All About The Chinese Space Programme

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Special Edition for UNISPACE +50

The future Chinese Space Station CSS. The UN Sustainable Development Goals. credit: CMSA/United Nations

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‘China Engages: Opportunities and Prospects for the International Space Community’

Report on the European Space Policy Institute (ESPI) – China National Space Administration (CNSA) Evening Event

by Marco Aliberti and Leyton Wells, European Space Policy Institute (ESPI)

Background and Rationales of the Event

At an ever-accelerating pace, this past decade has seen China dramatically emerge as one of the world’s leading space-faring nations. Edging along with this surge comes a diverse range of technological, legal and political implications for the international community that may be seen to span both scenarios of confrontation and collaboration. Indeed, although some argue that China will prefer to go it alone in its space programme as an “imperial demonstration of capability”, the way in which the Central Kingdom characterises its growing space ambitions is not framed in terms of isolationism or competition; quite to the contrary. In putting forward its space programme, Beijing has been increasingly seeking to bring the cooperative balance into play and move towards what could be termed as “hub role” for international cooperation. China is progressively reaching out to its international neighbours by calling for cooperative space agreements and joint missions. This pro-cooperation stance has been reiterated on a number of occasions, including in recent policy documents like the 2016 White Paper on Space Activities, as well as international forums, most notably the United Nations’ Committee on the Peaceful Uses of Outer Space (UNCOPUOS). These remarkable overtures are bound to generate significant effects for the international space community and inevitably raise questions concerning the nature and structure of cooperative possibilities.

In order to shed some light on the implications of China’s policy posture and explore the possible cooperation trajectories between China and some of the major spacefaring nations, on 31 January 2018 the European Space Policy Institute (ESPI) and the China National Space Administration (CNSA) organised an evening event at the margins of the 55th Session of the UNCOPUOS Scientific and Technical Subcommittee. Titled ‘China Engages: Opportunities and Prospects for the International Space Community’, the event was hosted at the ESPI premises in Vienna, Austria. The evening event featured the participation of distinguished speakers representing the CNSA, the National Space Science Centre (NSSC) of the Chinese Academy of Sciences, the European Space Agency (ESA) and the U.S. Department of State, attracting a full-house of enthusiastic guests and concluding with an audience-led discussion on the themes of the earlier speeches.

A welcoming address and some introductory comments were given by the ESPI Director Jean-Jacques Tortora, who expressed the institute’s great interest in promoting open discussions and reflections on China’s policy posture vis-à-vis the international space community as well as the need to better understand both opportunities and restraints this may bring.

Dr. Guoping Li, Director General of the Department of System Engineering of the CNSA complemented the introductory remarks by highlighting some of the key missions and programmes in which China is currently engaging with the international space community. Reverberating China’s ever opening attitude to space relations, Dr. Guoping Li iterated the growing need for building stronger relationships with the international community by advantageously using the space sector as a platform for shared interests towards sustainable development, peace and security.

China’s Path in Space: Programmes, Policy, Measures, and Cooperation

Ms. Hui Jiang, Division Director of the CNSA, was the first speaker of the event and opened the presentation with an optimistic overview by emphasising how China’s prior national interest in regards to the space sector is increasingly being opened up to include the international dimension. Indicative of this is the fact that, as of January 2018, China has signed more than 100 space cooperation agreements with over 30 countries, space agencies and international organisations. Remarkably the vast majority of these agreements have been solidified within the passing decade, again highlighting the acceleration in which China is eager to speed up this process.

top: During the event at ESPI Vienna. credit: Marco Aliberti, ESPI

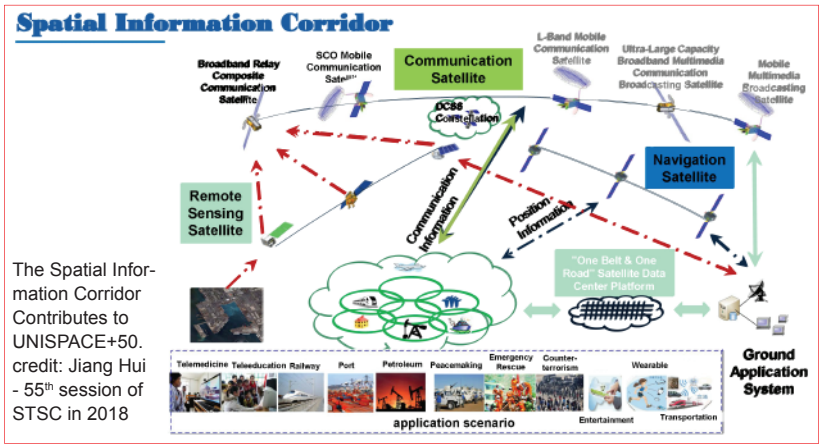
left: Jean-Jacques Tortora is speaking - behind him are sitting Mr. Guoping Li and Mrs. Hui Jiang. credit: Marco Aliberti, ESPI

Jiang followed this by outlining China’s specific approach towards international cooperation and conveying some of the potential actions which can be taken to improve upon the current policies and measures which can serve to support and build upon China’s capacity to work with the international community. Emerging clearly from the 19th CPC National Congress, and the aforementioned 2016 White Paper, there is already the desire and will to further the political mechanisms which allow for such cooperation in a more open manner, aiming towards a mutual vision and understanding for the future of mankind. A stated objective for this increased level of transparency is to “enable the world community to better understand China’s space industry” and support the principle of *“open development”* through international

cooperation, which is one of the four guiding principles to which China's space developments adhere, the other being *innovative, coordinated* and *peaceful* development.

As an example of the policy measures enacted to enhance these cooperation mechanisms, in 2016 China published the "Guiding Opinions on Accelerating the Construction and Application of the Belt and Road Spatial Information Corridor" (see text in box); not only seeking to advance the strategies and interconnectivity of China-based space firms, but to drive cooperation and exchange of space-based data applications both regionally and globally. China is also engaged with a number of countries on potentially ground-breaking programmes and cooperation formats, such as the Maritime Information Sharing Platform, the BRICS Remote Sensing Satellite Constellation and the Joint Small Multi-Mission Satellite Constellation Programme of the Asia-Pacific Space Cooperation Organisation (APSCO).

