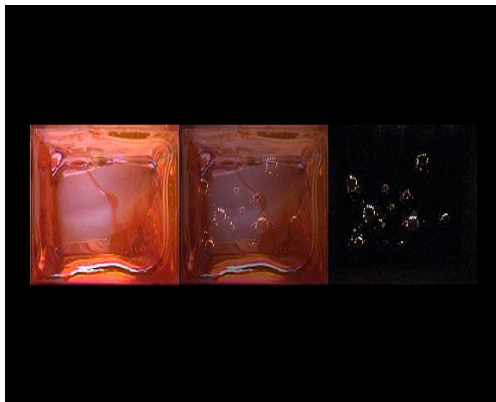
R The Eternals/Astropioneers, 'The Privet Mission' (still), 2003



5.3 Scientist-Artist Network

One aspect of a cultural utilisation programme for the ISS could be thematic programmes, linking art-science-education-media. The environment is always a popular theme: the ozone layer, rising sea levels, changing weather systems, erosion of environment. Other themes might include orbital debris, meteors, Earth's magnetic field, and then more broadly solar system exploration, the ISS as a symbol of international cooperation, the nature/benefits of microgravity, the social issues of long-duration spaceflight, the nature of habitat in space, and more purely aesthetic explorations.

The study team recommends that a network is developed that can link up artists with space science experiments at an early stage, soon after experiment selection. Such a network could incorporate workshops at ESA ground-based facilities, bringing together groups of artists and scientists, focused on particular areas of science.



Jem Finer & Ansuman Biswas, 'Wave Particle',
sculpture of fluids and chiming balls in zero gravity, 2001

5.4 Cultural Mission Specialists

The study team recommends identifying specific artists as "cultural missions specialists" who can work with the astronauts directly during prescribed mission-time. ESA astronauts would work with these artists to develop ideas and demonstrator projects. An artist could also develop the mission record to include photography and filmmaking.

5.5 Partnerships with Cultural Institutions & Art/Design Schools

The team recommends that ESA should seek partnerships with cultural institutions and art/film/design schools.

5.6 Collaboration with Film & Television

Film and television are cultural activities. This ranges from artists who employ the moving image to mainstream television and films. The study team notes that ESA already facilitates the work of television and film producers. In the area of art films, this is covered by the policy recommendations above.



Kitsou Dubois, 'Gravité Zero', 1999



6 CRITERIA FOR SELECTION OF ARTISTIC PROJECTS

The following are recommended as criteria to be used in selecting artistic and cultural projects:

6.1 Relevance of the space environment to the project ("added value")

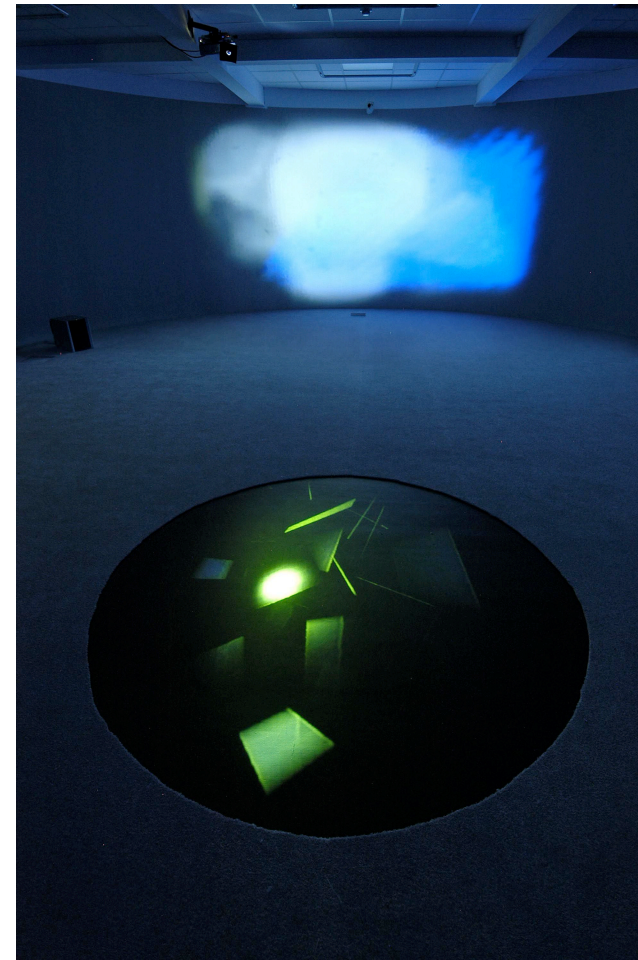
Relevance of the space programme and environment to the project. whether function (science, human factor, space habitat, earth observation, space environment) or symbol (international cooperation, future of space exploration).

