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Exchange • Promotion • Development

Enhance the understanding and subsequent use of space technology for peaceful purposes

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RCSSTEAP

联合国附属空间科学与技术教育亚太区域中心（中国）

Regional Centre for Space Science and Technology Education in Asia and the Pacific(China)
(Affiliated to the United Nations)

Contents

Preface

Beijing is a busy city, which stays up late and wakes up early, round and round without tiredness. Time flies, even spring turning into winter in an eye blink. This year winter comes earlier than usual and snow falls inadvertently. Before we can say "nothing gold can stay", the leaf of Chinese traditional calendar has been torn to Li dong, the start of winter in Chinese.Here in Beihang University, dead leaves are hanging on the trees with out falling, which reminds us of the snow-less November last year. At that time,Regional Centre for Space Science and Technology Education in Asia and the Pacific(China)(Affiliated to the United Nations)(hereinafter referred to as the" Centre") was a new-born baby, like plum quiet in bud. Young, but he was full of courage to face the challenge in the future.

During the past year, we uphold the idea "Peaceful Use of Space Technology" proposed by United Nations and make progress. In 2015, the Centre enrolled 42 postgraduate participants for three majors including Remote Sensing and Geographical Information System, Satellite Navigation and Micro-satellite Technology.All the new participants have entered the University in mid-September.Three training programs on Satellite Navigation, Remote Sensing Technology and Space Law and Policy have been held, and participants in total are more than 100.Capacity building like RCSSTEAP website has been initiated.To promote visibility of the Centre,various exchange activities have been carried out at home and abroad.

Looking upward and thinking over, we feel both gratified and puzzled. As the saying goes, "everything has a hard beginning." We work together to over come all obstacles. Like the blooming plum, progress of theCentre cannot be made without support from domestic and abroad, just as sunshine and rainfall to the flower. We will keep moving without hesitation, in hope that make the Centre become a Novel International Space University. This is the preface.

Editor

2015 Winter in Beijing

Special Focus

1.Earth Observation Technologies for Earthquake Damage and Loss Assessment

Overview

From September 17th to 22nd,2015, training program on "Earth observation technologies for earthquake damage and loss assessment" was jointly organized by Beihang University, Regional Centre for Space Science and Technology Education in Asia and the Pacific (China) (affiliated to the United Nations), UNOOSA/UN-SPIDER, National Disaster Reduction Centre of China (NDRCC) and APSCO. A total of 31 participants from 20 countries participated in the training program, including Bhutan, Pakistan, Bangladesh, Indonesia, Thailand ,Peru, Mongolia, Oman, Saudi Arabia, Singapore, Burma, Mozambique, Iran, Turkey, Venezuela, Algeria, Ethiopia, Brazil and Nigeria,China. Among them, 27 participants was respectively sponsored by the Centre, UN-SPIDER Beijing Office and APSCO.Some postgraduates from Beihang University majoring in international space technology application also attended the training .

The training covered theory and hands on sessions on following topics: Role of earth observation in providing critical information during earthquake disaster; Rapid mapping using earth observation during earthquake situations; Concepts of earthquake damage and loss assessment; Visual interpretation, object-oriented segmentation and classification to facilitate change detection of pre and post-disaster based on VHR satellite imagery to perform structural damage assessment; Semi-automated techniques to extract information on buildings and other infrastructure and integrating it with population and risk data to evaluate casualties and losses; Crowd source platforms to use EO to perform rapid assessment; Advance techniques to access satellite images during emergencies and so on.

UN-SPIDER 2015 Annual Meeting in Beijing

On the third World Conference on Disaster Risk Reduction in Japan, the Sendai Framework for Disaster Reduction 2015-2030 identified critical role of space based technologies in disaster risk reduction. The United Nations International Conference on Space-based Technologies for Disaster Management was successfully held from September 14th to 16th,2015. Several relevant topics are discussed on the conference, and Mr. Weng Jingnong, Executive Director of the Centre made a special report and held the seminar of the third work group.

Opening Ceremony

On September 17th,2015,opening ceremony of the training program was held by Ms. Ma Yunfei, from NDRCC, at International School of Beihang University. Mr. Weng Jingnong, Dean of International School of BUAA, Mr. Shirish Ravan from UN-SPIDER Beijing Office, Mr. Nyamkhuu.Mr. Tsoodol from APSCO and Ms. Li Suju from NDRCC attended the ceremony.

Experts

Seven experts as tutors from UN-SPIDER, Digital Globe, Indian Space Research Organization (ISRO) and NDRCC conducted the training.

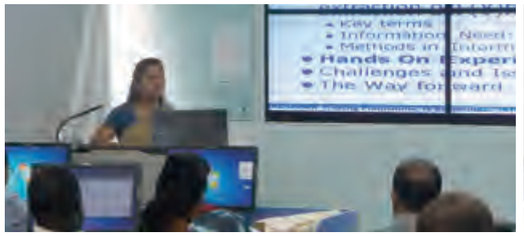
Dr. Shirish Ravan from UN-SPIDER Beijing Office introduced basic concepts and applications in Earth observation for earthquake damage assessment.Dr. Basanta Shreshtha from ICIMOD talked about Earth Observation to facilitate Nepal earthquake response and recovery - lessons learned.Mr. Abhineet Jain from Digital Globe delivered a speech on background information extraction for earthquake damage and loss assessment-High resolution satellite images for rapid DSM, Landuse/Land cover and automated work flow for urban infrastructure (buildings) mapping. Lectures given by Mr. Andrew Steele was on ways to quick access and process high resolution images during disasters –first look and Tomnod Crowd sourcing platform.Dr. Vandita Srivastava from ISRO talked about rapid information extraction from high resolution satellite images and gave guidance to participants on machine operation.Dr.He haixia and Dr.Liu Ming from NDRCC gave lectures respectively on earthquake emergency response mapping--basic concepts and applications; physical objects damage information extraction and loss assessment ; comprehensive loss assessment for earthquake damage.