Finally, Jiang iterated China's growing desire to cooperate further on areas including, but not limited to, space sciences, deep-space exploration, launch services and technical training. Such cooperation, Jiang concluded, may take the form of either governmental and non-governmental agreements, business-to-business commercial ventures, as well as establishment of joint laboratories and joint research centres, all of which can greatly contribute to increasing space capacity both for China and the international community, sharing the benefits as they proceed.



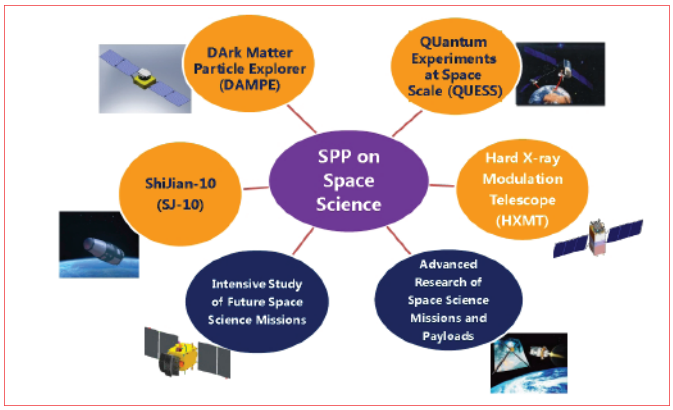
The Spatial Information Corridor Contributes to UNISPACE+50. credit: Jiang Hui - 55th session of STSC in 2018

The Belt and Road Initiative and Spatial Information Corridor

Within the 'Key Areas for Future Cooperation' section of the China 2016 White Paper was announced the construction of a 'Belt and Road Initiative Spatial Information Corridor'. This initiative comprises a targeted agenda on: satellite development, communications, Earth observation, application product development, navigation and positioning ground and application construction. The key words 'belt' and 'road' within the title of this initiative are in direct reference to China's wider development and strategy framework known as One Belt, One Road – a model announced in 2013 to aid in the advancement of China's role in global affairs, specifically across the westbound "Silk Road Economic Belt" and the ocean-based "Maritime Silk Road" – which aims to enable connectivity, strengthen cooperation, and promote complementary and common development strategies between China and its essential economic partners. The 'Spatial Information Corridor' section of this title refers to the information networks and gateways made possible by the complex webs of both space-based satellites and ground application systems which together encompass a magnitude of applications. The importance of this initiative internationally is that it is in line with, and contributes to, the United Nation's UNISPACE+50 Sustainable Development Goals (SDGs). Spatial Information applications in accordance with SDGs, which serve to benefit both developed and developing countries in particular, include but are in no way restricted to: telemedicine, water management and disaster and risk management. Framed in terms of international cooperation, the initiative can help in facilitating space capacity building by introducing basic space capabilities, improving access to space data and helping to develop applications and services with the needs of developing countries in mind. To further brake down the scope of applications aimed for by the 'Spatial Information Corridor', there are three general categories of space applications; services made available will be intended for industry, regions and the public. In this sense the initiative will cover both public and private, as well as international interests, raising with intent the operational and industrial standards of space applications in service of national economic and social development, as well as for national security.

Space Sciences: A Hotbed for International Cooperation

Diving into one of the key sectors that China considers ripe for mutually beneficial international cooperation, the second speaker of the evening, Prof. Chi Wang, Director General of the National Space Science Centre of CAS, spoke of the country's space sciences programmes. Prof. Chi Wang began his presentation by giving a detailed insight into the Strategic Priority Programme on Space Sciences (SPP) that had been in place between 2011 and 2016. A wide array of active or completed undertakings, such as the DArk Matter Particle Explorer (DAMPE) and the Hard X-ray Modulation Telescope (HXMT), were presented by Wang and complimented by detailed explanation of their mission goals as well as outcomes, going to show China's accomplishments as a growing space nation. Moving on, Prof. Chi Wang itemised the present-day plans for new Space Science missions for this current period of the SPP between 2017 and 2022. On the list of activities in progress includes the Einstein-Probe (EP), the Advanced Space-borne Solar Observatory (ASO-S), the Water Cycle Observation Mission (WCOM) and the Magnetosphere-Ionosphere-Thermosphere Coupling



China's Strategic Priority Programme on Space Science 2011-2016.
credit: Wang Chi, NSSC/CAS, 54th COPUOS Session Vienna, 2 February 2017

Exploration (MIT), displaying the huge variety in space projects invested in by China. From a European perspective, the most notable ventures mentioned were the French-Chinese space astronomy mission SVOM that will be launched in 2021 and the ESA-CAS joint mission on Solar wind Magnetosphere and Ionosphere Link Explorer (SMILE) – a new mission to image the magnetosphere of Earth in a way which has never been done before – which is certain to bring novel insights, bringing forth a yet unknown scope of applications with indispensable value for space scientists across the globe. Extending his gaze further afield, Wang began to discuss the future ambitions for Chinese Space missions with an enthusiastic vision for what collaboration with international partners can achieve. The publishing of 'Calling Taikong: A Study Report on the Future Space Science Program in China' in 2016 exemplifies these ambitions and ideas in regards to popularising space science activity, planning and decision-making as well as forming a means of international cooperation. In line with this, Wang's resident organisation, the NSSC also proposed a call for mission concepts throughout China during December of 2016. This appeal received a tremendous amount of attention from the space science community and after just one month the NSSC had received 136 proposals from 54 institutions and universities across China, with 80 of the most promising concepts being selected for further study, i.e. gravitational wave detection. Prof. Chi Wang concluded his presentation by conveying confidence and positivity for future space science missions in collaboration with international partners.

