SATELLITE ART WORKS (S.A.W)

satellite.art.works@googlemail.com

A Proposal for
SPACE ART

Proposal Part A

‘Space-Art-Rescue’, a Satellite Based Alarm System and Disaster Reduction.

“ The Moving Finger writes; and, having writ,
Moves on: nor all your Piety nor Wit
Shall lure it back to cancel half a Line,
Nor all your Tears wash out a Word of it. ”
Omar Khyam

CONTENS

Proposal Abstract

A 1 What is Space Art ?

A 1.1 A General Definition
A 1.2 General Categories of Space Art

A 2 What is ‘Space-Art-Rescue’ ?

A 2.1 Origins of the Definition ‘Space-Art-Rescue’
A 2.2 Mission Statement for ‘Space-Art-Rescue’
A 2.3 Motivation and Location for ‘Space-Art-Rescue’
A 2.4 General Appearance of ‘Space-Art-Rescue’
A 2.5 General Characteristics of ‘Space-Art-Rescue’
A 2.5.1 Multi-Capactiy
A 2.5.2 Non-Earth Bound
A 2.5.3 Integrity
A 2.5.4 Co-Ordinated

A 3 Near and Far Technology

A 3.1 Frame of Reference
A 3.2 Chronology of timeline
A 3.2.1 Contemporary Technology
A 3.2.2 Short-term Technology
A 3.2.3 Near Technology
A 3.2.4 Long-term Technology
A 3.2.5 Far Technology
A 3.2.6 Futuristic Technology

A 4 General Operating Methods

A 4.1 Satellite Based Alarm System
A 4.2 Suitability of Geo-Stationary Orbit Satellite
A 4.2.1 Advantages of geostationary Oribt.
A 4.2.2 Disadvantages of Geo-Stationary Orbit
A 4.3 Suitability of Low Earth Orbit Satellites
A 4.3.1 Advantages of Low Earth Orbit Satellites
A 4.3.2 Disadvantages of Low Earth Orbit Satellites
A 4.4 Satellite Alarm Extension Devices
A 4.5 Global Navigation Satellite System (GNSS)

A 5 Profile of Concept Ideas

A 5.1 Profile of Concept Ideas for Near Technology Extension Devices
A 5.1.1 PARR (Personal Alert Response Receiver)
A 5.1.2 MuSWa (Multiple-Function Swarm Warning)
A 5.1.3 KSS (Kite Signal System)
A 5.1.4 SAAS (Stratospheric Airship Advance Signal)
A 5.2 Profile of Concept Ideas for Contemporary Technology Extension Devices
A 5.2.1 Space Fireworks
A 5.2.2 Balloons
A 5.3 Profile of Concept Ideas for Short-term Technology Extension Devices
A 5.3.1 SAP (Sound Alert Panel)
A 5.4 Profile of Concept Ideas for Long-term Technology Extension Devices
A 5.4.1 Blinking Coloured Light System
A 5.4.2 Satellite Mirrors
A 5.4.3 Solar to laser Conversion
A 5.5 Profile of Concept Ideas for Futuristic Technology Extension Devices
A 5.5.1 Screen in Space Formation Flying…long-term…
A 5.6 Profile of Concept Ideas Far Technology Extension Devices
A 5.6.1 Floating Bare Tether as Upper-Atmosphere Probe

A 6 Model Development for a Near Technology Project

A 6.1 Short Term Project Goal
A 6.2 Long Term Project Goal
A 6.3 Model Development - MuSWa (Multiple-Function Swarm Warning)
A 6.4 Model Development Long-term
A 6.4.1 Feasibility Study of a Satellite Based Alarm System
A 6.4.2 Feasibility Study where field-trials
A 6.5 Issues Developing Alert Devices within Early Warning Systems in Developing Countries

A 7 Interdisclipinary Research Techniques

A 7.1 'Science of Uncertainty'
A 7.2 Open-ended questioning
A 7.3 Shared Learning Dialogue
A 7.4 Social Anthropology and its methodologies
A 7.5 Language
A 7.6 Documentary Videography

A 8 Visuality

A 8.1 Multi-Cultural Astronomy
A 8.2 Design Devlopments of the World Wide Web
A 8.3 Nature: processes, structures, forms and evolution
A 8.4 Art: media, concepts and contexts

A 9 Disaster Preparedness and Disaster Reduction

A 9.1 Definitions
A 9.2 Grass roots communication
A 9.3 Social Art Entrepeneurs

A 10 Concurrence

A 10.1 INES (International Network of Engineer's and Scientists for Global Responsibility) and WFSW (World Federation of Scientific Workers): Berlin, Germany, May 2007
A 10.2 Dhirendra Sharma - the art of change
A 10.3 Rebecca Horn - the art in change
A 10.4 Thomas Man - art and prediction

A 11 Conclusion Context

A 12 Bio

A 13 List of Books and Journals

A 14 Acknowledgment

PROPOSAL ABSTRACT

The astronaut Dan Tani recently returned from several months on the International Space Station, commenting on the ‘Overview Effect’, remarked: „When I look down, I am stunned by the intense colors of the Earth, the intense patterns and textures, and sheer beauty of our home planet. When I watch the Earth roll by, I realise I believe in optimism.“

At the end of the second world war, the German scholar Thomas Mann fostered a hope about Art. He indicated that the long term survival of Art depended upon its ability to become the ‘servant of a community’, possessed of a new innocence and being more than an educator. In more recent years, it is within certain branches of Space Art that this ‘concentration’ is emerging with a response to current global and environmental issues, a sensitivity to cultural matters and technological advancement.

As Space Artists we approach these concerns in a body of work called ‘Space-Art-Rescue’. Our aim in engaging
advanced technology concepts in continuous transfer with scientists and other specialists, is to create Art works visible from earth to earth-space?? air-space, near-space and space. Our portfolio includes near and far technology projects controlled by satellite. For example, swarm technology and stratospheric platform. Far technologies include use of the floating bare tether and formation flying satellites.

Living on our planet today clearly requires a lot more imagination than we are made to have. Imagination is a specialism to Art and other risk-thinking and it is in this connection that we enterprise our vision. ‘Space-Art-Rescue’ works with the shortcomings in the communication and dissemination of alertness in advance of impending disaster situations at local community level focusing on satellite solutions in a user-need oriented approach. Our methodology for this type of Space Art uses the ‘Science of Uncertainty’ as a basic philosophic platform for interdisciplinary research. Our contemporary art practice is described as Social Art Entrepreneurship.

A 1 What is Space Art ?

A 1.1 A General Definition.