Dr. Shirish Ravan UN-SPIDER Beijing Office

Dr. Basanta Shreshtha from ICIMOD

Mr.Andrew Steele from Digital Globe

Mr. Abhineet Jain from Digital Globe



Dr. Vandita Srivastava from ISRO

Dr. He haixia Ming from NDRCC

Closing Ceremony

On September 22nd,closing ceremony of the training program was held by Ms. Liu Longfei from UN-SPIDER Beijing Office. Representatives from the Centre, APSCO together with all participants and volunteers attended the ceremony. Dr.Liu Ming from NDRCC, Mr.Julaia Cláudio and Dr.Tan Yumin on behalf of experts respectively summarized the training from different views. Finally they awarded certifications for participants and volunteers.

Feedback

On September 22nd, participants from OCHA Centre in Africa, Bangladesh, Singapore, Indonesia, Myanmar and Thailand made exchanges on status quo and existing problems of disaster reduction using earth observation technologies.

In the feedback of these three training programs, participants spoke highly of experts, contents, arrangements and reception.

- This program is very good and I get much benefit from it.
- Generally, all training contents are useful and thank you for everything. But some lectures are not to transfer all information to participants.
- All the training program open a wide area for us. I suggest that it should be held longer. And I hope the curriculum can relate more about practices.
- providing network for online and required courses. Online presentation at the same time for related organizations of participants.
- Focus should be case studies in the relevant field. Min background in RS&GIS should be mandatory. So that basic topic can be eliminated.
- Prepare all the tools such as internet connection, software, etc. Maybe practice more using manual and automatic material.
- Best hotel I have stayed on training.
- More topics on damage assessment and risk assessment, GNSS for ocean Applications, Beidou GNSS for disaster application, improvement of early warning using SBT, floods, space law and policy.
- Thank you very much for the effort, we have a so good information. I suggest there could be Better prepared presentations in advance, and the hands-on training in my point of view is basic.
- Congratulations and Thanks for this opportunity. I am very happy being here.

2. Space Law and Policy

Overview

2015 international training course on space law and policy was held from September 17th to 25th in Beihang University , jointly organized by the Centre , APSCO and Beihang University, which enjoyed great success.

国际航天及卫星应用(IASA)培训班(2015)

The theme of the training was space law and policy. 15 experts as lectures from America, Canada, Germany, France, Sweden, mainland China and Hong Kong conducted the training. Nearly 40 participants from Bangladesh, Brazil, China, Egypt, Indonesia, Mongolia, Pakistan, Peru, Thailand, Turkey, Venezuela attended the training program. Participants also include young scholars from Beihang University, Beijing Institute of Technology, China University of Political Science and Law, Beijing Institute of Space Science and Technology Information, China Academy of Launch Vehicle Technology and Ministry of Foreign Affairs (MFA).

Training covered theory on following topics: the Outer Space Treaty and the fundamental principles of space law, other UN space treaties: liability convention and registration convention; national space policy, national Space Legislation, international law and other regulations applicable to RS&GIS, satellite communications and applicable international law and other regulations, GNSS and applicable international law and other regulations, space application and space law, export control system for space-related product & technology and space environment protection and commercial space tourism.

This training received plenty of backing from UNOOSA, MFA, Ministry of Industry and Information Technology (MIIT),CNSA and other international organizations and government departments.

Opening Ceremony

On September 17th,2015, opening ceremony of the training program was presided over by Mr. Weng Jingnong, Dean of International School of BUAA and Executive Director of theCentre, at Conference Centre of Beihang University. Mr. Nyamkhuu Tsoodol and Mr. Mohammad Ebrahimi both from APSCO, Mr. Long Weiqiu from law school of BUAA, Mr.Li Shouping from law school of Beijing Institute of Technology, together with representatives of organizer and experts and all participants attended the ceremony. Mr. Weng Jingnong delivered a speech on behalf of the Centre and BUAA extending a warm welcome to all the guests, and appreciated the support given by sponsors and co-organizers.Mr. Nyamkhuu Tsoodol made a presentation in hope that the training could enjoy great success standing for APSCO. Other representatives like Mr. Zhang Zhenjun and Mr. Long Weiqiu also gave some remarks.After that, all the guests and participants took a group photo together.

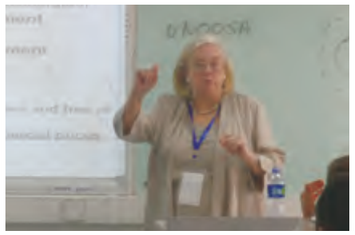




Experts

Lectures given by 15 experts from America, Canada, Germany, France, Sweden, mainland China and Hong Kong lasted for five days. Most of them are scholars, lawyers,and government and international officials, including Dr. Niklas Hedeman from UNOOSA, Prof.Joanne Gabrynowicz from law school of University of Mississippi, Prof. Armel Kerrest from Université de Bretagne Occidentale, Dr.Andrea Harringdon from McGill University, Prof. Stephan Hobe from University of Cologne, Mr. Zhang Zhenjun from China Institute of Space Law, Prof. Zhao Yun from University of Hong Kong, Prof. Li Junqian from China University of Political Science and Law,Prof. Li Shouping and Associate Prof. Wang Guoyu from law school of Beijing Institute of Technology, Associate Prof. Xia Chunli from law school of Beihang University, Dr.Wu Xiaodan from law school of Central University of Finance and Economics, Ms. Wang Jilian from China Great Wall Industry Corporation, Mr. Zhou Wu from MFA and so on.

Associate Prof. Wang Guoyu



Ms.Joanne Gabrynowicz

Mr.Niklas Hedman

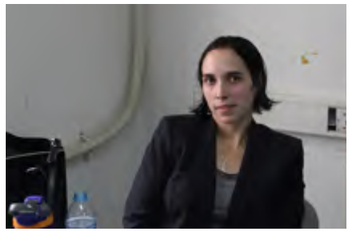
Associate Prof. Xia Chunli

Mr. Zhang Zhenjun

Prof. Zhao Yun

Mr.Armel Kerrest

Mr.Stephan Hobe



Ms.Andrea J. Harrington

2015 APSO Space Law and Politics Forum

From September 21st to 22nd , 2015 APSO Space Law and Politics Forum was held at Beijing Institute of Technology. Participants took part in the forum and had a better understanding of space law and politics.