Europe-China Emerging Partnership

Representing the European side of this co-hosted event, Mr. Karl Berquist, Policy Officer for the International Relations Department of the European Space Agency, began his presentation with an historical overview of ESA-China relations. Generally referred to as an emerging axis of cooperation, ESA's relations with China have in fact long standing roots, with the first ESA delegation visiting China as early as 1979. In 1992 China participated in the Cluster programme, and similarly in 1997 ESA involved itself in the Double Star programme, which together comprised a constellation of six satellites with a multitude of applications for Earth observation. Additionally, the Cooperation Agreement signed on 18 November 2005 is a multi-faceted piece of legislation which in itself represents the ongoing relationship between ESA and China. Since its signing over a decade ago, a number of resultant agreements have followed which further add to the capacity these relations: ESA-CNSA agreement on TT&C of 2011, the ESA-CAS agreement of 2014, and the ESA-China Manned Space Agency (CMSA) of 2014, with the first of the two respectively leading to ESA-CLTC implementation arrangements for the Chang'e programmes, as well as ESA-NSSC flight of SCCO (Soret Coefficient in Crude Oil) experiment on SJ-10 alongside the implementation plans for the already mentioned SMILE mission.

Mr. Berquist subsequently highlighted two other great examples of the culmination of the ever-maturing China-Europe relations, which were the joint ESA MOST-NRSCC (Ministry of Science and Technology - National Remote Sensing Center of China) Dragon Programme (a programme involving over 500 scientists working together to best utilise both Chinese and European EO data on 8 thematic areas and 28 projects), and the ESA-CMSA agreement for human spaceflight cooperation – which aims to pave the way for flight opportunities for European astronauts and a joint scientific utilisation programme of the upcoming Chinese Space Station (CSS). The three areas for cooperation that are specifically identified under the agreement are:

- The implementation of joint scientific experiments and studies (in microgravity research, space biology and medicine) by utilising in-orbit infrastructures (namely the ISS and CSS) and ground facilities;
- Astronaut selection, training, medical operations and astronaut flights;
- Space infrastructure cooperation in human exploration in LEO and beyond.

All in all, Mr. Bergquist recognised that this agreement marked an important milestone in the direction of both strengthening bilateral cooperation in the field of human spaceflight and eventually turning China in one of the most dependable partners for Europe in its future space endeavour. In this respect, it was remarked that with the Resolution of the 2014 ESA Council Meeting at Ministerial level that there is already an explicit mention of China as one of Europe's "strategic partners" in space, alongside Russia and the United States.

Beyond this, Mr. Berquist considered the role of China's world class space programme as having a tremendous amount of cooperatively attained mutual benefits for both Europe and further afield supplementing the existing links between the European and Chinese scientific communities by jointly progressing the fields of space science, human spaceflight, applications for Earth observation and climate change. Mr. Berquist concluded his speech by echoing the fascinating and evolving nature of Chinese space activity both in institutional and private contexts pledging ESA's desire for both Europe and China to identify and promote prospective areas of common interest in the coming years.

China and the United States: Dialogue amidst Restraints

Whilst Beijing has been increasingly successful in moving towards what could be termed as a "hub role" for international cooperation, there are also some visible exceptions, the most important being the leading space power in the current space pecking order, the United States. Representing the views of this country, Mr. Kenneth Hodgkins, Director of the Office of Space and Advanced Technologies for the U.S. Department of State and co-chair with Ms. Jiang Hui of the UN Action Team on Space Exploration and Innovation, began his presentation by recognising the legal and political hurdles that continue to beset possible Sino-American space cooperation, but also highlighted that it is more difficult to proceed in isolation.

However, he additionally underlined that complications in Chinese-U.S. relations can, and have, been stepped aside on common global issues, with substantial progress being made on crucial areas such as conjunction assessments for space operations, human safety in space and compatibility issues among the global navigation satellite systems. Furthermore,

The Action Team on Exploration and Innovation

In 2016, the Committee on the Peaceful Uses of Outer Space endorsed in its 59th session seven thematic priorities as part of the 50th anniversary for the United Nations Conference on the Peaceful Uses of Outer Space known as UNISPACE+50. The Action Team on Exploration and Innovation was established as a preparatory activity or mechanism of UNISPACE+50. The team was established under the first of seven thematic priorities tilted 'Global partnership in space exploration and innovation' and co-chaired by U.S. and Chinese delegates. This Action Team addressed several key areas within thematic priority 1 including the human quest to explore, scientific exploration of the universe, innovation and partnership. Essentially, thematic priority 1 and the Action Team aim to utilise space exploration and innovation as a means of driving new space science and technology, but importantly to foster new partnerships between nations across the globe. Creating new partnerships and progressing existing ones is seen as one of the best methods of building space capacity and creating new opportunities to address global challenges. It was in the hope of this action team to provide a platform for nurturing dialogue not only between nations, but between the public and private sectors of the space industry to create a more cohesive and robust space sector as a whole, uniting each corner to progress space science and innovation to address global issues and build upon shared values between nations.

he highlighted that space safety, Earth observation and using space for sustainable development are all areas for ongoing cooperation between space-faring nations that can turn into a great springboard into joint endeavours.