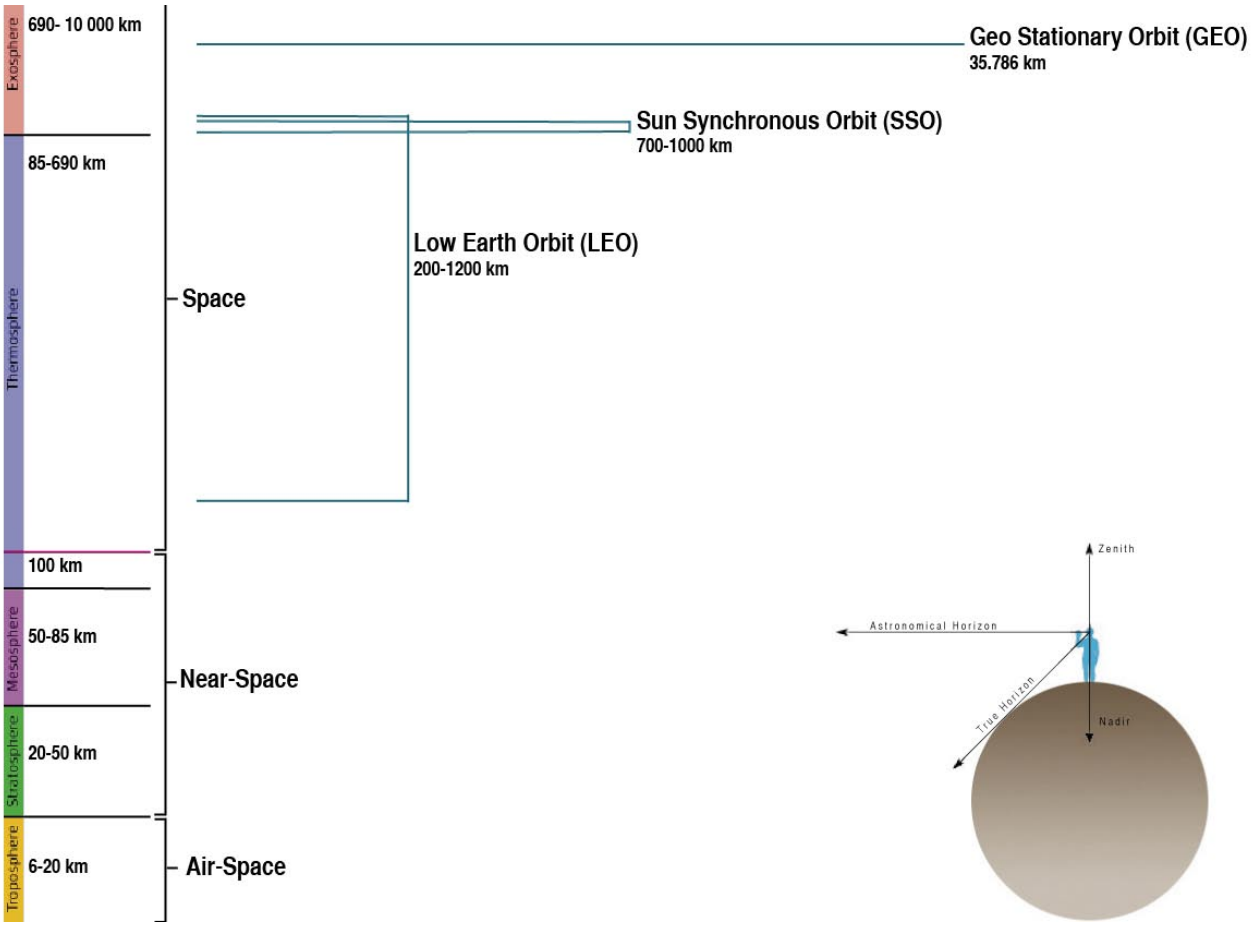
Roger F. Malina, Astrophysicist and Executive Editor of Leonardo:
The Journal of Art, Science, and Technology defines the term “Space Art” as:

“Contemporary Art which relies on space activity for its implementation.”

A 1.2 General Categories of Space Art.

Roger Malina places Space Art into 7 different categories as follows:

- Fine Art which exploits sensory experiences generated through space Exploration. New landscapes become accessible through space photography and film. Space illustrators anticipated some of these and make use photographic record for space exploration.
- Art which expresses the new psychological and philosophical conceptions developed through the exploration of space.The primary example of this is the concept of the Earth as a whole system – a concept made concrete by the first views of the whole earth seen from space.
- Art in Space, viewed from Earth.
- Art on Earth, viewed from Space.
- Art in Space, viewed in Space.
- The applied arts such as space architecture, interior design and furniture design.
- Fine Art which takes advantage of new technologies and materials created through Space activities. The most important of these make use of satellite systems to create simultaneous global artworks.



A 2 What is ‘Space-Art-Rescue’ ?

A 2.1 Origins of the Definition ‘Space-Art-Rescue’.

It is the twinning of Artistic practice and Space based solutions.

A 2.2 Mission Statement for ‘Space-Art-Rescue’.

Satellite Art Works (S.A.W) mission is to create alert devices within early warning systems to aide population in danger from critical circumstances.

A 2.3 Motivation and Location for ‘Space-Art-Rescue’.

- Affiliated with peaceful purpose and allied to humanitarian cause, the mission for this kind of Space Art is designed to operate within the developing satellite global alert system in the area of preparedness in disaster reduction, initially within the Southern Hemisphere.
- Satellite Art Works (S.A.W) perceives that predictions concerning global climate change will inevitably mean new-coming disaster and a need for further specialist imaginative response and sees itself as one of many projects world-wide to address the gaps and needs in respect to early warning systems and the issues of natural and man-made disasters.
- Satellite Art Works (S.A.W) volunteers an ethical, practical, ?(and)? creative tool in responding to people at risk in on-going disasters, natural or human in origin.

A 2.4 General Appearance of ‘Space-Art-Rescue’.

- These art works appear from the earth as visions, images or sounds, acting as conveying warning messenger, an ‘external sign’, adapted to the specific hazard and part of other aspects of an early warning system.
- This ‘external sign’ would be a reflection of the information reported by the existing monitoring system of satellites for rapid disaster response. This might exist separately or be integral to the existing satellite weather monitoring system.

The system ‘transmission’ from this Space Art is perceived as physically visible from earth. This would take a loose form, a geometric form and/or symbolic form.
The intention of this Space Art or ‘Space-Art Rescue’ is to act as an ‘external sign’ to those in danger, appropriate to the disaster hazard, and.

The viewing audience on earth would experience three ?? 4? types of “transmission” from this art work:

From earth to Space

From earth to Near-Space

From earth to Air-Space

From earth to Earth-Space

A 2.5 General Characteristics of ‘Space-Art-Rescue’

A 2.5.1 Multi-Capactiy

That this Space Art is multi-capacity, offering the possibility of adaptability and flexibility of response to the disaster hazard.

A 2.5.2 Non-Earth Bound

That this Space Art is where necessary non-earth bound, offering as far as possible an independent, autonomous and de-centralised system from ground level resource in the event of lack of already existing communication systems, existing system destruction or disruption caused by civil or military unrest.

A 2.5.3 Integrity

That this Space Art possesses integrity, offering the ability to conjure detail.
For example: to time of day, speed, cultural sensitivity, use of existing local resources, material and knowledge.

A 2.5.4 Co-Ordinated

That this Space Art be viewed as part of a collaborative response from the multi-media communications community to create future links in a global warning system (i.e global alert messaging system for mobile phones and in the world-wide web); this includes co-ordination within national systems of early warning. In addition, grass-roots communications and corresponding disaster management training programmes within an early warning system, as vitally significant.

A 3 Near and Far Technology

A 3.1 Frame of Reference

Whilst one of the main concerns is the accuracy of the forecast of our concepts within the Global Warning Infrastructure itself, another is to project the timeline of possible technological development

A 3.2 Chronology of timeline

Described below is a system, our frame of reference to identify the possible timeline of creative technological development:

A 3.2.1 Contemporary Technology: whether the prediction of the description of the Art is immediate using existing or developing technology and could be built and tested.

A 3.2.2 Short-term Technology: relating to, or constituting obligation based on a brief term and especially one of less than 1 year.

A 3.2.3 Near Technology: 1 to 10 years.

A 3.2.4 Long-term Technology: occurring over or involving a relatively long period of time, relating to obligation based on a considerable term and especially one of more than 10 to 50 years

A 3.2.5 Far Technology: 50 to 100 years

A 3.2.6 Futuristic Technology: generational technolgoy

A 4 General Operating Methods

A 4.1 Satellite Based Alarm System

• The use of satellite telemetry as an Alarm System allows the lag between a disaster event and the receipt of initial data to be reduced to the order of a few minutes, thus providing more time for regional early warnings.

• The following ‘Profile of Concept Ideas’ (A 5) describes integrating our Space Art with satellite alarm telemetry into the infrastructure of an existing civil defense response organisation as well as public and personal emergency warning technology. The aim is for effective management at various times during a disaster event.