Closing Ceremony

The closing ceremony of the training program was held by Mr. Nyamkhuu Tsoodol from APSCO. Representatives from the Centre, APSCO together with all participants and volunteers attended the ceremony. Mr. Mohammad Ebrahimi from APSCO together with Prof. Zhao Yun from University of Hong Kong serving as expert representatives and Ms. Marcia Alvarenga Dos Santos on behalf of participants delivered a speech.Associate Prof. Gao Guozhu summarized the training standing for organizers. Finally Mr. Mohammad Ebrahimi and Associate Prof. Gao Guozhu awarded certifications for participants and volunteers.

Feedback

All the participants filled in a questionnaire on the training. They think highly of them all teachers, and think the training is rich in content, good quality of materials and good reception and arrangements. Most of them benefited a lot from the training.

- Hope can keep the program every year and add some more topics and practical experiences.
- It's very helpful for me to understand the basic knowledge of outer space law. I learnt a lot from this program, not only for the knowledge in international law, but also for the knowledge of remote sensing and so on.
- I think the program is so important for all the major, not only lawyers. It must be included in the curriculum of all aeronautics programs. And hope there could be more frequently programs.
- This program is interesting and necessary for trainees who have different knowledge background. I think trainees should be given more chance to touch the space technology from multimedia used in class. Maybe it should focus more on space policies rather than general knowledge of out space law in order to improve trainees' practical skills in this field.
- Very helpful to have a brief understanding of space law and look forward to having more training course and discussing more details and commercialization business case.
- The program overall is very good. One constructive criticism would be that some lectures seem to avoid controversial issue, which could have more discussion and there could be more details about legal techniques for lawyers who don't have scientific background.
- The program has been nicely organized. I think it will be very helpful in the future. Looking forward to more training program.
- This program has provided wide-spread outlook for us to study space and space law. We appreciate your kind attention and hope to take part in another one.
- This program made us have a better understanding about international law advances. Excellent logistic and good intention to improve the international law space. I hope there could be more technical presentation.
- All the training program open a wide area for us. I suggest that it should be held longer. And I hope the curriculum can relate more about practices.knowledge and experiences of it. I can apply and use this experience in my research fields.
- Training campus is very good environment for IASA training program. Chinese food can eat for everybody. Training time is very good for Beijing weather except for some pollution time.
- Thank you for your staff to give me knowledge deeply in this field and good experience in China.

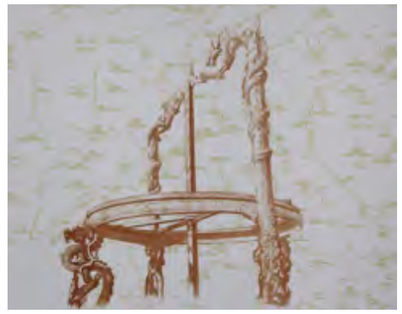
RCSSTEAP(China) Activities

Painting Exhibition on China's Space Exploration and Achievements

On June 17th, 2015, "Painting Exhibition on China's Space Exploration——Flying with the Wings of Art", was jointly organized by the Ministry of Foreign Affairs and China National Space Administration, was held successfully in the Mozart Hall of Vienna International Centre.

Before the opening ceremony of Painting Exhibition, Mr.Weng Jingnong, Executive Director of the Centre, gave a technical report on the fifty-eighth session of UNCOPUOS to introduce the achievements made ever since the Centre's foundation and its future path of development in details, which aroused worldwide attention and was praised.

The Painting Exhibition was followed by a telephone interview with Mr.Weng Jingnong and Mr.Gong Haoqing given by the United Nations Radio and an interview by People's Daily.



Advisory Conference of Experts on 2015 Annual Work

On July 15th,2015,Advisory Conference of Experts on 2015 Annual Work was held at Conference Centre of Beihang University and Ms. Yi Xiaosu, Deputy Dean of international school served as the host. Partner representatives from Ministry of Industry and Information Technology (MIIT), Ministry of Foreign Affairs (MFA), UNESCO, Institute of Remote Sensing and Digital Earth (RADI),China Academy of Space Technology and leaders from each departments of Beihang University , together with the head of every major and teachers of the Centre attended the meeting. First of all, Mr. Li Yue from MIIT delivered a speech on establishment of theCentre and purposes of this conference. Mr.Weng Jingnong, Executive Director of the Centre and Dean of international school of Beihang University made a detailed report from five aspects such as general situation, 2015 work progress, plan the next phrase and annual budget.

After listening to the report, expert panel examined the budget and work progress of theCentre. They believed that the development scheme was possible and the work was in line with the budget. And used of funds was unanimous by expert panel. At the same time, they gave some valuable suggestions and advice on development of the Centre.

Venezuelan Space Agency Delegation Visiting RCSSTEAP

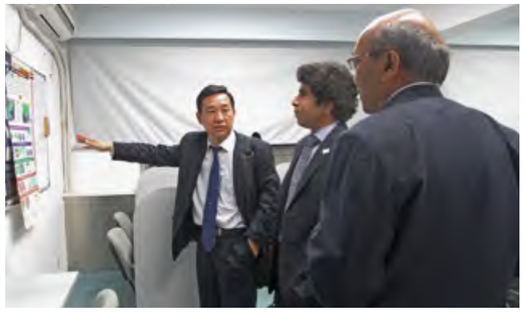
On September 9th, 2015, representatives of Venezuelan Space Agency led by Mr. Victor Cano, president of ABAE, visited Beihang University. A warm reception was given by Tao Zhi, Director of the Centre and Weng Jingnong, Executive Director of the Centre, together with other experts. Venezuela is one of the first contracting Parties and Mr. Cano attended the first meeting of the Governing Board as representative.