Mr. Hodgkins followed by outlining some recent changes that have been brought about by the Trump administration and his new agenda. In regards to this, the President of the U.S. has re-established the National Space Council – a body which had served to advise the U.S. administration on space strategy and policy through missions such as the 1969 Moon landing – and mirroring China's increasing levels of openness within its 2016 White Paper, the first meeting in October 2016 was livestreamed for all to see. To encapsulate the U.S. standpoint, Mr. Hodgkins used the phrase: "space for diplomacy and diplomacy for space", which in itself characterises the potential of the space sector to be an increasingly utilised platform for increased international relations and collaboration from both political and space science perspectives. Beyond the potential for international relations, Mr. Hodgkins emphasised the role of responsibility that national space agencies have in capturing the imagination of the global publics, not only to justify expenditures, but to inspire and rekindle the ambitions to return to the Moon and successively the Red Planet through a global partnership. The role of space in bridge-building between China and the U.S. was again highlighted in the movement which has been achieved in this area, with shared visions being underscored and facilitated by initiatives like the UN Action Group on Exploration and Innovation which was co-chaired by both Chinese and U.S. representatives and resulted in a report calling for global partnership in exploration and innovation (see text box above). Whilst politics may place restraints on cooperation between these two great space powers, the will to cooperate on essential, mutually beneficial interests is not just visible from the requirements of space science community, but is also becoming a necessity. To put an optimistic tone on it, the growing need to cooperate in space activity has the potential to provide a platform for dialogue and advancement towards shared values and reciprocally beneficial outcomes in both, space and here on Earth. Whereas it is not easy to cooperate, Mr. Hodgkins concluded, it is far more difficult to succeed alone …

Panel Discussions and Concluding Remarks

The presentations of this full-house event were followed by a brief audience-led discussion moderated by ESPI Director Jean-Jacques Tortora, spanning through topics on the long-term objectives of China's human spaceflight programme and its actual cooperation possibilities, to the recently launched One Belt-One Road Initiative as well as China's relations with the U.S. and with other established and emerging space players.

Through these various presentations and the subsequent debate, the event shed some valuable light on China´s current and future path in space, on its specific approach towards international cooperation, and on its cooperation trajectory with the major spacefaring nations, disentangling both opportunities and constraints in the process.

It is apparent that the political will for China to cooperate on space activity internationally is not simply a matter of diplomatic rhetoric, but it has on the contrary become a tangible reality. The pro-active involvement of the CNSA in this event is per se a symbolic piece of evidence of the growing relationships that China is so eager to build with the rest of the world. That said, the processes and political mechanisms in which this happens are still open for improvement and require continuous maintenance and accompaniments to flourish.

Increased relations between institutions and agencies, countries and regions, will be of both pragmatic and diplomatic value. Joint ventures effectively let the participants to cost-share, allowing for much larger projects to be undertaken, and cross-pollinate the great minds working within space science environments which eventually drive up the quality of the outcome of such ventures. Working together also grants the ability to not only gain ground on shared priorities and goals, but to create new mechanisms of converging and fulfilling successive ones. In this sense, the space sector is a great platform for diplomacy for the very reason that its complexity and financial costs dictate collaboration, but also because it lays fertile ground for new technologies and research that can help improve the long-term sustainability and quality for both, developed and developing countries alike.

While restraints continue to stand in the way of some possible cooperation opportunities, speakers were optimistic about what has already, and what can be, done alongside China as it emerges as one of the world's leading space nations. In the future, the Chinese government will certainly strive to working more closely with the international space community on a breadth of space ventures, however to make this achievable it is also clear that the policy landscape will need to be continuously adapted to accommodate these new developments through a number of bi-lateral and multi-lateral agreements, as well as through networking events such as this co-hosted evening at ESPI.

"We are actively planning manned deep-space exploration."

Interview with the Ambassador and Permanent Representative of the People's Republic of China to the United Nations in Vienna, H.E. Shi Zhongjun

For China, what is the significance of the United Nations-China Cooperation on the Utilisation of the Chinese Space Station?

This cooperation is a concrete practice of building a new type of international relations and a shared future for humankind in space. It creates a new pattern and a new model for international cooperation in outer space, which utilises China's Space Station to benefit more countries.

The significance lies in three aspects specifically: First, the cooperation is highly open. It is for all countries, regardless of their level of development in outer space. Second, the cooperation is highly inclusive. Governments, international organisations, private entities and research institutions and other relevant organisations, can all apply for its various cooperation models. Third, the cooperation is highly professional and transparent. China is cooperating with the UN. All applications will be jointly selected by experts from China and the UN, and the results of the cooperation will be submitted to both China and the UN.

Apart from the Space Station Agreement with UNOOSA, has China any other agreements with international partners with respect to the utilisation of the CSS?

In the field of manned space flight, China had established cooperation frameworks, or conducted cooperation with some countries or organisations, such as Russia, France, Germany, Italy, and the European Space Agency.

What are China's plans for hosting foreign astronauts on the CSS? Which country or region will become China's first visiting country on the CSS?

Once the Chinese Space Station is in operation, astronauts or payload experts from other countries will be welcomed to participate in the mission of the Chinese Space Station and conduct scientific experiments onboard the CSS in person.

What are the long-term ambitions of China in the area of human spaceflight activities? Which role does international cooperation play?

The completion and operation of the Chinese Space Station marks the full realisation of China's 3 strategic step manned space programme. However, China will never stop in exploring the unknown world. We are actively planning manned deep-space exploration.