What is a geostationary satellite?
A geostationary satellite is any satellite which is placed in a geostationary orbit. Satellites in geostationary orbit maintain a constant position relative to the surface of the earth.

Geostationary satellites do this by orbiting the earth approximately 22,300 miles above the equator. This orbital path is called the Clarke Belt, in honor of Arthur C. Clarke.

A 4.2 Suitability of geostationary satellites

Any solution is better than terrestrial-bound multi-casts
• there is the feeling that both these consellations will prove extremely viable for aggregating ?ISPs?and businesses outside the U.S.A ???
• there are enough doubts and trade-offs to make GEO’s to make them a sound business strategy at the moment
• Prediction: 144 broadband GEO’s, world-wide coverage needing only 8 birds ???
• Best for broadcasts and multi-casts.

A 4.2.1 Advantages of geostationary ?orbit ? satellite ?(GEO)

The typical service life expectancy of a geostationary satellite is ten to fifteen years.
• Life span currently the longest at 10 years.
• Always in sight of a terrestrial gateway by virtue of an orbit that matches the earth‘s rotation.
A single geostationary satellite will provide coverage over about 40 percent of the planet.

A 4.2.2 Disadvantages of geostationary ?orbit? satellite?

• Latency is the trade off ith Geo’s – they are more difficult and more expensive to get up there.
• They are far away and must incorporate more power at more expense in skybourne transmitters or require that.
• GEO topography is rooted as being simpler than that of terrestrial or LEO networks.
Because geostationary satellites circle the earth at the equator, they are not able to provide coverage at the Northernmost and Southernmost latitudes.

Satellite systems are employed for telephone and data communications. There are geostationary satellites flying in high orbit (22,000 miles) where they can maintain the same position above the earth‘s surface at all times. The only problem, with such high-flying satellites is that there is a noticeable delay in real-time communications, and the power requirements to communicate with the satellites is too high for portable devices.

LEO (Low Earth Orbit) Satellite

LEOs are more practical for mobile communication devices like mobile phones, PDAs, and automobile communication systems. An LEO satellite orbits in a relatively low earth orbit of a few hundred miles. In this orbit, the round-trip time for transmission is minimal, as are the power requirements for earth-bound communication devices. The downside of LEO satellites is that a fleet of them is required. Because of their low orbit, they move faster relative to a point on the surface, so a fleet of LEO satellites is required to maintain communications over a single point. As one LEO moves out of position, the other moves in. Each satellite covers an area that could be compared to a cell in a cellular system, except that the cell moves as the satellite orbits. A

4.3 Suitability of Low Earth Orbit Satellites

• If these live up to their promise they'll certainly win in the end.
• Prediction: 350 broadband LEO's by 210, world-wide coverage needs 48 birds.

A 4.3.1 Advantages of LEO Satellites

• can tap into far greater broad-band width for use with tightly focused spot beams
• expected to produce better results with interactive applications like voice and video conferencing.

A 4.3.2 Disadvantages of LEO Satellites

• Lifespan currently five years.
• Expected to burn in orbit more quickly which means more must be launched and spares must be ready.
• The orbit is also at an altitude where an LEO speeding along 27,000 km per hour are more lively to be turned to molten plasma by a dislodged bolt of debris hurtling through space.
• They are in orbit for less than 15 minutes before having to perform complex airborne traffic hand offs to one another.
• Short life-span means that LEO earth situation must use phased-array antennas that maintain as active link by keeping at least two satellites in view at all times. The antenna starts a new link before serving one with a satellite moving out of range all of which adds to terminal complexity and presumably cost.
• the meshing of networks and transmission movement can prove problematic.

A 4.4 Satellite Alarm Extension Devices

• Our intention is to offer multiple technological alarm extension devices as part of real-time emergency management via satellite.
• These alert responses deliberately 'over-lap', being inclusive in design remit for the visually and audibly impaired.
• These alert responses are deliberately designed to be culturally sensitive.

A 4.5 Global Navigation Satellite System (GNSS)

Global Navigation Satellite System (GNSS) is the standard generic term for satellite navigation systems that provide autonomous geo-spatial positioning with global coverage. A GNSS allows small electronic receivers to determine their location (longitude, latitude, and altitude) to within a few metres using time signals transmitted along a line of sight by radio from satellites. Receivers on the ground with a fixed position can also be used to calculate the precise time as a reference for scientific experiments.

As of 2007, the United States NAVSTAR Global Positioning System (GPS) is the only fully operational GNSS. The Russian GLONASS is a GNSS in the process of being restored to full operation. The European Union's Galileo positioning system is a next generation GNSS in the initial deployment phase, scheduled to be operational in 2010. China has indicated it may expand its regional Beidou navigation system into a global system. India's IRNSS, a next generation GNSS is in developmental phase and is scheduled to be operational around 2012.

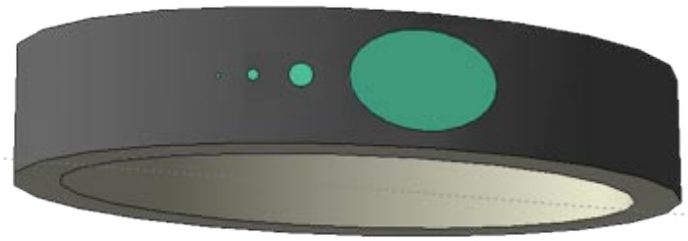
A 5 Profile of Concept Ideas

The following list and descriptions are presently deliberately general in their outline, describing the technology alarm extension devices to a Satellite Based Alarm System.

A 5.1 Profile of Concept Ideas for Near Technology Extension Devices

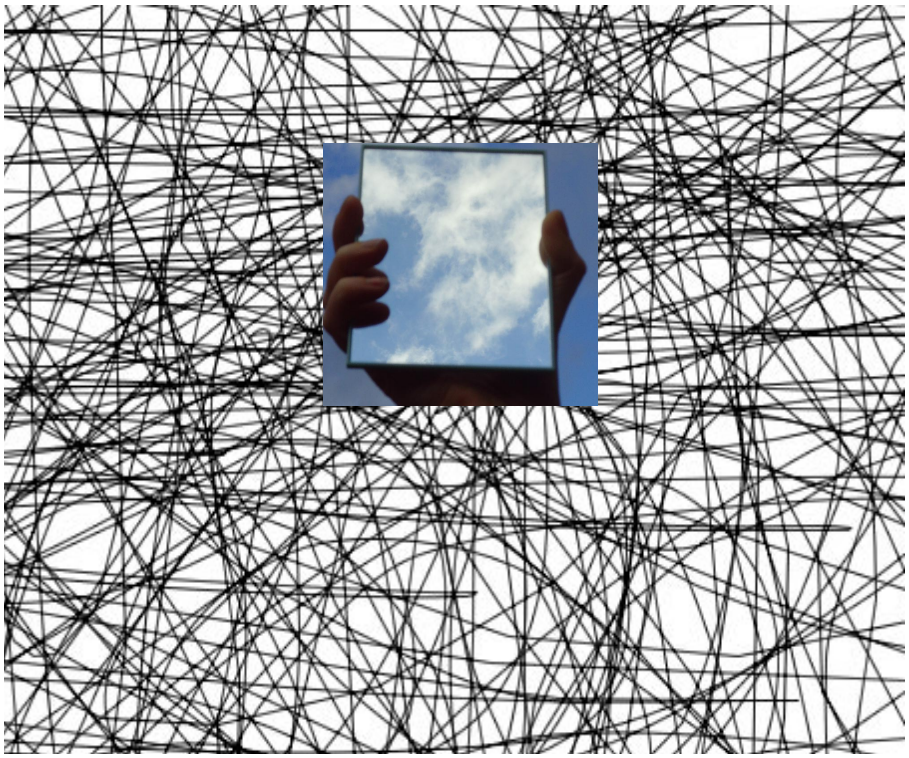
A 5.1.1 PARR (Personal Alert Response Receiver)
A 5.1.2 MuSWa (Multiple-Function Swarm Warning)
A 5.1.3 KSS (Kite Signal System)
A 5.1.5 SAAS (Stratospheric Airship Advance Signal)