Mr.Tao Zhi expressed a warm welcome to all the representatives of Venezuelan Space Agency , and sincerely expressed his appreciation to the support to the Centre from Venezuelan Space Agency. Mr.Weng introduced the work progress of the Centre and invited Venezuelan Space Agency to designate staff working in RCSSTEAP.

Mr. Cano spoke highly of the work and expressed appreciation to the training opportunity offered by the Centre. He also showed that Venezuelan Space Agency will maintain close contact with the Centre and trace the development of their participants. The will about demand for talents on space technology applications and further cooperation with the Centre was expressed. After conversation, the delegation visited Beijing Aeronautics and Astronautics Museum.

CSSTEAP Delegation Visiting RCSSTEAP

On September 15th, 2015, Dr. Sarnam Singh, project director of CSSTEAP paid a visit to the Centre. He had an in-depth exchange of views with Mr.Weng Jingnong, executive director of the Centre and other specialists. Topics including exchange visits, joint training, personnel exchange, resource sharing and scientific research cooperation were discussed. Since CNSA and ISRO have signed the outline of space cooperation, Dr. A. Senthil Kumar, director of Indian Institute of Remote Sensing (IRRS) contacted with Ms.Guo Yuanyuan, program director of the Centre via email. Publicity materials of CSSTEAP and promotional materials as well as newsletters of RCSSTEAP were exchanged.



New Contracting Parties

At present, Argentina National Commission of Space Activities and Bangladesh Space Research and Remote Sensing Organization have signed the agreement with CNSA, becoming new contracting parties of the Centre since 2015.

Orientation in 2015

The Centre recruited graduate participants for majors of RS&GIS, GNSS and Micro-Satellite Technology in 2015. At last, there were 42 participants under documents examination, video interview, etc. Among them, 35 participants received CSC Scholarship while seven participants were awarded by BUAA. In addition, 12 participants were recommended by member states, while 29 participants recommended by APSCO, including Pakistan and Peru, together with one though the recommendation by China Academy of Space Technology. And all of the participants have entered the university in mid September. participants enrolling before 2015 include 18 Master participants from majors of GNSS, SATCOM and Micro-Satellite Technology, together with seven Doctor participants from the major of Space technology applications.

Mid-autumn Day Tea-party 2015

On September 26th,2015, in the atmosphere of joy, the current international participants of MASTA and DOCSTA gathered together to celebrate the Mid-autumn Day and exchanged the learning experience and feeling of life at Beihang University. participants from Thailand, Mongolia, Peru, Pakistan and so on gave stunning song and dance performances, lively extraordinary. On the tea-party, Mr.Weng Jingnong, Executive Director of the Centre delivered a speech on work and study of the new semester and promoted the website of the Centre. Mr. Gong Haoqin and Ms. Tan Yumin attended the tea-party and made friendly exchanges with participants. The party was held by Ms. Guo Yuanyuan, Program Director of the Centre and Ms.Zhang Yang, Program Manager of the Centre.

Visit to Shanghai Academy of Spaceflight Technology Research

From October 13th to October 14th, 2015, experts of RCSSTEAP visited Shanghai Academy of Spaceflight Technology Research (referred to as SAST). They visited some research institutes and factories of SAST and obtained a deep understanding of the contribution SAST made in aerospace .

The next day, Mr.Weng Jingnong, Executive Director of the Centre, together with other representatives of the Centre had a meeting with Mr.Meng Guang, Vice-president of SAST, Mr.Chen Jie, Chief Engineer of SAST and other representatives of SAST on cooperation between two sides. At the meeting, cooperation on intention and cooperation contents have been discussed. Finally, both sides reached a consensus on education practices base construction, faculty exchanges, training cooperation, "One Belt and One Road" related cooperation projects, space technology application services and other contents of cooperation. This activity defined the direction of cooperation between two sides and laid a solid foundation for establishing cooperative relations in the future.

Seminar on Development Strategy of RCSSTEAP

Driven by the working mechanism and the wisdom of experts, we carry out strategy consulting on development of the Centre by making innovative plans, with the purpose to bring it better.

On October 16th, 2015, a seminar on development strategy of the Centre was held in Beihang University. Experts appreciated the achievement made by the Centre and had a fruitful discussion on the future strategy and work after listening to the report. Many constructive suggestions were given by experts on problems including brand building, establishment of education system, development of information technology platform and integration of superior resources at home and abroad, which had laid a solid foundation on long-term development, core team and mechanism construction and the Centre's work plan for the coming year.