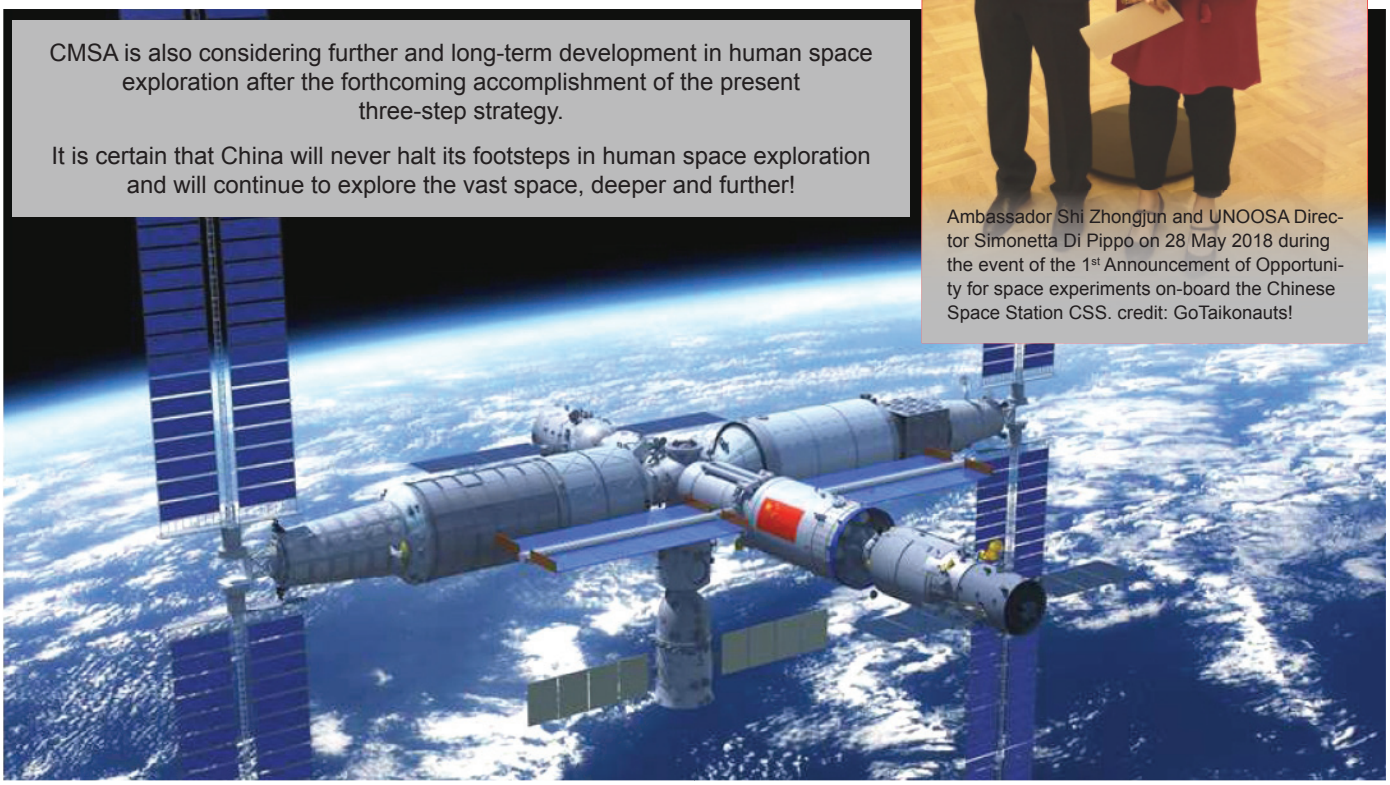
Existing cooperation between China and UNOOSA

1980 China becomes a Member of COPUOS - the United Nation Committee on the Peaceful Uses of Outer Space
2010 UN-Spider Beijing Office established
2014 Regional Centre for Space Science and Technology Education in Asia and the Pacific opens at Beihang University
2015 MoU between CNSA and UNOOSA on Earth Observation Data and Technical Support
2016 Framework Agreement and Funding Agreement between CMSA and UNOOSA on the utilisation of the Chinese Space Station
2018 Announcement of Opportunity for CSS utilisation

Ambassador Shi Zhongjun and UNOOSA Director Simonetta Di Pippo on 28 May 2018 during the event of the 1st Announcement of Opportunity for space experiments on-board the Chinese Space Station CSS. credit: GoTaikonauts!

CMSA is also considering further and long-term development in human space exploration after the forthcoming accomplishment of the present three-step strategy.

It is certain that China will never halt its footsteps in human space exploration and will continue to explore the vast space, deeper and further!



"This is a ground-breaking initiative and highlights our commitment to bringing the benefits of space to all."

Interview with the UNOOSA Director Simonetta Di Pippo

The following interview was given by UNOOSA Director Simonetta Di Pippo in July 2016 on the occasion of the signing of the Framework Agreement and the Funding Agreement for cooperation between UNOOSA and CMSA to enable United Nations Member States, particularly developing countries, to conduct space experiments on-board China's space station, as well as to provide flight opportunities for astronauts and payload engineers. The agreements were signed on 31 March 2016.

How did the idea for the use of the Chinese Space Station by the United Nations Office for Outer Space Affairs emerge?

The agreements with CMSA are part of UNOOSA's wider strategy of building the space capacity of non-space-faring countries, particularly developing countries, so that they too can benefit from space technologies.

Furthermore, capacity-building for the 21st century is one of the seven thematic priorities for UNISPACE+50, which were recently agreed to by the Committee on the Peaceful Uses of Outer Space at its 59th session in June 2016. UNISPACE+50 will be a special segment of COPUOS in 2018 to mark the 50th anniversary of the first UN Conference on the Exploration and Peaceful Uses of Outer Space.

As part of preparations for UNISPACE+50, in November 2016 UNOOSA is organising the first High-level Forum (HLF) on "Space as a Driver for Socio-Economic Sustainable Development" as part of preparations for UNISPACE+50. The HLF will bring together space actors from around the world to consider issues based around four thematic areas: "space economy", "space society", "space accessibility" and "space diplomacy". Capacity-building and access to space for developing countries will be further considered under the "space accessibility" pillar.

Other initiatives under UNOOSA's capacity-building strategy include:

- The joint KiboCUBE initiative with the Japan Aerospace Exploration Agency (JAXA), which was the first major initiative under this approach to capacity-building. The KiboCUBE project offers educational and research institutions from developing countries the opportunity to deploy cube satellites from the ISS. A call for applications for KiboCUBE was issued in September 2015, and the first selected applicant will be announced in the coming months.
- The UNOOSA fellowship programme since 2014 for research teams to conduct microgravity experiments at the Bremen Drop Tower in Germany.
- An agreement recently announced with Sierra Nevada Corporation (SNC) to provide countries, especially non-space-faring ones, affordable access to SNC's Dream Chaser spacecraft for space science experiments.

Through these various capacity-building initiatives UNOOSA facilitates developing countries' access to a range of space activities.