6.2 Artistic quality

Evidence of quality in the artist's work and a track record of achievement in the arts/cultural field in which the proposal is based.

The definition of artistic quality proposed here is work that is original and creative, is technically competent, and connects to people, leaving them challenged or rewarded.

Evidence of quality and track record in an artists' work are generally sought through the commissions (orders for original works of art) that an artist has received and the status of the organisations (galleries/museums/theatres) that have commissioned and exhibited their work, as well as examples of work. There is a discourse within art, which is different in procedure but equivalent in objective to peer review in science, and artists who are perceived as of quality within the contemporary arts in some way contribute to this - they should be "on the cutting edge". Assessment and judgment of artistic quality needs to be made by people with extensive relevant experience.



Flow Motion, 'Astro Black Morphologies, 2005



7 TYPES OF PROJECTS

During the consultation phase of the study, artists and cultural practitioners submitted many ideas responding to the potential opportunity of utilising the ISS or its ground-based facilities. They represent a wide range of cultural practices, including visual art, media art, photography, theatre, architecture, dance, music, literature, poetry, design, film and television, and demonstrate considerable interest from the cultural world in the opportunity.

The International Space Station, Columbus & ATV

Artists and designers were inspired by the idea of participating in the design of the ISS or its interior. Sculptural projects for a weightless environment were popular, as were ideas for attaching objects to the exterior of the station or launching things into orbit, and there were two proposals for creating artificial auroras or meteors. A number of artists were keen to use the Columbus module, particularly linking to the science. A small number of proposals mentioned using the ATV during the 6-month period when it is docked with the ISS. The potential use of ISS cameras and images was also popular.

Many in the cultural sector regard being able to work with astronauts onboard the ISS as one of the most interesting cultural features of the ISS and many proposals incorporated some form of astronaut collaboration.

Utilising the communications systems between ground and ISS was frequently cited, either as an idea in itself or as a component of a broader concept such as a ground-based performance making use of a live link with the ISS, or a web-based project with communications link or an interactive sculptural device. Another popular notion was that of using sound on the ISS in the composition of artworks.

The Ground-based Elements

On the ground, the Erasmus User Centre (EUC) was mentioned by a number of artists as a residency host or a site for a performance or installation. The European Astronaut Centre (EAC), whose facilities include a hydrolab and a full-scale mock up of the Columbus module, was also mentioned. Some artists mentioned the use of droptowers for zero gravity sculptures. The utilisation of parabolic flights for artistic projects was also popular, following a number of such experiments on Russian, US and ESA flights. Artists were also interested in the potential to throw a spotlight onto key ISS launch sites: Kourou and Baikonaur.



*i-DAT, Prototype for 'Constellatio Columbia':
A Monument to Lost Astronauts',
a self-orientating robotic sculpture for zero-g, 2003*



8 WHAT ESA STANDS TO GAIN

ESA depends on political support, which in the end means the general public. This activity could increase political support for ESA.

The arts are a powerful means of communication. Contemporary artists tap into cultural and societal change and create powerful images and expressions that help us to form our perception of our world. As well as sharing their work directly with the public, their influence is far broader as advertisers and the mass media constantly feed on their output.

It will enhance in a positive way ESA's image to the general public.

Linking ESA with cultural activities makes sense given Europe's rich cultural heritage. Positioning ESA itself as having a cultural as well as scientific and technological agenda with regard to space could help to bring it into focus in the public's mind.

It will increase awareness of the ISS programme. As ESA and the ISS become more widely known, this can lead to wider support.

Cultural utilisation can help the ISS to be positioned more strongly as a European undertaking, as well as a significant part of long-term human exploration of space.

ESA has a unique range of facilities in space and on the ground in Europe and has an obligation to share this with the people on Earth.