A 5.1.1 PARR (Personal Alert Response Receiver)

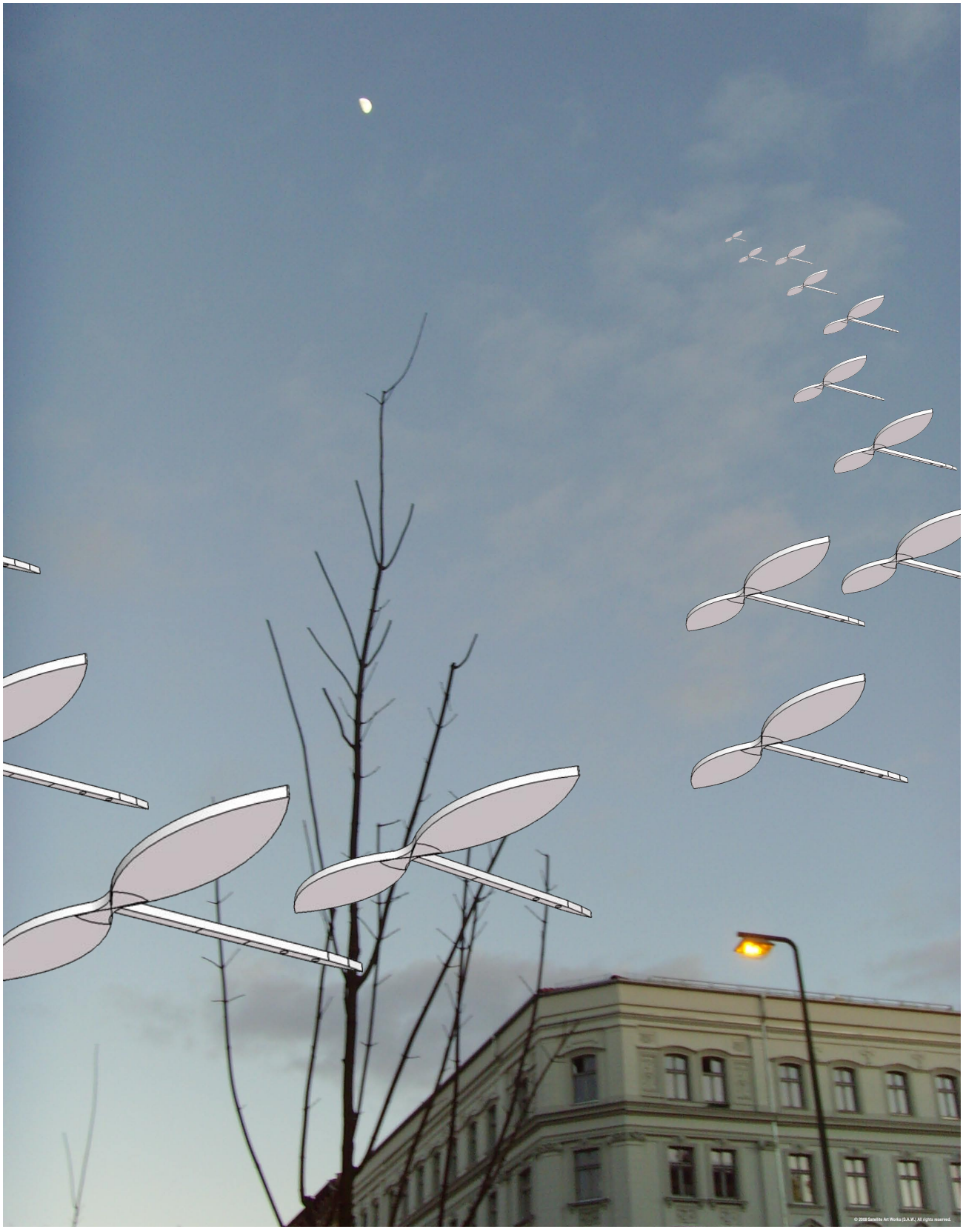


- *Description:*
  Autonomous, waterproof, robust, discrete Unit designed for personal attachment such as a band on the body (i.e A watch‘ style bracelet).
- *How it functions:*
  Version (a): This Unit has a GNSS (ie GPS) receiver for signals from satellite based alarm system as part of real-time preparedness in early warning for disasters. It transmits a vibration to the wearer, including visual messaging informing of types of disaster, real-time urgency and situational awareness in terms of response.
  Version (b): As above. This Unit contents include a personal encoded rescue signal to locate connected also to Global Satellite Rescue Alert and Response Technology. When activated this Unit transmits an alert to the Global „Search and Rescue“ Network, who then know the whereabouts of the wearer.

  This Unit contains a power source from a built in re-rechargeable battery for up to 8 years together with low battery indicator. Alternatively, the Unit contains a power source from accumulators that have a multi-chargeable system (for example, electricity, solar, dynamo, mechanical) with the possibility of working for a week without charge. (The Unit comes a Standard System Package in conjunction with antennae and cable for installation on a building for the internal transmission).
- *Advantages:*
  Ability to warn continuously, rapid response, search and find facility inbuilt, usability for the socially and physically isolated, continuously switched on, robust and waterproof material, easy to manage, simple to use. Any conditions.
- *Location:*
  Urban and rural people, regardless of geographic conditions.
- *Disaster:*
  All disasters, also rapid disasters: earthquake, flooding, cyclones, tornadoes
- *Disadvantages:*
  Initial expense. Without antennae facility is non-functioning inside of buildings.
- *Comment:*
  Pliant use with existing and developing methods of early warning, especially ‘Chinese Wall Communication’.



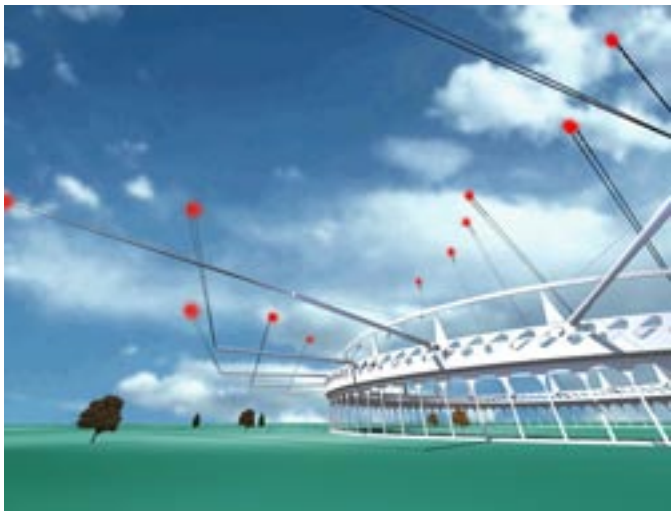
A 5.1.2 MuSWa (Multiple-Function Swarm Warning)



