I would like to congratulate all those involved in putting this very important conference together – and thank you very much for inviting me. It is a great honour and a pleasure to be here in India and a great opportunity for us all to come together in a country that has been the home of such major advances in philosophy, science, technology and, of course, peace. At this time it is also important that we connect up these disciplines and think about employing scientific and technological achievements ethically and for the benefit of all humankind.

I believe that the Prevention of an Arms Race in Outer Space ranks as high as nuclear disarmament and climate change as one of the three greatest threats to our existence. However, although the latter two are widely accepted as global dangers, the problems associated with the militarisation of outer space go relatively unrecognised. Humankind has developed technology to the point where its misuse threatens our very existence. If we are to survive as a species we have to change the ways in which we approach conflict and stop feeding the gigantic global war machine.

This is one of the major campaigning issues of the Global Network Against Weapons and Nuclear Power in Space which has been working for over 20 years with groups and individuals around the world to stop the militarisation and weaponisation of space. Outer space is increasingly being viewed as the ultimate military high ground. Space technologies are transforming the heavens into a new battle ground to further the desire to dominate the planet below through an ability to deploy military force anywhere at short notice and with devastating effect.
Every year we help to raise the awareness of the issues and highlight those involved by calling for a week of action – “Keep Space for Peace Week”. Last year we recorded 65 different actions in 12 different countries. Today (5th October 2013) is the first day of this year’s activities and all the events taking place aim to bring attention to the fact that there are alternatives – international understanding and diplomacy must be better ways forward than building weapons that will cost the Earth.

So, why do we think an arms race in outer space is a problem?

In 1957 the Soviet Union launched Sputnik 1 – the first artificial satellite - into a low elliptical Earth orbit. It caused panic in the US because it meant that the Soviets had missiles that could reach North America. It started a space race and since then thousands of satellites have been blasted into space. Some have crashed back into the atmosphere; others have escaped Earth’s gravity to fly off into deep space. But most are still up there orbiting the Earth and the US Space Surveillance Network has tracked over 24,500 objects larger than about 10cm in space. Most of these are useless space junk but the US Union of Concerned Scientists lists over 1000 operational satellites currently in orbit. Almost half are operated by the US and many have a military or dual use. Russia and China also have large numbers of satellites but not only has the number of satellites increased - so has the number of nations and government consortia operating in space. There are now around 60 - India launched its first satellite in 1975.

In India the primary space agency of the Indian Government is the Indian Space research Organisation (ISRO). ISRO is amongst the six largest government space agencies in the world, along with the USA (NASA), Russia (RKA), Europe (ESA), China (CNSA) and Japan (JAXA). Its primary objective is to advance space technology and use its applications for national benefit. It was established in 1969 and has conducted a number of operations for Indian and foreign clients. By the end of August 2013 it had been responsible for the launch of over 70 satellites from various vehicles, including American, Russian, European satellite-launch rockets, and the U.S. Space Shuttle. The Indian Aerospace Industry is experiencing unprecedented growth, with Hindustan Aeronautics Limited (HAL, a major partner of ISRO) as the premier aerospace company, being ranked 34th in the list of world’s top 100 defence companies.
Today, the world is becoming more and more dependent on networked computer systems that operate through satellite technology. Banking transactions, the management of power grids and traffic, air traffic control and much more all use networked systems to operate over extended areas. So, civil society relies a lot on space technology - and so does the military. Military and dual use satellites (‘dual use’ means that their capabilities, e.g. high resolution imaging, enable them to be used for civilian and military purposes) are employed for many roles, including surveillance, communication, intelligence gathering, global positioning, missile guidance and targeting and new weapons systems (such as drones or ‘Unmanned Aerial Vehicles’) by the US in particular.