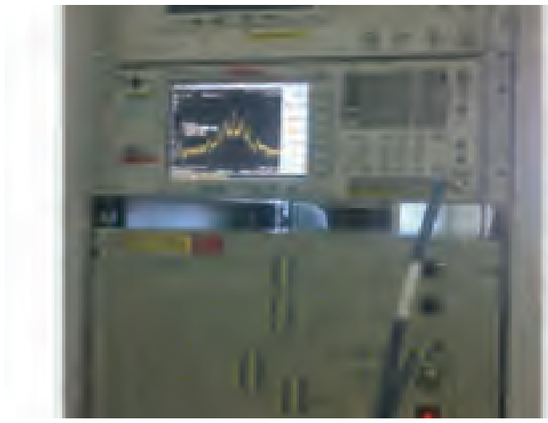
Educational Training Programs

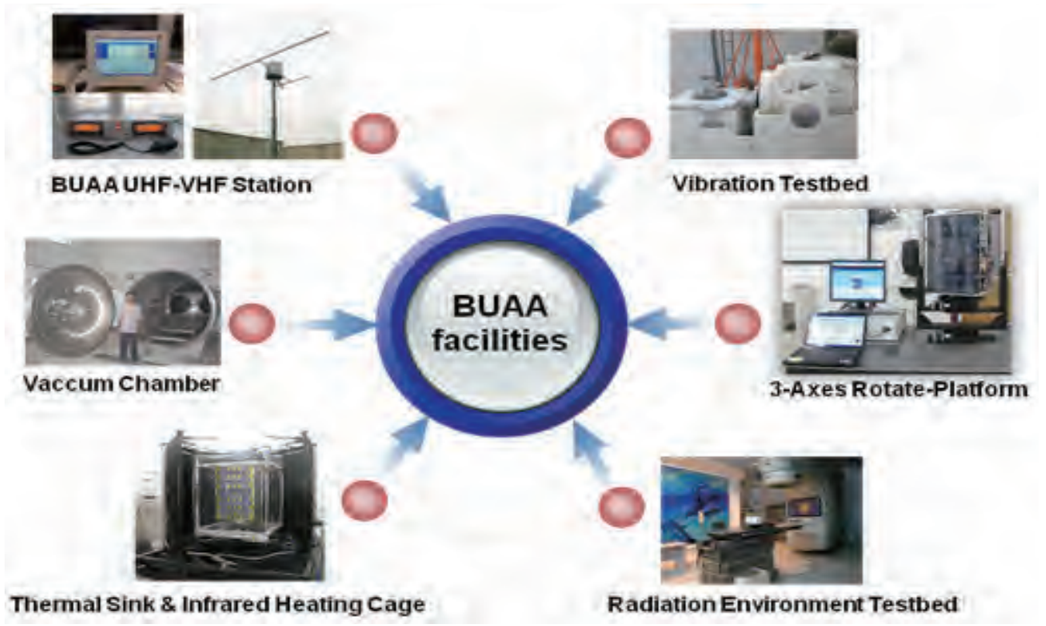
Micro-satellite Technology

Course catalog

Course code	Course name	Hours	Credit	Remarks
PC1-1	Probability statistics	48	3	At least 3 credits required compulsory credits
PC1-2	Matrix theory	48	3	
PC1-3	Numerical analysis	48	3	
PC2-1	Matlab Program design	32	2	Required
PC3-1	Space environment and satellite system	48	3	Required
PC3-2	Introduction to space law	18	1	Elective
PC3-3	Space technology and space economy	18	1	Required
PC4-1	Chinese and Chinese culture	54	3	Required
MC4-1	Overall design of small satellite system	32	2	Required
MC4-2	Spacecraft structure and mechanism design	32	2	Required
MC4-3	Patran/Nastran Software application	16	1	Required
MC4-4	Design and testing technology of satellite borne electronic system	32	2	Required
MC4-5	Thermal control technology of aircraft	32	2	Required
PPC	Practical course	3months	8	Required

This major has outstanding features on multidisciplinary and system engineering in aerospace engineering research, including spacecraft system design, mechanics, electronics, attitude and orbit dynamics, GNC and computer application, aiming at cultivating talent capable of spacecraft system analysis and design, aerospace engineering application for UN member states. For master degree education, more emphasis is put on the comprehension and applications of spacecraft system design theories. By participating in actual aerospace engineering tasks, they can acquire the method to do scientific research, and possess the ability to independently deal with aerospace engineering research work. For PHD education, more emphasis is put on the innovation. By taking charge of actual aerospace engineering tasks, they can learn to find and solve problems, put forward new theories or methods, and become high-level engineers capable of aerospace system analysis and design. After graduation, participants will pursue spacecraft system design, test, management and related jobs as senior technical personnel in aerospace industry, enterprises and institutions.





Global Navigation Satellite System

Course catalog

Course code	Course name	Hours	Credit	Remarks
PC1-1	Probability statistics	48	3	At least 3 credits required compulsory credits
PC1-2	Matrix theory	48	3	
PC1-3	Numerical analysis	48	3	
PC2-1	Matlab Program design	32	2	Required
PC3-1	Space environment and satellite system	48	3	Required
PC3-2	Introduction to space law	18	1	Elective
PC3-3	Space technology and space economy	18	1	Required
PC4-1	Chinese and Chinese culture	54	3	Required
MC3-1	GNNS Benchmark system	18	1	Required
MC3-2	GNNS System principle	32	2	Required
MC3-3	Satellite navigation data processing	32	2	Required
MC3-4	Principle and design of GNSS receiver (including software receiver)	32	2	Required
MC3-5	GNSS/INS integrated navigation	32	2	Required
MC3-6	Global satellite navigation system	18	1	Required
MC3-7	GNSS principle experiment	18	1	Required
MC3-8	GNSS frontier technology	18	1	Required
PPC	Practical course	3months	8	Required

Global Navigation Satellite System (GNSS) provides positioning, navigation and timing services for the whole world. It is the most important spatial infrastructure in social life and military applications in modern times. The GNSS would serve people in many areas together with Remote Sensing, Geographical Information System such as disaster management, emergency response, land, aviation and maritime transportation etc. In this direction, all the courses will give participants a full picture on satellite navigation system. They are comprise of nine to set four levels which are system level (L1), user level (L2), application level (L3) and practice level (L4). L1 includes reference system, navigation signal and the principles introduction. L2 includes receiver design, integration navigation for the user level. L3 mainly focuses on the application side like applications introduction, data processing for the high precision positioning. L4 is on the practice and the front technologies awareness for the participants. All the classes are performed together with the GNSS laboratory and the instrumentation, software in the lab. In Beihang University, the GNSS courses are supported by six national class discipline such as communication and information system, navigation & control and guidance, test and measurement technology, instrumentation, electromagnetic and microwave, mechanical design. Beihang University has first class training environment on GNSS including the exhibition hall and the smart calss room for the practice or group discussion, team project. Besides that, high performance compatible Beidou/GNSS receivers were developed and deployed in car navigation system, altitude determination, and the GNSS-R receiver was applied in meterological applications are fully used for the participants practice in the class. To promote the international cooperation on GNSS, Chinese government gave much more support in financial and policy points. In 2012, China Satellite Navigation Office (CSNO) established BeiDou International Exchanging and TrainingCentre at Beihang University. The Centre aims to undertake the planning, training and education programme on GNSS area in China through international cooperation. Through the activities of the Centre, Beihang University has established many links with international institutions like UN affiliated Regional Centres on Space Science, Technology and Education in Morocco, Nanyang Technological University of Singapore.