Involving culture in its activities is an innovative way of directly sharing these facilities, not only with artists but also with the wider community through the experience of art. After all, why should it be only the scientific community that benefits from the ISS, while everyone else cheers them on and dutifully foots the bill?



Simon Faithfull, 'Escape Vehicle no. 6' (video still), 2004



9

SOME PROPOSED DEMONSTRATOR PROJECTS

A SNOWBALL FROM THE ISS
Georges Pfruender/ECAV



The objective is to bring a real snowball to the ISS and throw it into an orbit around the Earth. Such an action could represent the first man-made comet, recalling the 'dirty snowball' model for comet nuclei. The project also alludes to man-made orbital debris (the snowball itself will sublimate completely), snow & ice research, and the element of water as an important pre-requisite for life on Earth.

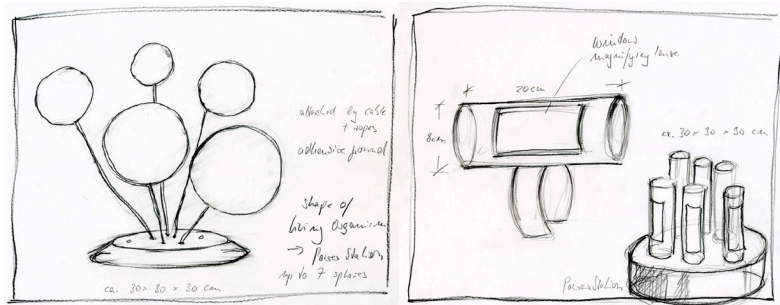
COSMIC FLASH
Tim Otto Roth



Cosmic Flash concentrates on an invisible challenge for humans in space: the impact of highly energetic cosmic particles and radiation. 'Light Flashes' consist of unexpected visual phenomena caused by the interaction of cosmic rays with the eyes of the astronaut. During the Cosmic Flash experiment, the crew member will push a joystick button each time they have a light flash, which will be transmitted to Earth and trigger a light flash in a prominent place.



NOMADIC NATURE KIT Kirsten Johannsen



The aim of her research is to design and test a sensor driven biotope, the *Nomadic Nature Kit*, which is suitable for the environmental conditions of microgravity and space. The objective and foreseen use of the *Nomadic Nature Kit* is twofold:

- As a personalised portable floating garden onboard long duration flights
- As an interface between the astronaut and the life support system

Beside its functional and practical utility, the *Nomadic Nature Kit* will also serve a metaphor for the concept of a portable garden. It links to the connotation of the Garden of Paradise, which symbolizes the beginning of the micro-cosmos and is used as a link between the home-planet Earth and the unknown environment of the Universe.

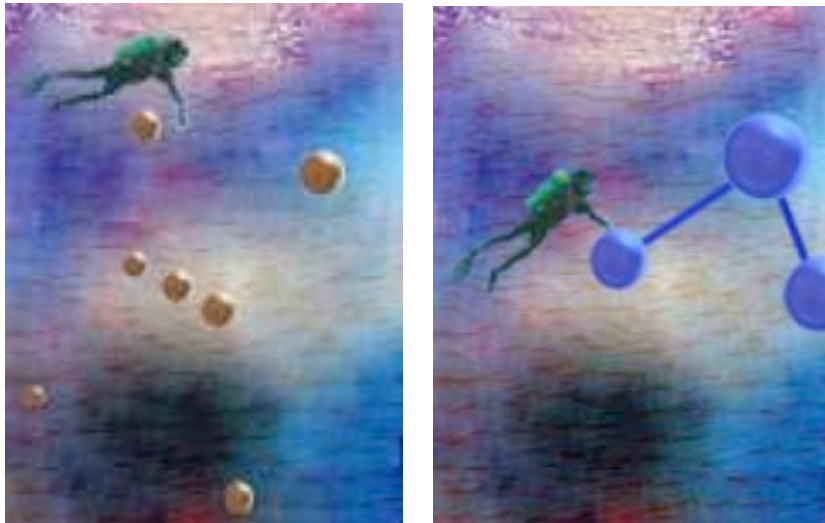
ESA/ISS TIMELAPSE Andrew Stones



ESA/ISS Timelapse is a multi-screen video installation aimed at telling one of the many narratives of Europe's involvement in the ISS. It aims to utilise continuous time-lapse footage collected through fixed cameras at selected locations in Europe's ISS ground-based facilities, e.g. clean rooms, research labs, launch sites, control centres and ground stations. The period over which the time-lapse video is collected is planned to be 6-12 months.