As far as India is concerned, a Vision-2020 plan for the development of India’s Military Space Programme has identified intelligence, reconnaissance, surveillance, communication and navigation as the major thrust areas. India’s first defence satellite was launched on 30th August 2013 but previous to this, India had been launching dual-use satellites used to perform military tasks. One such satellite is the 1-meter resolution Earth Observation Technology Experiment Satellite launched in 2001. Its cameras have mapped the area across India’s northern border for the potential deployment of troops and weapons by adversaries. The Indian Space Research Organisation launched two other military imaging satellites in 2008 and 2010 and the Indian Navy has access to satellite data for anti submarine warfare and bathymetric studies. In addition, in response to the 2008 Mumbai terrorist attacks, an Israeli Aerospace Industries’ RISAT 2 satellite was launched to provide night and all-weather surveillance. It is also expected that the $25 million Communication-Centric Intelligence Satellite (CCI-Sat), being developed by the Indian Defense Electronics and Research Laboratory, will become operational next year.
India is also implementing a satellite navigational system to provide highly accurate information of ground and air positions from space. On 1\textsuperscript{st} July 2013 the first of 7 satellites that would eventually establish the Indian Regional Navigational Satellite System (IRNSS) - an autonomous regional navigation system which, the Indian government says, is required because access to other systems, such as GPS, cannot be guaranteed in times of hostility. The Indian system will provide two positioning services - the Standard Service for civilian use and the encrypted Restricted Service for authorised users (such as the military).

The military influence on space activities spreads rapidly.
Activity in space is dominated by the US and at the core of many of the US military activities in space is Peterson Air Force Base in Colorado Springs which houses the US Space Command which was created in 1985 with the sole purpose of utilising space for the US armed forces. Domination is something that the Vision 2020 document of the US Space Command tells us the US seeks to maintain – its intention is to be in a position to be able to deny the use of space to anyone it does not like and to enforce its wishes in space and on the Earth through “full spectrum dominance” (the bringing together of all military operations on the ground, at sea, in the air and in space). Major US military space operations are operated through Strategic Command (or STRATCOM) at Offutt Air Force Base in Nebraska. One of STRATCOM’s missions – missile defense – is holding up progress on disarmament talks between the US and Russia as it is seen by Russia to be a threat to the ‘effectiveness of its nuclear deterrent’. Developments in missile defence have generated modifications to missile technologies in order to overcome them, but this leads to further developments in missile defence technologies - and more missile adaptations and so on … and an arms race is born.

India should take note of this because it too is developing a missile defence program. In 2012 the Indian Defence Research and Development Organisation (DRDO) chief Avinash Chander was reported as saying that the development of the first phase of a mobile missile defence system, to intercept enemy missiles fired from up to 2,000 km away, had been completed. A second phase will increase the range of
interceptors to 5,000km – to tackle possible threats from countries such as China. It is due to become operational in 2016. Surely though, it would be better to discuss ways in which nuclear threats in the region might be removed rather than spend huge sums of much needed money on systems that feed an arms race?

The US Ground based Mid Course Defense system created by George W. Bush (from an original idea by Ronald Reagan) now consists of 26 silo-based interceptor missiles at Ft Greely, Alaska (another 14 are due to be added in 2017) with 4 more at Vandenberg AFB, California and a third missile interceptor site on the East Coast to be constructed by 2018. There are ground based early warning and tracking radars in Alaska, in Greenland and in the UK, forward based transportable X-band radars for early discrimination in Turkey and Japan and a $1 billion sea-based X-band radar to track and assess targets from an enormous oil-rig platform in the Aleutian Islands. The US has also supplied a radar system to Israel and has a mobile sea based interceptor fleet positioned in the Pacific for use as and when required. In space there are satellite systems for early warning, tracking and targeting that use ground based receiving stations around the world.

Behind all this development are the defence corporations, always pushing for more and offering tempting new military technologies that never perform as promised. Contracts for the development of missile defence systems are extremely lucrative –the US spends around $8-10 billion a year on missile defence
projects alone and the first 27 years of development is estimated to have cost around $150 billion – about the same as was spent on the entire Apollo project. The major benefactors in this case are Boeing (the prime contractor), Orbital Sciences (for the ground based interceptor), Northrop Grumman and Raytheon (for battle management command, control and communications systems) and Raytheon (for early warning, identification and tracking radar systems).