This collaboration with CMSA is very innovative and consolidates the vision of both UNOOSA and the Committee on the Peaceful Uses of Outer Space, which is to make space inclusively accessible.

Which work and which steps were necessary to get the Agreements finalised?

CMSA requested UNOOSA's support to make the space station an international space station. Both parties discussed potential areas of collaboration, respective roles and contributions, and then a draft agreement and schedule. The agreement was signed in March 2016 and planning activities have commenced. A funding agreement has also been signed between UNOOSA and CMSA to financially support UNOOSA to facilitate this project's activities. The activities with CMSA are not financed out of UNOOSA's regular budget. We also envisage that some experiments may require additional funding to be implemented.

While the space station is being made operational, UNOOSA and CMSA will proceed to call for technical proposals from entities worldwide for the design of experiments to take place on-board the station. We expect that this will be a similar process to that used for the KiboCUBE initiative. Other activities will be undertaken as the environment for their implementation becomes ready.

Was finalising the Agreements easier or harder than you expected?

Developing this project while the space station is still being built is a very innovative approach. However, UNOOSA and CMSA worked closely toward this agreement as both parties saw the project as key to the thematic priorities of UNISPACE+50 just endorsed by COPUOS recently in Vienna.

Framework Agreement

to the date of termination under this Agreement or legal instrument executed pursuant to this Agreement.

This Agreement shall enter into force upon signature.

IN WITNESS WHEREOF, the duly authorized representatives of the Parties affix their signatures on the present Agreement in the English language in two originals.

Done at Vienna, Austria this 31 March of 2016
(place) (day / month) (year)

For the United Nations | **For the China Manned Space Agency**

Ms. Simonetta Di Pippo
Director
Office for Outer Space Affairs
United Nations Office at Vienna

Mr. WANG Zhaoyao
Director General
China Manned Space Agency

Funding Agreement

Article XIII

IN WITNESS WHEREOF, the undersigned, being duly authorized thereto, have signed the present Agreement in the English language in two originals.

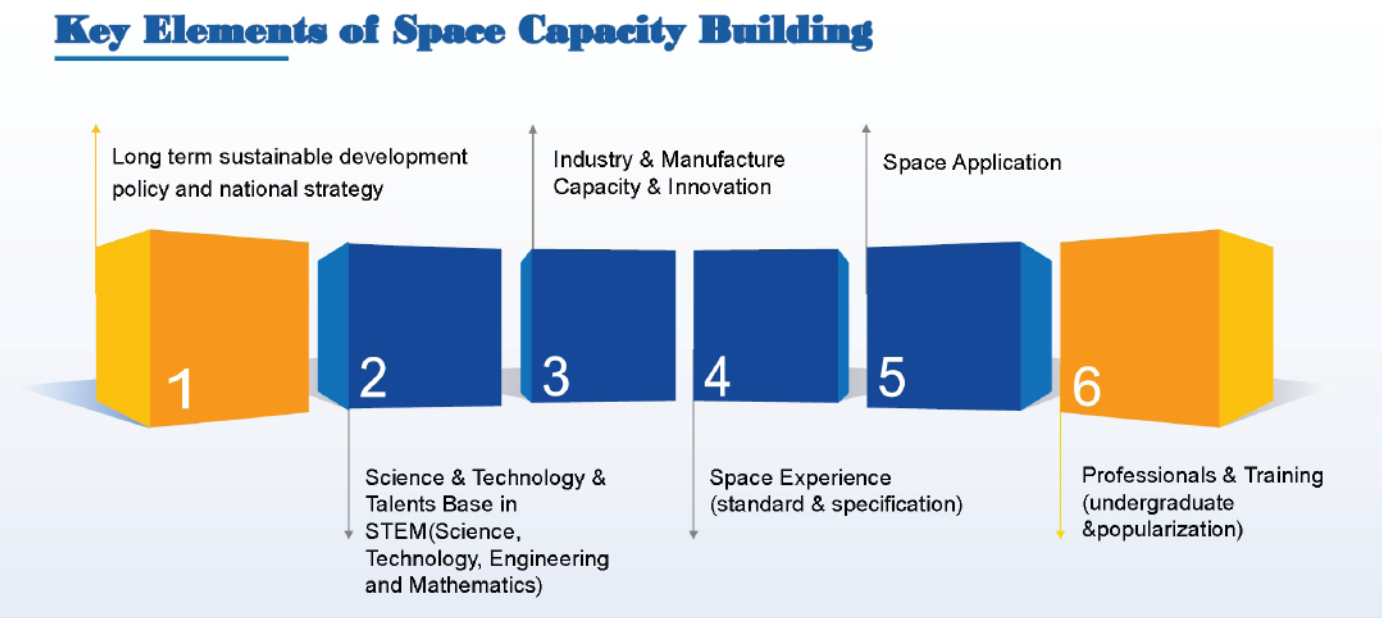
DONE at Vienna, Austria this 31 March of 2016
(place) (day / month) (year)

For the United Nations | **For the China Manned Space Agency**

Ms. Simonetta Di Pippo
Director
Office for Outer Space Affairs
United Nations Office at Vienna

Mr. WANG Zhaoyao
Director General
China Manned Space Agency

credit: Lin Xiqiang, June 2017, 60th Session of COPUOS, Vienna, presentation: The Latest Progress, Future Planning and International Cooperation of China's Human Space Program



credit: Jiang Hui, 55th session of STSC in 2018, presentation: The Spatial Information Corridor Contributes to UNISPACE+50.

Engaging with China in such an agreement, could this be interpreted as a preferential treatment of China?

The agreements with CMSA are part of UNOOSA's wider strategy of building the space capacity of non-space-faring countries, particularly developing countries, so that they too can benefit from space technologies. Furthermore, capacity-building for the 21st century is one of the seven thematic priorities for UNISPACE+50, as outlined earlier.