- *Description:*
  Satellite controlled Unmanned Aerial Vehicles with LED.
- *How it Functions:*
  The Swarm Unit is controlled via computer instructed from Satellite Based Alarm System as part of preparedness in early warning for disasters. The MuSWa is designed to be located in aviary bases,satellite operated and manned if necessary, by unqualified staff.
- *Design Intention:*
  The MuSWa is deliberately designed to reflect Disaster Necessity in the following ways:
    - as a multi-functioning and multi-response technology reflecting pre/ run-time/ post-disaster necessity.
    - as a continuous multi-flight relief re-load system.
    - as a response system that has 'Anywhere Visit' ability.
- *Capability Intention:*
    - Pre-Disaster: The Swarm Unit flies in formation to pattern warning signal and/or sign direction to safety for people below.
    - Run-time of Disaster: The Swarm Unit offers an installation for local communication networks to replace overwhelmed telecommunication systems under instruction from initial satellite information; this includes assisting relief workers and a safe method to survey when conditions are hazardous, whilst flying in continuous loop.
    - Post-Disaster: The Swarm Unit offers flexibility of function which includes flight flocking to record ground activity by camera and also drop facility of emergency medical supplies.
- *Advantages:*
    - A 'grass roots' autonomous warning system that mimics aerial imagery found in nature.
    - Simplicity in learning how this warning functions.
    - Multi-capacity in terms of functioning.
    - Adaptivity due to satellite control.
    - Ease of transport.
    - Loss of one member of swarm not effect functioning of unit.
    - Minimal injury to citizens when one member falls because of non-dangerous material and structure.
    - Low power.
    - Post-hazard benefit.
    - Unamanned and no loss of life or harm via injury.
- *Location:*
  Remote, isolated conditions, rural areas, developing countries, hot spots.
- *Disaster:*
  Natural and man-made disaster, ie – earth-quake, post-tsunami, flooding, fire, evacuation emergencies, hospitals.
- *Disadvantages:*
  Extreme weather conditions.
- *Comment:*
  Recommended is for use of a minimum of 2 swarm units. The system could be practiced once a month at a specific time, especially in coastal areas or risk hot spots.

• Description:
Laser lightening of high altitude kites on a wind energy generator (i.e Laddermill, KiteGen).
• How it Functions:
A blinking laser signal operating as a visual public alert system and activated by Satellite Based Alarm System. The laser technology is built into the ground station and lights the kites or glider planes, which are designed using reflective material. For example, a warning of fast sharp red blinking signal indicating an alert to the viewing public whilst a blue signal an 'all clear'.
In addition the KSS also operates a siren alarm to draw public attention to correspond with the visual signalling.
• Advantages:
In the event of a power blackout the KSS functions independantly from the mass energy source. Easy for developing countries to build and maintain with assistance from European high-tech import, high-up and visible, renewable energy, non-polluting, safe.
• Location:
Depends on the position of the power plant.
• Disaster:
Suitable for Creeping Disaster. For example: Cyclones, Droughts, Epidemic Warning, Locusts.
• Disadvantages:
Relates to a specific locality only. Lull in the wind...
• Comment:
Sustainable energy power-plant reducing risk of climate change.

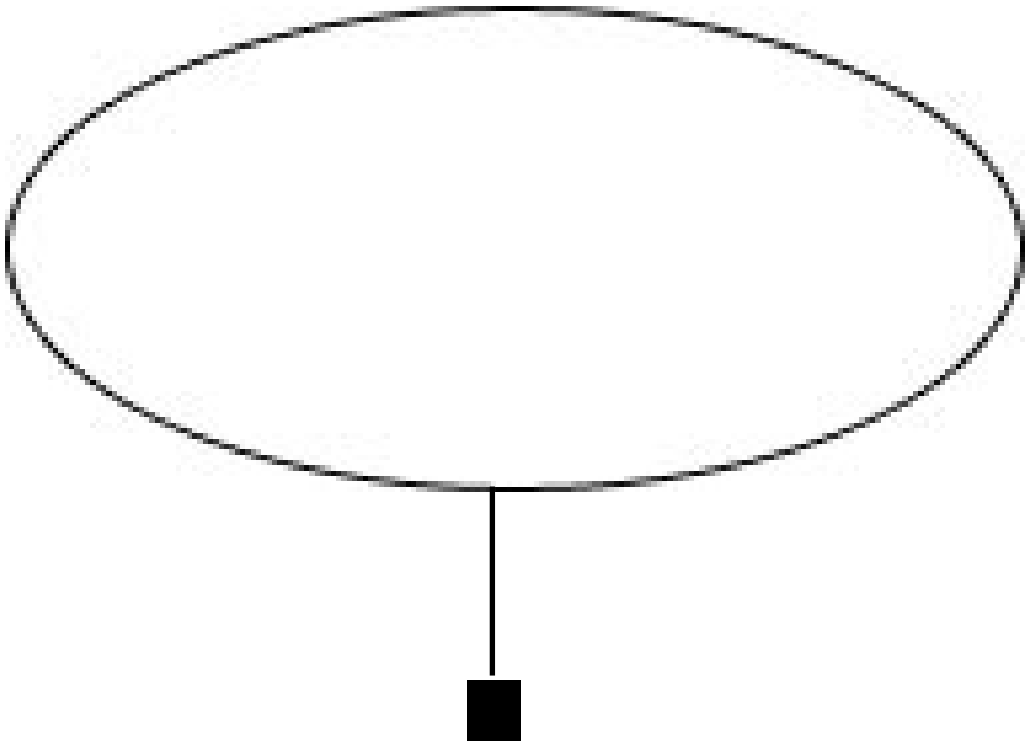
http://www.tudelft.nl/live/pagina.jsp?id=8d16d19a-e942-45aa-9b52-48deb9312e92&lang=en (21.03.08)



http://www.kitegen.com/index_en.html (21.03.08)

A 5.1.5 SAAS (Stratospheric Airship Advance Signal)

- *Description:*
  Stratospheric Airship in geostationary position at an altitude of 10km to 20km deploying advanced laser technology and mirroring system to act as an a visual signalling system in air space as an addition to a high altitude platform telecommunications operation.
- *How it functions:*
  Activated by the Satellite Alarm System, the SAAS activates a visual warning signal of blinking laser light at night whilst in the daytime uses a mirroring system. In line of sight, the signal is also adjustable towards risk locality.
- *Advantages:*
  Power source is via solar power from airship, system can be repaired when airship is docked and returned.
- *Location:*
  Urban and rural people, regardless of geographic conditions.
- *Disaster:*
  Suitable for Creeping Disaster. For example: Cyclones, Droughts, Epidemic Warning, Locusts.
- *Disadvantages:*
  Not suitable for rapid disaster response.
- *Comment:*
  Using tether technology, the lasers could be dropped beneath cloud coverage for maximum visibility.



성층위성의 개념도

A 5.2 Profile of Concept Ideas for Contemporary Technology Extension Devices

A 5.2.1 Powderworks

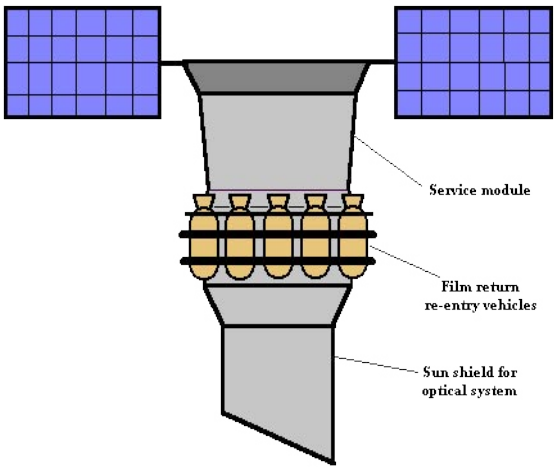
INSERT: nature of language. ie - jettison - too military? Also, description of re-entry needs to be about vaporisation. Look up alternative words

• *Description:*
Jettisoned capsules filled with coloured powder released into the sky producing huge powder coloured installation in air-space, including on clouds. At night-time this could be fluorscent, glowing in the sky. This release is instructed by a satellite based alarm system.
• *How it Functions:*
Version A: Satellite deploying a carousel of powder filled capsules which are released into air-space.
Version B: Stratospheric platform deploying a carousel of powder filled capsules which are released from near-space into air-space.
Version C: Rockets containing powder filled capsules are propelled from earth-space into appropriate air-space

The jettisoning function is frequent and systematic to maintain the visibility over longer periods of time. The number of capsules on the satellite should be equivalent to the life-time of the satellite and the assumed necessity of the risk hot spot for this period of time. In future times a re-load system could be designed via the Space Elevator. Re-loading the carousel on the Stratospheric platform could be done when the annual maintenance works are carried out.