SUSPENSION
Ansuman Biswas & Jem Finer

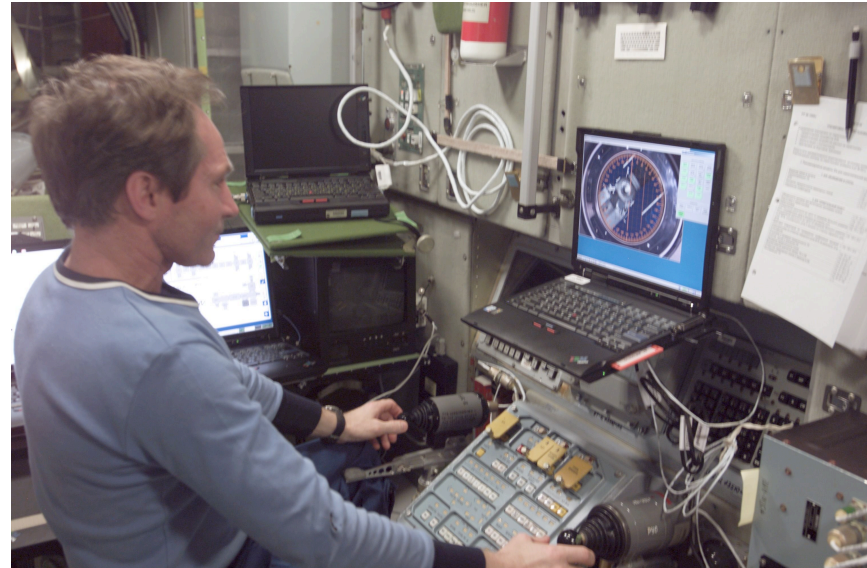


A 'performance sculpture' in a hydrolab. The schema for the performance is based quite precisely on three magnitudes of order:

- (1) formation of water molecules from atoms of hydrogen and oxygen,
- (2) patterns on the crystalline lattice structure of ice,
- (3) models of our solar system, exploring the various configurations which account for seasonal variation, eclipses, phases of the moon.

There are two aspects to the work. The first will be a live event in the tank itself. In the next, a film will be created, designed to be shown on multiple screens.

POINT TO POINT: LOCATION AND PERSPECTIVE
Bjorn Wangen and Jeremy Hight



Identifying a locality as the space station itself, constantly falling in the Earth's gravity field, opens up for a different view of "local": one which constantly moves. This project is a locative media artwork onboard the ISS. Software installed on an onboard laptop allows astronauts to enter blogs: short stories, observations and images. The artwork can receive information from key locations along the path of orbit: GPS data, planetary or local information. The artwork is designed for the station crew members to enjoy cultural exchange, a source of entertainment and information. A copy of the ISS artwork will be available on the Internet for the public.



ATMOSPHERES

Anna Piva & Eddie George (Flow Motion)



Atmospheres will transform research data on space weather and Earth's lower and upper atmospheres into electronic soundscapes. Drawing on ISS and ESA research data, the project will create a series of live sound and spoken word performances to communicate to the Earth bound audience a sense of the music of the atmospheres above and beyond Earth's orbit. In parallel, a sound art installation will be designed in cooperation with the ISS astronauts for the ATV vehicle.

CULTURAL MISSION SPECIALISTS

Kitsou Dubois & Marko Peljhan



Kitsou Dubois

Marko Peljhan's Makrolab

Choreographer Kitsou Dubois and artist Marko Peljhan would bring very different interests and skills to the proposed position of "cultural mission specialists", who would work directly with astronauts during training and missions to develop the astronaut's own cultural interests as well as collaborative projects.

Kitsou Dubois has been developing a process of experimental movement performed altered gravity conditions. She proposes to work with astronauts to explore, analyse, interpret and convey movement in gravity and weightlessness.

Marko Peljhan's work explores the conversion of technologies from military-industrial to civilian-cultural use. He often works collaboratively with individuals from a wide range of disciplines and with both cultural and scientific and industrial organisations.