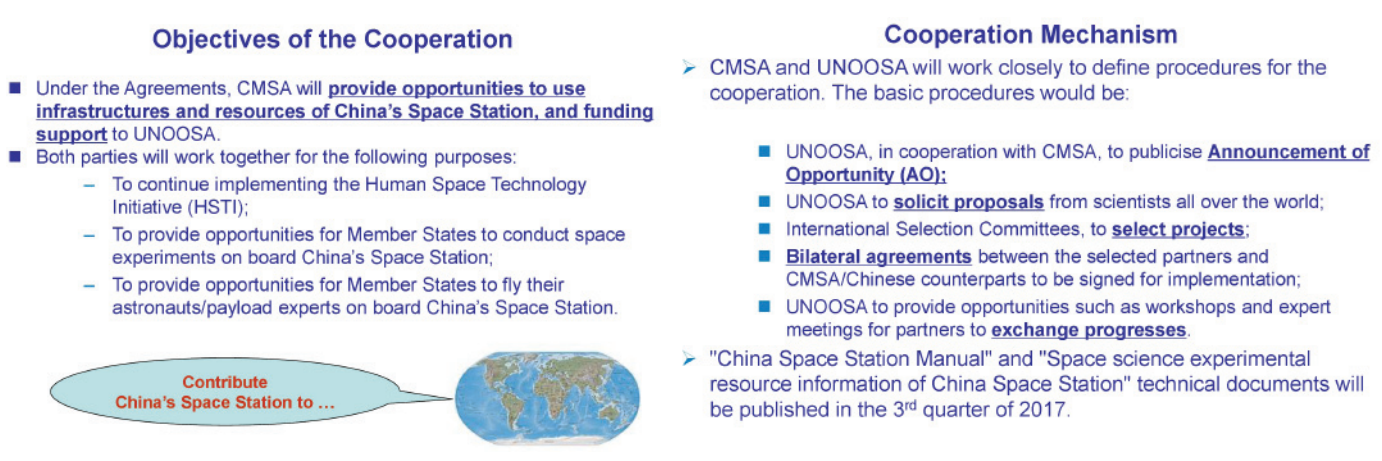
Also, as already mentioned, other initiatives under UNOOSA's capacity-building strategy include the joint KiboCUBE initiative with JAXA, Bremen Drop Tower-UNOOSA fellowship programme and the agreement with Sierra Nevada Corporation (SNC) to provide affordable access to space for space science experiments.

Is this Agreement opening the avenue for a possible UN astronaut corps? If not, what are the major objectives you hope it will achieve?

The agreements note the possibility of cooperation between UNOOSA and CMSA on providing flight opportunities for astronauts and/or payload engineers from other countries, although at this stage this is to be further investigated. In this respect, while the agreements are legal documents between the United Nations and the Government of China and therefore not publicly available, CMSA Deputy Director General Wu Ping's technical presentation at COPUOS in June 2016 is available: http://www.unoosa.org/oosa/en/ourwork/copuos/technical-presentations.html#copuos2016

At UNISPACE+50, a special session of the Committee set to take place in 2018 to mark the 50th anniversary of the first UN Conference on the Exploration and Peaceful Uses of Outer Space, United Nations Member States will consider the future of international space cooperation. UNISPACE+50 will also renew and strengthen UNOOSA's mandate as a unique platform for cooperation between major space-faring nations and emerging space nations, including governmental and non-governmental actors, the commercial sector, civil society, young people, and the public at large.

The major objective of the agreements with CMSA, and of UNOOSA's overall Human Space Technology Initiative, is to build the space capacity of non-space-faring countries, particularly developing countries, so that they too can access space infrastructures and benefit from space technologies. This is a matter of 'space accessibility', as mentioned above.



credit: Lin Xiqiang, June 2017, 60th Session of COPUOS, Vienna, presentation: The Latest Progress, Future Planning and International Cooperation of China's Human Space Program

Mrs. Di Pippo, you are the Director of the United Nations Office for Outer Space Affairs. What were the reasons for the establishment of this special office within the frame of the United Nations and which are the most important tasks of the Office today?

The United Nations has focused on the importance of international cooperation in space since the space age began with the launch of Sputnik I. In December 1958 the United Nations General Assembly established the ad hoc Committee on the Peaceful Uses of Outer Space (COPUOS) to deal exclusively with international cooperation in the peaceful uses of outer space. The United Nations Office for Outer Space Affairs (UNOOSA) was initially created as a small expert unit within the United Nations Secretariat to serve that Committee, but has grown and developed since.

UNOOSA is the gateway to outer space in the United Nations system. Our roles and responsibilities are broad and diverse. Our work is based on three separate but closely connected pillars. Firstly, UNOOSA serves as the secretariat for COPUOS and its Subcommittees: the Technical and Scientific Subcommittee and the Legal Subcommittee.

Secondly, we also carry out the Secretary-General's responsibilities under international space law, including maintaining the United Nations Register of Objects Launched into Outer Space.

The third significant role of the Office is the technical executive function through the United Nations Programme on Space Applications. The Office also manages the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER) and acts as the secretariat of the International Committee on Global Navigation Satellite Systems (ICG). We organise international workshops, training courses and pilot projects on topics that include remote sensing, satellite navigation, satellite meteorology, tele-education and basic space sciences. A major focus is building the space capacity of developing countries so that space-based technologies can benefit all of humankind.

The ICG, and the support UNOOSA provides to it, is a real and encouraging example of international cooperation. The ICG promotes voluntary cooperation amongst providers of global navigation satellite systems to encourage and facilitate compatibility, interoperability and transparency between the systems. The aim is to ensure the best satellite based positioning, navigation and timing for peaceful uses for everybody, anywhere, any time.

Lastly, to improve awareness of how space can benefit humankind, UNOOSA publishes reports, studies and other documents on various fields of space science and technology applications, as well as international space law.