• *Design Intention:*
A response technology designed as a simple autonomous aerial signal to reflect pre-disaster warning specific to one location and where the disaster is significant and quite consistent.
• *Capability Intention:*
The intensity of the signal is maintained by jettisoning mini-capsules always to one point of reference in the air-space.

• *Advantages:*
Simplicity of communication, rapid response
• *Disaster:*
regularly appearing disasters which are localised, for example: flooding, locusts, land-slides, epidemic
• *Disadvantages:*
The wind level could effect the precision, capsule harming humans below (?) unless deteriorating upon explosion.
• *Comment:*
Version A, the capsules on the satellite need further development to enter earth`s atmosphere wit-

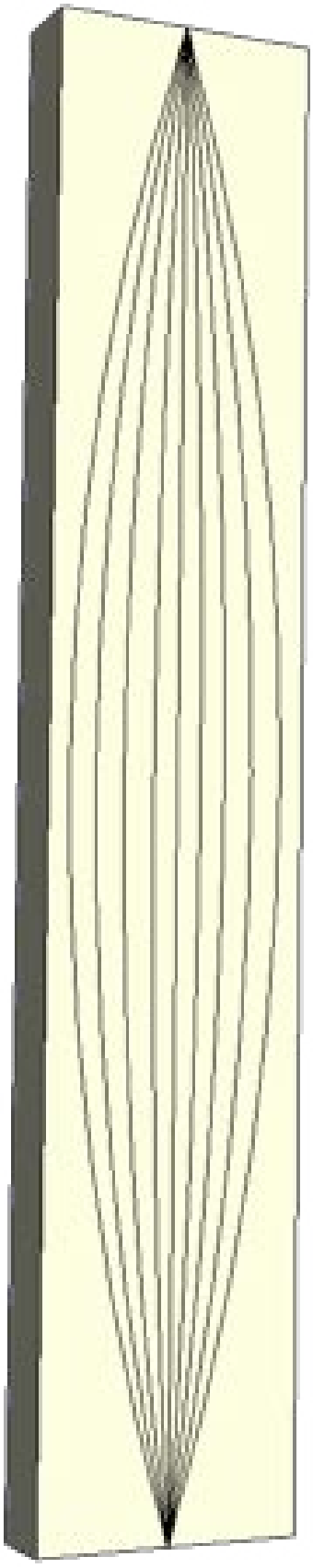

Service module
Film return
re-entry vehicles
Sun shield for
optical system

A 5.2.2 Balloons

- *Description:*
- *How it Functions:*
- *Design Intention:*
- *Capability Intention:*
- *Advantages:*

A 5.3 Profile of Concept Ideas for Short-term Technology Extension Devices.

A 5.3.1 SAP (Sound Alert Panel)



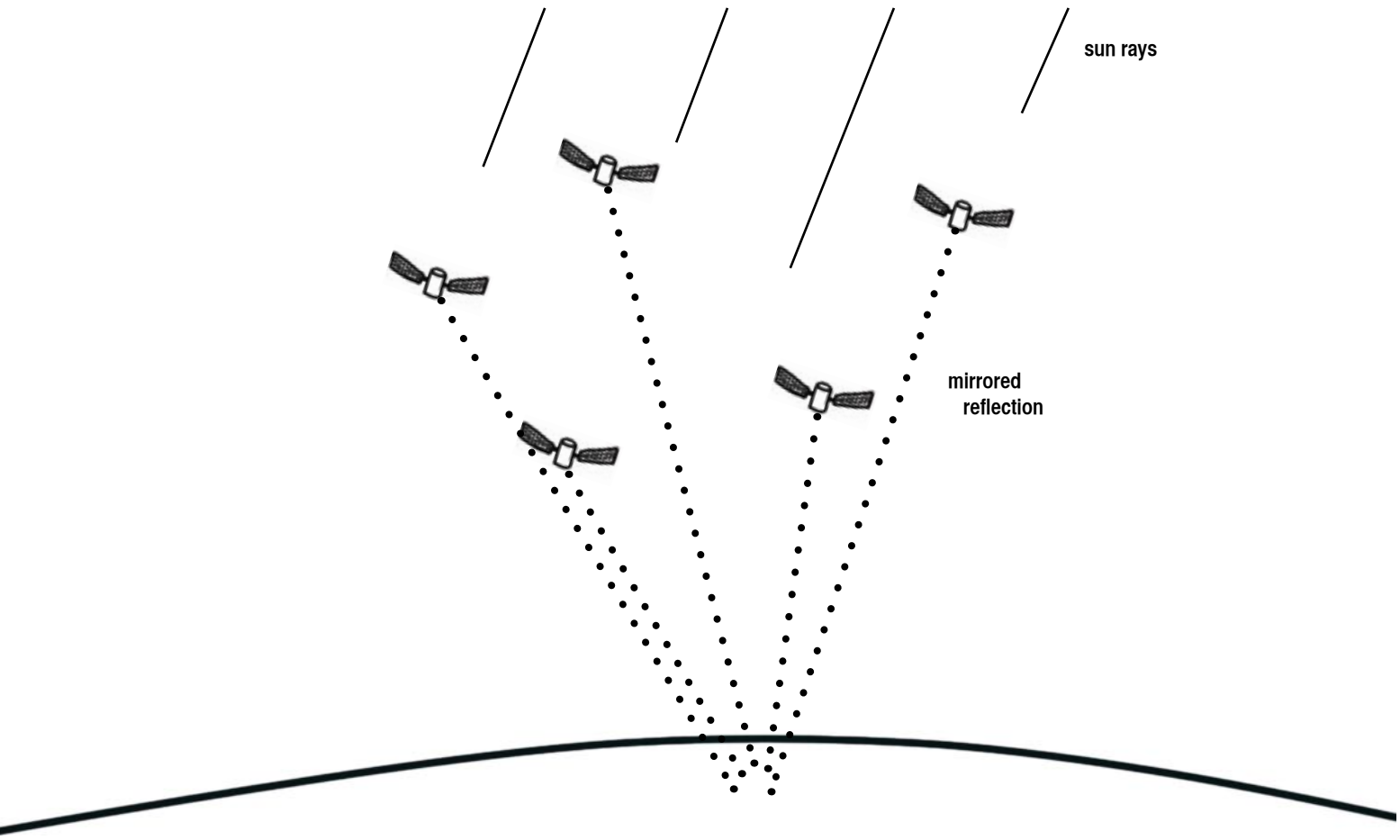
- Description:
  A receiver with an alarm for neighbourhood/ community use outdoors designed as ‘human-high‘ height object.
- How it Functions:
  A GNSS (ie GPS) receiving device activated by Satellite Alarm System emitting a loud audible alarm sound acting as the warning alert.
  The emitted sound is an alert tone reflecting the nature of the hazard and is then followed by a short verbal instruction which is repeated in cycle.
  This alarm is adaptive offering the possibility of a register of sound signals for differing hazard.
  Solar powered source with accumulator charge.
- Advantages:
  Mass-produced and cheap for possible fabrication within developing countries with GPS chip import.
- Location:
  Urban and rural people, regardless of geographic conditions.
- Disaster:
  All disasters, also rapid disasters: earthquake, flooding,
- Disadvantages:
  Could be stolen.
- Comment:
  Education to understand warning.