The US Ground Based Mid Course Defence (GMD)
- Prime Contractor: Boeing Defense, Space & Security.
- Key systems are:
  - Exoatmospheric Kill Vehicle (EKV) - Raytheon;
  - Ground Based Interceptor (GBI) - Orbital Sciences;
  - Battle Management Command, Control and Communications (BMCC) - Northrop Grumman;
  - Ground Based Radars (GBR) - Raytheon;
  - Upgraded Early Warning Radars (UEWR) - Raytheon;
  - Forward Based X-Band Radars (FBX) e.g. Sea based X-band platform and the AN/TPY-2 – Raytheon.

The Obama Phased Adaptive Approach (PAA) - 2009
- Phase 1 - 2011: Aegis BMD-capable multi-role ship deployed to the Mediterranean in 2011, AN/TPY-2 radar in Turkey. Spain has agreed to host four U.S. Aegis-capable ships at Rota;
- Phase 2 - an Aegis Ashore interceptor (the SM-3 IB) battery to be hosted by Romania by 2015;
- Phase 3 - the SM-3 IIA (under development with Japan) to be deployed in Poland and at sea. Additional sensors and tracking capabilities to be on-line by 2018;
- Only the radars and target discrimination capabilities of the GMD are expected to support the PAA.

In 2008 NATO agreed to integrate components of President Obama’s favourite missile defence system – the Aegis ship based system into systems that NATO is developing and, at the NATO Summit in Lisbon in 2010, it was decided to expand the programme further to cover European populations and territory. US-NATO missile defense systems are now present over extended areas in Europe and the Pacific.

If we combine this with President Obama’s focus on increasing the US military presence in the Pacific, we can see clearly that what the US is actually doing is surrounding Russia and China with missile systems. No wonder those two countries are particularly concerned. Russia has repeatedly asked for legally binding assurances that NATO missile interceptors would not be used against Moscow’s strategic missiles but Washington is unwilling to do this. In response Russia has threatened to station short range Iskander missiles in Kaliningrad close to the Polish border as a counter measure and to withdraw from agreements on reducing the number of their nuclear warheads.

Under the pretence of threats from Iran and North Korea, the US and NATO countries are building up forces and weapons at an astonishing rate, while at the same time claiming that the current financial situation requires strict austerity measures that involve the removal of welfare and education facilities for the poorest members of society. These missile and troop deployments will be directed by the use of space technology and controlled and serviced through ground based military bases.

The importance of space technology to the war-fighter is increasing as is the number and spread of bases and installations around the world and in space that support this globalised network-centred warfighting system. It is so important that the resistance to this is also networked – and working together we must become a force for peace that is more powerful than any force for war.
The Global Network has over 160 affiliated groups from the US, Europe, Africa, Australia, New Zealand, Scandinavia and Asia. Some are small local community groups, some are larger regional, national or even international organisations but they are all working for peaceful change and they all recognise that wars are now being conducted largely through the growing militarisation of space. Satellites enable the command, control, communication and intelligence gathering that is needed to achieve a military global reach across the globe. The US as the greatest practitioner of space warfare is leading the way with remotely piloted unmanned but armed aircraft, commonly known as drones, which are controlled through satellites from the US, thousands of kilometers away from where they are being deployed. We know that considerable numbers of civilians, including hundreds of children, are among the victims in drone attacks in Afghanistan and Pakistan.

During the last 20 years or so we have visited many communities around the world for our annual meeting. We have met with, talked to and learned from people working in campaigns centred in major cities such as New York, Washington, Melbourne, Seoul and Vancouver. But we have also joined small, locally based groups who can’t and won’t let the presence of a nearby contributor to the space war machine go unchallenged.

Last year we were in South Korea at the small fishing village of Gangjeong on Jeju Island where we were supporting the villagers in their epic struggle to prevent the construction of a huge naval base that is destroying their environment and their livelihoods. The base is being built by the South Korean Government at the instigation of the US because of its proximity to mainland China and the naval base will give a
convenient birth for US aircraft carriers and missile defence war ships. In fact Asia has been a focus of the Global Network for the last few years and our campaigning message has been to resist the US encirclement of Russia and China with missile ‘defense’ systems that are key elements in the Pentagon’s hegemonic programmes.