Since a little while is the idea of the so-called "Moon Village" around - an initiative to involve all countries of the world, in particular non-space fairing countries. Considering that every country has a border with space wouldn't it be fair to give every country the opportunity to have access to that border as well as the space beyond? Wouldn't your HSTI be a suitable frame for such an idea to open space and space research on a truly global level?

The Human Space Technology Initiative (HSTI) was launched by UNOOSA in 2010, under the framework of the United Nations Programme on Space Applications (PSA), to engage more countries in activities and international cooperation related to human space flight and space exploration. The aim is to increase the global benefit of space activities and make space exploration a truly international effort. HSTI provides a platform to exchange information, foster collaboration between partners from space-faring and non-space-faring countries, and encourage emerging and developing countries to take part in, and benefit from, space research and applications.

Our mission is to enhance the understanding and use of space technology for peaceful purposes in general, and for national development in particular, in response to expressed needs in different geographic regions of the world. It focuses on selected areas that are critical for developing countries, defining and working towards objectives that are achievable in two to five years and that build on the results of previous activities; HSTI is a key part of this.

In addition, to foster international cooperation and to create new mechanisms for the exchange of information and scientific results in space exploration, COPUOS has endorsed a thematic priority for UNISPACE+50 that is specifically devoted to strengthening global partnership in space exploration and innovation. Space exploration and innovation are essential drivers for opening up new domains in space science and technologies, enabling new partnerships and developing capabilities that create new opportunities for addressing global challenges. This thematic priority will encompass all activities that have a solid operational proposal or background, so if Member States agree, we would discuss all proposals on the table.

On 23 March 2014 you became the Director of the United Nations Office for Outer Space Affairs. Did you decide to give the work of the Office a new impulse or did you consider it important to focus on particular issues?

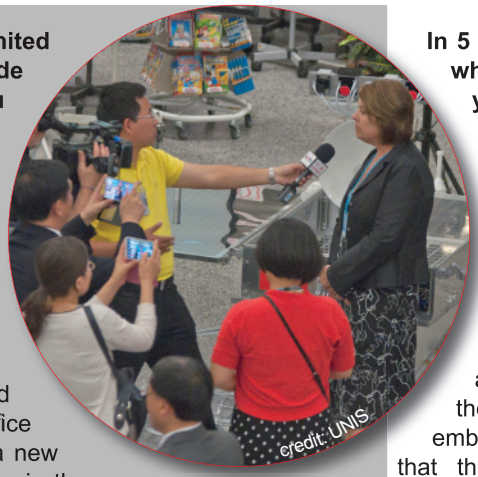
I would actually say both.

Since my appointment two years ago the Office has also addressed several new topics and initiated innovative projects. For example, we are currently dealing with space safety and security, and specifically the development of transparency and confidence building measures, to meet the emerging needs of actors – some new - actively operating in the space sector. Furthermore, bearing in mind how rapidly technology and applications evolve, the Office has launched new initiatives to drive capacity-building in a new manner in developing countries in particular. One example is the KiboCUBE initiative, in partnership with the Japanese Aerospace Exploration Agency (JAXA), to create an opportunity for developing countries to launch small satellites directly from the ISS. UNOOSA has also recently signed agreements with the China Manned Space Agency to work together to enable United Nations Member States, particularly developing countries, to conduct space experiments on-board China's future space station, as well as send astronauts and payload specialists to the station. This is a ground-breaking initiative and highlights our commitment to bringing the benefits of space to all.

I am also focused on several specific matters, such as the first High-level Forum (HLF) in Dubai in November that I referred to earlier. It's a great opportunity for the international space community to come together to address space and sustainable development issues. It is also part of the preparatory process for UNISPACE+50, which will be a defining event and so of course is a major focus for me.

I also established the Office of the Director, in order to coordinate all the UNOOSA's outreach activities. We have redesigned UNOOSA's website to make it more accessible. At the recent 59th session of COPUOS, the first ever UNOOSA Annual Report was presented – a new initiative in our awareness-raising and transparency efforts.

Lastly, my commitment to advocating closer international cooperation in space-related activities among nations underlines all the work of the Office.



In 5 to 10 years from now, what progress would you like to see in the work of UNOOSA?

The growing number of countries joining the space sector every year is increasing the demand for outer space cooperation and regulation; I see the Office accepting and embracing the challenges that this poses. I also see UNOOSA maintaining its leading role in the global promotion of the peaceful uses of outer space, with more and more Member States and people engaged in the process. In particular, UNISPACE+50 will promote a "Space 2030" agenda that considers the development of stronger space governance and engages all key stakeholder in the space arena; this will be a defining element of the next fifteen years for UNOOSA.

I also firmly believe that the international space community at UNISPACE+50 will not miss the chance to enhance and revamp the range of functions performed by the Office as the unique UN gateway to space.

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Go Taikonauts! team
Dr. William Carey - Dave Chen Qing - Chen Lan - Jacqueline Myrrhe
V.i.S.d.P.: Uwe Schmaling

Contact: info@go-taikonauts.com
Web site: www.go-taikonauts.com

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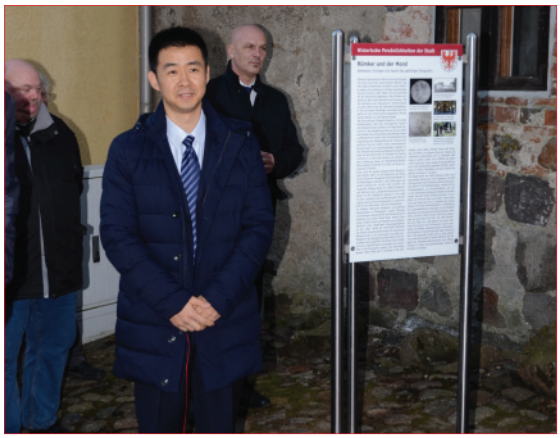

In November 2017, taikonaut Chen Dong visited the towns of Neubrandenburg and Burg Stargard (Germany) for participation in the 33th Space Days conference. Read more about this event in the next newsletter of GoTaikonauts!

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