A 5.4 Profile of Concept Ideas for Long-term Technology Extension Devices

A 5.4.1 Blinking Coloured Light System

Using multiple spacecraft mission to create a ‘blinking coloured light system’ towards the earth’s surface,
visible by the human eye during the day or night time using solar laser conversion.

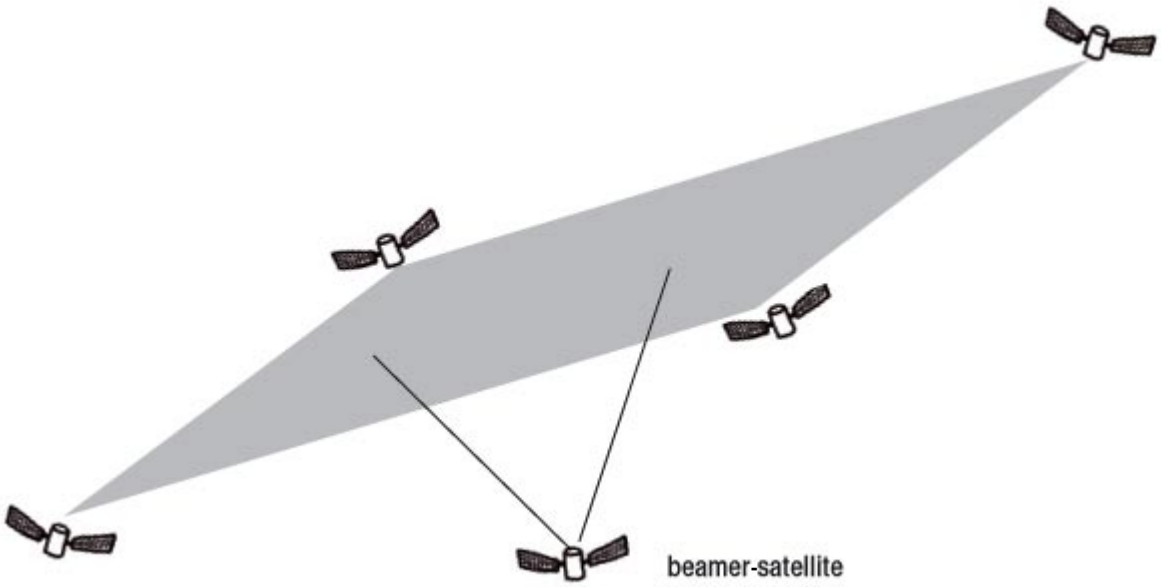
A 5.4.2 Satellite Mirrors



Using multiple spacecraft mission, light from the sun‘s rays is reflected from mirrors within each of the craft towards earth’s surface.

A 5.5 Concept Ideas for Futuristic Technology Extension Devices.

A 5.5.1 Screen in Space Formation Flying…long-term… ?



By unfolding a huge screen of biaxially-oriented polyethylene terephthalate (boPET) polyester film (i.e. Mylar, Melinex), held in place by formation flying satellites, the reflecting surface of the film sending sunlight towards the earth's surface. This film also can be lightened via lasers directed from the satellites or a further 'beamer-satellite' .

A 5.6 Concept Ideas Far Technology Extension Devices

A 5.6.1 Floating Bare Tether as Upper-Atmosphere Probe Long Term???

A conductive tether left uninsulated and electrically floating in LEO could serve as effective Electron beam source to produce artificial auroras.

Use of a conductive bare tape electrically floating in low Earth orbit as an effective electron beam source to produce artificial auroral effects, free of problems that mar standard beams, is considered. Ambient ions impacting the tape with keV energies over most of its length liberate secondary electrons that race down the magnetic field, excite neutrals in the E layer, and result in auroral emissions. The tether would operate with both a power supply and a plasma contactor off at nighttime; power and contactor would be on at daytime for reboost. Tomographic analysis of auroral emissions from the footprint of the beam, as observed from the spacecraft, can provide density profiles of dominant neutral species in the E layer. A characteristic tether system, at altitude ~300 km and moderate orbital inclination, would involve an aluminum tape with a length of ~20 km, a

Citation: Sanmartin, J. R., M. Charro, J. Pelaez, I. Tinao, S. Elaskar, A. Hilgers, and M. Martinez-Sanchez (2006), Floating bare tether as upper atmosphere probe, J. Geophys. Res., 111, A11310, doi:10.1029/2006JA011624. (date!)

Photo: The Northern Lights in Kangerlussuaq on Greenland‘s west coast (http://www.greenlandholiday.com/AboutGreen

A 6 Model Development for a Near Technology Project

A 6.1 Short Term Project Goal

Our project goal near-term is the development of an emergency warning technology at local community level within developing countries.
This Unit is called: MuSWa (Multiple-Function Swarm Warning).

A 6.2 Long Term Project Goal

Our vision longer term is the creation of socio-cultural sensitive and innovative devices, a general public and personal emergency warning technology as part of real-time emergency management via satellite based alarm system.

A 6.3 Model Development - MuSWa (Multiple-Function Swarm Warning)

- The development of project MuSWa within the context of art and art practice with the aim to pre sent to citizens in gallery space and/or public space.
- A funding proposal to an art or art/science source including management and financial proposal.
- Collaboration with a technology partner in developing the product for general public and personal emergency warning technology.
- Production of a report on the use of alarm technology by citizens in public and private realm. This would include that already current and developing within early warning system for disaster hazard in developing countries, including false alarm procedure.
- A report examining Swarm unit per percentage of population.
- Report in collaboration with social anthropologists in order to increase sensitisation to multiple kinds of issues and actors.
- Testing the device in the light of on-going technological developments and its effectiveness in multiple situations; commencing with exhibiting to general public in non-emergency situation to familiarize with visuality initially within Europe and subsequently in South East Asian location; testing in dedicated location at the same time of day, the first day of the first week of each month testing as part of a genuine emergency response alongside other emergency alert devices.

A 6.4 Model Development Long-term

A 6.4.1 Feasibility Study of a Satellite Based Alarm System where citizens may be warned in a timely manner via a satellite infrastructure capable to directly broadcast signal to visual and audible public and personal emergency warning technology in a dedicated region. This technology is designed to run along side similar proposal for mobile alert messaging.

A 6.4.2 Feasibility Study where field-trials in dedicated location in joint operation with different civil protection agencies working within the same foreign crisis theatre to validate the extent of user-need oriented approach of the MuSWa, the importance of developing interoperability with this Swarm Unit and solutions adapted to in-the-field needs and constraints to this type of Socialised Emergency Preparedness, (model example would be an extension of ESA DECISION project, France).

A 6.5 Issues Developing Alert Devices within Early Warning Systems in Developing Countries.

- Sustainability in terms of energy.
- Gender perspective and cultural diversity - it is essential to recognise that different groups have different vulnerabilites according to culture, gender or to other characteristics that influence their capacity to effectively prepare for, prevent and respond to disasters.
- Women and men often play different roles in society in disaster situations. In addition, the elderly, disabled and socio-economically disadvantaged are often more vulnerable.
- The messages are devised to contain simple, useful information.
- Our devices are intended as part of use in multiple-communication channels, necessary to ensure as many people as possible are warned in order to avoid failure of any one channel which must be part of vertical and horizontal communication and co-ordination between early warning stakeholders.
- Our devices engage co-operation within the private sector.

A 7 Interdisclipinary Research Techniques

A 7.1 'Science of Uncertainty'

The artists decided that an appropriate philosophical dialogue lies within the Science of Uncertainty, an approach currently led by Professor Nassim Taleb . This methodology offers territory of neutral exchange between artists, scientists and other experts across culture and the likelihood of the probability of such a project viewed with increased credibility.