Remote Sensing and Geographical Information System

Course catalog

Course code	Course name	Hours	Credit	Remarks
PC1-1	Probability statistics	48	3	At least 3 credits required compulsory credits
PC1-2	Matrix theory	48	3	
PC1-3	Numerical analysis	48	3	
PC2-1	Matlab Program design	32	2	Required
PC3-1	Space environment and satellite system	48	3	Required
PC3-2	Introduction to space law	18	1	Elective
PC3-3	Space technology and space economy	18	1	Required
PC4-1	Chinese and Chinese culture	54	3	Required
MC1-1	Visual interpretation of remote sensing images	16	1	Required
MC1-2	Theory and application of geographic information system	48	3	Required
MC1-3	Remote sensing physical principles	32	2	Required
MC1-4	Introduction to remote sensing survey	18	2	Required
MC1-5	Remote sensing image processing and software applications	48	3	Required
MC1-6	Remote sensing field test and verification	16	1	Required
MC1-7	Case study of remote sensing and geographic information system	18	1	Required
MC1-8	Design and practice of geographic information system	32	2	Required
MC1-9	Natural disaster remote sensing	18	1	Required
PPC	Practical course	3months	8	Required

In December 2004, approved by the Ministry of Education the Master Major "space technology application" began to be set up in Beihang University (shorten as MASTA), which introduces the training mode from the United Nations affiliated Regional Centre for Space Science and Technology Education. participants first take a nine-month course study, and then conduct a one-year thesis study under the guidance of instructors, and after successfully finish their thesis, participants will be awarded the master degree. This degree is specifically set for training participants from the Asia-Pacific region countries to increase the level of spatial technology application in these countries. After graduation, participants will has a fairly broad expertise in space science, and will be able to independently conduct projects in relevant fields. From 2006, participants in the branch of remote sensing and geographic information systems began to be approved to recruit. The branch of Remote sensing and GIS is aimed to provide professional education in using remote sensing and GIS technology to solve problems in resource management, disaster prevention& mitigation, regional planning, etc., to help training talents for countries in Asia-Pacific region and The Belt and Road. The degree education in this branch focuses on not only systematic theory study but also enough practical application training, and participants will also have chances to fully understand Chinese development in space technology, especially in satellite remote sensing technologies. After graduation, participants will have the ability to independently conduct the practical work and scientific research in this field.

Capacity Building

RCSSTEAP Website

On the basis of the Centre`s logo design and work progress, the website of RCSSTEAP has initiated, sections such as news, notice, gallery and selected video are included. Current work progress and teaching resources can be uploaded and will be pushed forward.

RCSSTEAP website address is http://RCSSTEAP.buaa.edu.cn

Website screenshot

Reconstruction of RCSSTEAP Hall

The vertical wall in the office area and image wall in the hallway was built on the basis of logo and website of RCSSTEAP. Preparations like measurement and layout by design company are started. After many discussions and modification, the Centre will adopt the design in the theme of global map, including the logo, contracting parties and partners showing on it. And the design of LED display could transmit real-time news of the Centre.

The image wall will consist of photos retrospecting the establishment, important events and activities of the Centre. At present, the design of vertical wall and image wall has been completed. Following work will be carried on later.

Plan A

Plan B

Progress of International Space Technology Applications

Announcement of UNOOSA and JAXA on Micro-satellites launch for Developing Countries

VIENNA, TOKYO, 8 September (UN Information Service) - The United Nations Office for Outer Space Affairs (UNOOSA) and the Japan Aerospace Exploration Agency (JAXA) today announced the joint initiative "Kibo CUBE" which will offer educational and research institutions from developing countries the opportunity to deploy cube satellites (CubeSats) from the International Space Station (ISS). Cube Sats are low-cost satellites using accessible, off-the-shelf technology. Their applications include projects for education, communication, disaster risk reduction and humanitarian assistance.

The Japanese Experiment Module "Kibo" - the first element of which was delivered into space by United Nations Expert on Space Applications and veteran astronaut, Takao Doi has been operating on the ISS since 2008. Kibo's unique capability permits Cube Sats to be deployed from space, through use of an airlock system and robotic arm.

The agreement announced today will enable UNOOSA and JAXA to harness Kibo's capability for the benefit of developing nations. Under international cooperation in space,countries without their own capability to launch satellites will now be able to deploy satellites based on their individual needs for the first time.

19th Training Session on Post-graduates of Sciences and Space Technologies starting to recruit

African Regional Centre for Space Science and Technology Education in French Language (CRASTE-LF)(affiliated to the United Nations),announces the opening of registration for the 9th Training Session to the Post-Graduates major in Sciences and Space Technologies (Remote Sensing and GIS & Meteorology and Global Climate Satellite) in spring this year. The master Program will be organized by Centre Régional Africain des Sciences et technologies de l'Espace en Langue Fran.aise(CRASTE-LF) affilié à l'ONU, Sciences de Rabat (FSR) and Institute Scientifique del'Université Mohammed-V (UM-V). The curriculum for the master program will enable participants to acquire the experience of teaching and research in the field of space technology application.Its primary objective is to develop the skills and knowledge in space to meet the considerable needs for technical staff in Morocco and in the African French-speaking region. The detail information of the master program is available in the website http://www.crastelf.org.ma/.

4th International Training on Micro Satellite Missions by CSSTEAP

CSSTEAP will organize the 4th International Training Course on Small Satellite Missions from November 16 to 27 in India. 20 participants from Afghanistan, India, Indonesia, Kazakhstan, Kyrgyzstan, Mongolia, Nepal,Vietnam will attend the training.