President Obama’s deployment of US Navy Aegis destroyers, armed with SM-3 missiles in the Mediterranean and Asia pacific region are not the positive steps towards a more secure and peaceful world that you might expect from a Nobel Peace Prize winner.

Thus the future of our planet is threatened by man-made dangers – and these self-inflicted problems have generated the necessity for an elaborate strategy of global cooperation. The question therefore becomes - can we join together to ensure our future survival by developing a better understanding of the underlying human aspects of our past and current predicaments? One thing is clear - the kind of cooperation needed cannot come from mountains of weapons, threats, counter threats and violence. At present most governments are not fulfilling their obligations to their citizens, and are more interested in ensuring the security of themselves and the state machinery than the security of their people.

### Major Global Space Treaties

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The United Nations was established specifically for the task of developing international agreements. Five sets of legal principles governing space-related activities have indeed been developed there – The Outer Space Treaty (1967), The Astronaut Rescue Agreement (1968), Liability Convention (1972), Registration Convention (1975) and Moon Agreement (1979).

The Outer Space Treaty provides the basic framework for international space law. Among other things, it recognizes “the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes”. It declares outer space to be the province of all humankind and not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means. Although it could be said to be basically ethical, the OST only prevents the stationing of weapons of mass destruction in space – it makes no mention of other weapons or weapons components.

It was also an agreement made before most of the world had any stake in outer space. Treaties of an ethical nature that followed, such as protecting the moon and planets against ownership and exploitation, have become far less popular - especially as ideas for mining the moon, the asteroids and even Mars are now being seriously considered. Other problems, such as access to orbits that are popular for global communication or surveillance purposes, are growing and an arms race in outer space looks increasingly likely – if it hasn’t begun already.

Discussions on the Prevention of an Arms Race in Outer Space (PAROS) and on Transparency and Confidence Building Measures (TCBMs) are held regularly at the UN Conference on Disarmament in Geneva. Resolutions on these issues are always adopted by an overwhelming majority of UN member states with every country voting in favour - except for the US who usually vote against and Israel, who abstain. The US argues that the existing multilateral arms control regime is sufficient and there is no need to address a nonexistent threat but other states find this extremely frustrating and in an attempt to make some progress Russia introduced a resolution on transparency and confidence-building measures in outer space activities in 2005 and 2006. In 2007, the UN Secretary General issued a report on “Transparency and confidence-building measures in outer space,” on behalf of the European Union which proposed the development of a comprehensive code of conduct in space and suggested guidelines for the general principles, scope, and participation for such a code.
However, the growing commercial and military reliance on space technology is causing major difficulties in the development of further international agreement.

We are living on a knife edge. There are thousands of nuclear weapons in the world waiting to be fired at a moment’s notice. The development of new missile technologies is dramatically shortening the time for decisions to be made in an international crisis. Climate change is increasing conflict over resources and corporations led governments are looking to control any resulting unrest rather than deal with the problem.

Our real security can and must be achieved through increased efforts to reach international agreements leading to a Nuclear Weapons Ban. There are many opportunities and steps we can take and there are also a number of options for strengthening International Security in Space. Some of these are underway but most need more energy and enthusiasm from the highest levels of government and to achieve this people of the world will have to collectively demonstrate their concern and demand that something is done.

The need for change should be obvious to everyone. We need to overcome the fatalistic acceptance of violence and the apparent attraction of global power. For this to happen, societies that are currently infused with not only direct but also structural and cultural violence (that is, inbuilt injustices in the structures of society that cause conflict between included and excluded sectors, and the militaristic nature of a culture that encourages violence and war as a legitimate way of resolving problems) will need to change. The deep rooted myth that military violence can enforce people’s security and redress wrongs, has to be debunked once and for all.

In conclusion then, we have developed technologies that can benefit us or destroy the world. Nuclear weapons, climate change and an arms race in space threaten our survival and the world needs global understanding, trust and confidence like it has never done before.

Someone, somewhere, sometime has to make brave and bold steps … and others will have to persuade them to do so. Those others are us, here and now … if not us then who, if not here then where and if not now then when?