"Living on our planet today requires a lot more imagination than we are made to have" , explains Professor Taleb and that "this inability to automatically transfer knowledge and sophistication from one situation to another or from theory to practise is a quite disturbing attribute of human nature". He subsequently points to qualities that are distinctive to ideas and discoveries forged by, in and within uncertain conditions. He explains the characteristics of such concepts or discoveries as random and counter-intuitive. His understanding is that the information surrounding these is usually incomplete, implausible and manages to escape existing models.

For example, he explains such concepts or discovery as random and counter-intuitive. He understands that the information surrounding these is usually incomplete, implausible and manages to escape existing models. He describes ideas like this as outside the box and as an "outlier" or "black swan". The element of probability predicted around them as high: "Prediction requires knowing about technologies that will be discovered in the future. But that very knowledge would almost automatically allow us to start developing these technologies right away"

A 7.2 Open-ended questioning

The methodology in developing this concept is to use a series of open-ended questions.The intention here is:

• To express any concerns held by both artists and experts within neutral context.
• To envelop prediction for both artists and experts: That is to say, that this freedom with knowledge might automatically allow development of certain technologies, further vision and encourage the pursuit of dialogue, immediately.
• To use as documentation of the intellectual and creative process.
• To develop critical style for further proposals.

These questions are currently placed in one of the four following categories:

. Artistic
. Communication
. Philosophical
. Reality

• ARTISTIC

• Why is this a piece of Space Art?
• Why is a piece of Space Art needed within the global warning system?
• What kinds of difficulties would artist's face in carrying a metaphor through in this process?
• How would the Art in this artwork be described?
For example, the 'Space-Art-Rescue' image itself, the 'Space-Art-Rescue' object itself or the 'system thinking/system practice' including the Space Art?
• What would be the best way to exhibit this kind of work? For example: to display the documentation, this might include a small viewable tank with drawings, paintings and small sculptures, floating at zero gravity. This might be said to reflect also the way intuitive judgements are made after they enter creative human mind.
• Could the opening of a Space-Art Museum be useful to place this type of work in the public consciousness?

• COMMUNICATION

• What is the main communication priority in this Space Art?
• What would a failed communication be?
• How does communicating with a localised audience differ from a globalised audience?
• How would the communication problems present at "grass roots level" for this Art Work?

• PHILOSPHICAL

• What would be an appropriate and neutral philosophical context with which to engage specialists from other disciplines and cultures?
• What language should be adopted in these this proposal when describing the position of this project in Disaster response terms, bearing in mind that different terms are used all over the world to describe similar aspects of the Disaster Response process?

• REALITY
How accurate is the forecast of this concept?
• How would this concept fit in the current infrastructure in the global warning system?
• What would constitute running a test-case?
• Could the tests case be used in the initial stages to educate the public with this type of 'Space-Art Rescue'?
• Which parts of the world would it be best to test this first, for longer term success?
• What would the psychological effects of this kind of work have in different parts of the world both positive and negative?
• What kinds of expertise would be needed in a project team working on this kind of Space Art and what would be its priority issues?
• How would question of ownership be resolved? Nationally, globally, publicly, privately?
How would question of ownership be resolved in terms of copyright technical and/or intellectual between art and science?

A 7.3 Shared Learning Dialogue

How they work:
Shared dialogue meetings run along side a project.
Advantages:
- They offer direct feed-back from everyone.
- Structural mechanism – building views of users into the research process.
- Eissemination research results on ongoing basis.
- Encourage the engagement of external counterparts and decision-makers in project activities.
- Such dialogues also provide an immediate mechanism for feedback and help to close the loop between knowledge generation, testing, dissemination and application.

Definition:
They are semi-structured meetings with groups of key actors at regular intervals throughout a research project.

Format:
Each meeting starts with a brief synthesis and critical issues presentation by organisers.

Other participants are then invited to provide critical comments, insights and information data and suggestions drawn from their own organisation and activity area

Observation:
Particular attention is paid to identifying points of entry where all participants agree on key points, knowledge gaps or need for specific research or pilot activities (in many cases the regular meetings lead to sharing of information or further dialogue in electronic forums.

Conclusions:
Holding shared dialogues throughout the duration of a project encourage the engagement of external counterparts and decision–making in project activities

A 7.4 Social Anthropology and its methodologies

A 7.5 Language

A 7.6 Documentary Videography

A 8 Visuality

The Constellations of the Night Sky – A Guide
Mythology, Legend and Facts

Since ancient times cultures all over the world have looked up at the night sky and attributed tales and legends to the stars they saw. They imagined that they could see the Gods and mythical beasts placed among the stars. These are the contsellations.

Using Multicultural Dimensions to Teach Astonomy
What is Multiculturalism Astronomy?
We define multicultural astronomy as the variety of ways in which cultures of the past and present have observed, recorded and made use of astronomy to structure their lives and or satisfy their curiosity about the universe. Based on different motivations, values, traditions and geographical locations (including latitude), students can come to understand that different cultures will interpret and use the same phenomenon in different ways. Multiculturalism astronomy maybe manifested in written documents, oral traditions, and physical artifacts such as aligned buildings, stones or other markings. The study of such physical

A 8.1 Multi-Cultural Astronomy

A 8.2 Design Devlopments of the World Wide Web
The Problems:
-There is a limited acknowledgement that the need exists to further study the emerging issues related to design as it relates to cross-cultural communication specifically.
- This is essential to understand one`s audience and how to clearly communicate with that audience which will effectively determine the effectiveness of the communication.
Actions:
- It is advisable to utilise the services of local usability experts when preparing sites because most designers have little training that addresses localisation issues.

Check List :
- Most acknowledge that language, religious heritage, date and time formats, iconography, cultural subtleties when designing for a culturally diverse audience.
- It is difficult to consider all the design factors regardless of expertise
- Technical issues, cultural practices, religious heritage or symbolic interpretation of the content.
- Weather to have large images, video, or dominant colour…For example: the Best global hyperlink colour is blue; it has been discovered that hand gestures need to be avoided or pointing as they are not interpreted the same way in different locations; include the limited use of alphabetic characters in other cultures.

A 8.3 Nature: processes, structures, forms and evolution

A 8.4 Art: media, concepts and contexts

A 9 Disaster Preparedness and Disaster Reduction

A 9.1 Definitions

A 9.2 Grass roots communication

A 9.3 Social Art Entrepeneurs

A 10 Concurrence

A 10.1 INES (International Network of Engineer´s and Scientists for Global Responsibility) and WFSW (World Federation of Scientific Workers): Berlin, Germany, May 2007

A 10.2 Dhirendra Sharma - the art of change

A 10.3 Rebecca Horn - the art in change

A 10.4 Thomas Man - art and prediction

A 11 Conclusion Context

A 12 Bio

Melody Burke & Frank Hoppe
Satellite Art Works (S.A.W), Berlin (Germany)

Satellite Art Works was founded in Berlin, Germany in 2007 by Melody Burke and Frank Hoppe as a collaboration of Social Art Entrepeneurs. As contemporary artists their practice is Space Art, focusing on satellite solutions, advanced materials and technologies.

The artists studied with Prof. Rebecca Horn at the University of Arts in Berlin, developing their personal practice and exhibiting regularly. Prior to this Frank attended the Academy of Fine Arts Karlsruhe, Germany. His personal works examine the media of room installation, experimental film and music. He also performs as a cellist with an orchestra in Berlin. Melody attended Sir John Cass College, London Metropolitan University and her practice involves sculpture, performance and photography. She continues to develop concepts and devices relating to intuitive judgment with
agencies outside art.

Presentations of their Space Art include poster paper presentation, presentation to space companies in the Netherlands, advanced technology specialists in Germany and the art community in Berlin.

A 13 List of Books and Journals

A 14 Acknowledgment