Signing Crisis Connectivity Charter at the World Humanitarian Summit Global Consultation

On October 14th at the World Humanitarian Summit Global Consultation in Geneva, satellite operators Eutelsat, Hispasat, Inmarsat, Intelsat, SES, Thuraya and Yahsat signed the Crisis Connectivity Charter in partnership with the UN Office for the Coordination of Humanitarian Affairs (OCHA) and the Emergency Telecommunications Cluster (ETC).

3rd International Training Workshop on Space Technology for Disaster Mitigation

The third International Training Workshop on Space Technology for Disaster Mitigation Organized by CAS-TWAS Centre of Excellence on Space Technology for Disaster Mitigation and co-organized by Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, will be hold in Sanya, China from November 23th to December 4th,2015. The training workshop will bring together early and mid-career scientists from developing countries in Africa, Asia and Latin America, in the hope that increase scientific knowledge of disaster mitigation and space technology. Policy makers and managers from developing countries are welcomed to apply for participating. The training will be taught in English. Since the limitation is 20 people in total, only those who are qualified can be selected as formal participants.

14th International Symposium on Equatorial Aeronomy held in Ethiopia

The International Symposium on Equatorial Aeronomy (ISEA) is prepared once every three to four years since inaugurated in 1962 in Peru. Lower atmosphere and ionosphere scientists and experts are gathered in this event to share their new findings and also to develop strategies to tackle potential issues in their field. The 14th International Symposium on Equatorial Aeronomy was held from October 19th to 23rd , 2015 ,at Amhara Regional State House of Representatives Hall and Bahir Dar University, in Ethiopia.

Column for the Cooperative Partner

Editor's notes:2015 is an important year for the Centre.The progress can not be made without the support of partners . As a saying from Romance of the Three Kingdoms goes, The one with public force is invincible; the one with public wisdom is fearless. Cooperation is the key factor to development. This time we will give a introduction of National Disaster Reduction Centre of China (NDRCC) and Shanghai Academy of Spaceflight Technology (SAST) .

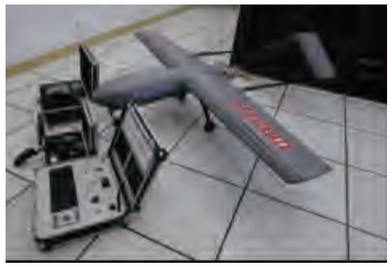
National Disaster Reduction Centre of China (NDRCC)

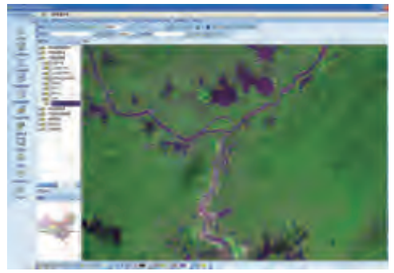
Introduction

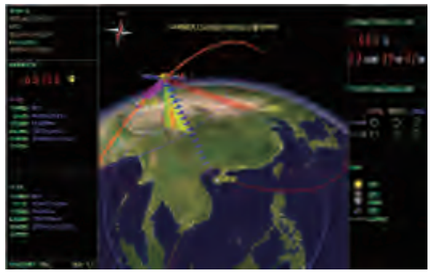
National Disaster Reduction Centre of China ,shorted for NDRCC,is one of leading scientific and technical centres to provide the support for government in addressing disaster-related issues by focusing on the whole cycle of disaster management. Through decades of development, NDRCC has built up its unique capacities by applying leading-edge technologies and other software resources to conduct the work in disaster preparedness, disaster reduction, emergency response, post-disaster rehabilitation and reconstruction.

Technical ability

On the technical front, NDRCC has been applying space technology, unmanned airborne and other advanced tools to support data management, risk assessment, emergency response and post-disaster recovery. From the scientific perspective, NDRCC has gathered abundant experiences and formed series of procedures in undertaking policy research, advocacy campaign and educational activities to help both government and public in awareness rising and capacity-building. Now NDRCC has gained sound output capacities to be provided to meet both domestic needs and needs of overseas countries. During the last decade, NDRCC has worked for the government on dealing with major nature disasters such as Wenchuan earthquake, Yushu earthquake, and helped Australia with forest fire , etc.







Shanghai Academy of Spaceflight Technology (SAST)

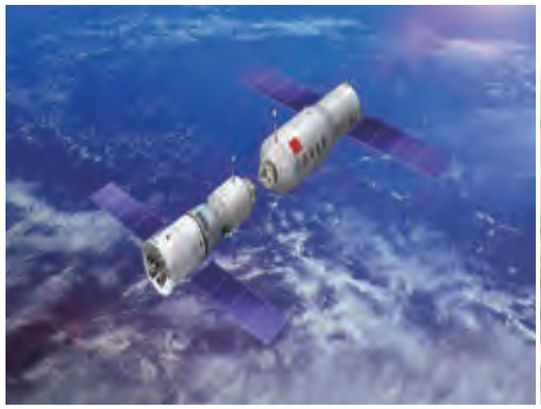
Introduction

Founded on August 1st,1961,Shanghai Academy of Spaceflight Technology(SAST) is one of the key bases of China Spaceflight industry. Taking science and technology as the lead, SAST has developed for more than 50 years. During this period, continuous efforts have been made for speeding up the technology progress, improving the development level, making greater achievements, broadening the scope of business, developing the industry and the enhancement of comprehensive capability.

Technical ability

At present ,the aerospace products include four series of tactical missiles, launch vehicles, applications satellites and manned spaceship. The scope of business on commercial products consists of automobile components, office automation equipment, electro-mechanically products, environmental protection equipment, real estate, and property management as well as import/export trade. At present, employee of SAST in total is over 20,000,among them, more than 6,000 are technical personal of different ranks including Academicians of Technology ,professors and senior engineers. Under the management of SAST, there are

12 research institutes ,20 enterprises including those engaged in manufacturing commercial products and listed company. Equipped with fine advanced equipment, SAST is fully capable of design,development, manufacture and test with various means for inspection and measurement. SAST has primarily formed a comprehensive entity with complete specialty of various categories,which combines scientific research, manufacture, technology and trade as one.Application of space technology Eight homes as a satellite used in our country, one of the main research units, successfully developed the sky, a scientific experiment satellite, Fengyun sun synchronous orbit meteorological satellite. Mainly responsible for the development and production of the two new generation of geostationary orbit meteorological satellite, the three new generation of sun synchronous orbit meteorological satellite, which played a huge role in the weather forecast, natural disasters and environmental monitoring, space experiments, resource survey and so on.



Expert Interview

Editor's notes:we add Expert Interview in the current issue. By interviewing authorities in the field of aerospace, readers are able to learn opinions and suggestions of the experts on aerospace. This time we have a dialogue with Mr. Chen Jie,Chief Engineer of Shanghai Academy of Spaceflight Technology (SAST).

Experts Introduction

Mr. Chen Jie is the Chief Engineer of (SAST), member of the council of Chinese Society of Astronautics (CSA), Vice Chairman of the Liquid rocket propulsion system committee, member of the Publications and Communication Committee of International academy of Astronautics (IAA). He owns rich experience in aerospace development strategy, space flight system demonstration and space propulsion system.

Interview Section

Interviewer:

Nowadays, countries from all over the world attach great importance to aerospace. Compared with the past, more attention has been paid to civil aerospace and aerospace sciences. Not only developed countries continued to invest resources for aerospace, developing countries also started to get involved in research. What do you think the reason behind is?

Mr. Chen :

Aerospace is an influential industry. More and more developing countries invest funds to develop space industry independently or cooperating with space powers. The reason can be summed into two points. Firstly, with the enhancement of international status, developing countries are able to make progress in high-tech fields by improving aerospace power to gain respect. Secondly, as aerospace technology applications is increasing mature, developing countries can get real benefits in satellite remote sensing, communications and navigation applications which services in the economic and social development and national security.

Interviewer:

From China's first man-made satellite, Dongfanghong-I, successfully launched in 1970, development has been made in China space industry, China has become one of space powers worldwide. What do you think are the key factors, that make China's space technology develop rapidly?

Mr. Chen:

I believe that China's space development has benefited from three aspects:

1)High attention has been paid to aerospace industry from China's top leaders. Following Chinese governments take aerospace industry as one of the key points of national strategy development. In the 1950's, under difficult conditions of both economic and industrial foundation, the development of aerospace industry has been promoted to start. China have implemented a series of important space projects which are all directly decided and high concerned by China's top leaders: China's first satellite launched into space in 1970; "two bombs and one satellite" achieved success; "the manned spaceflight engineering projects" and "the lunar exploration program" are implemented....

2)The government's Five-Year Plan promotes aerospace development. Compared with other space powers, China owns a steady development Plan in space. Under the guidance, Chinese government maintained a stable investment on the development of new aerospace technologies, major aerospace engineering, space applications and so forth.Once the development plan formulated, it is rarely changed. At present, China is a new space power. People are trying their best to enhance independent innovation capability and space technology level in the hope that China can become a real space powers that leading aerospace technology development in the next 10 years.

3)Aerospace enterprise's innovation ability and basic industrial conditions has enhanced dramatically. China aerospace development has experienced the process from imitation to independent research in early time. At present, it is in the transition phase from following development to self-innovation development. In the 21st century, Chinese aerospace innovation ability and industrial foundation have been significantly improved with the support from several resources, and talents team has been established ,laying the foundations for China aerospace development.

Interviewer:

Chinese President, Mr.Xi Jinping, puts forward a strategic concept, that is the Silk Road Economic Belt and the 21st-Century Maritime Silk Road (referred as "One Belt and one Road"). China Aerospace is advancing it step by step at home and abroad. What do you think the cooperation between China and the world in space in the future?

Mr. Chen:

Based on infrastructure interconnection between China and countries along the "One Belt and one Road" way, presented by President Xi, will make economic development and facilitate countries in trade logistics, financial investment and cultural exchanges. Under this strategy framework, space is an rather important in cooperation. Now China is able to carry out various forms of cooperation with countries along the route,such as major aerospace projects cooperation development, space technology development helped to build satellite applications system and direct access to Chinese achievements in remote sensing, communications and navigation satellites and so on. I believe that the application of space technology will greatly enhance the economic development along the route.

Interviewer:

Talent development is inseparable from the aerospace industry. As an aerospace technical talent trained abroad, what do you think is the significance of this experience ? And what does International Space Science and Technology Education mean for development of Chinese aerospace and international aerospace?

Mr. Chen:

Aerospace professionals are the prerequisite to develop aerospace industry. From my own experience, it is very helpful to obtain a professional training with a complete aerospace industry system study. By participating internationally experts lectures and seminars, multi-disciplinary expertise and the latest state of aerospace development can be followed. In international education, participants from different countries are able to achieve cultural exchanges which benefits a lot to carry out international cooperation.

Interviewer:

Do you have any suggestions to RCSSTEAP?

Mr. Chen:

RCSSTEAP is a good platform to carry out space science and technology education. Firstly, it can spread space science and technology together with experience in space development, which may cultivate a new generation of aerospace professionals. Secondly, satellite application training program and the promotion of aerospace applications make more countries or regions benefit from space technology development.

RCSSTEAP

Participants Forum

Editor's notes : With enrollment, a new group of participants starts their adventure in space technology,and step into China,becoming one of the members of Beihang University , the cradle of aerospace talents. Let's listen to their voices !

Md. Abu Noman Uddin MASTA 2015-GNSS

Early in my childhood I read a topic in my primary education level. The name of that was "The Children of China and Japan". After reading that topic I understood about Chinese culture, living standards and children's behavior, dutifulness etc. When I knew about Chinese culture there was created a strong will in my heart to visit China so that I can earn practical idea about China. It is a story of about 25 years ago, when I was student of class IV/ V.

After a long journey I reached in Beijing at 01:00 o'clock. At Beihang University I was waiting for the first morning and sleepless to see the beauty of Beijing and its peoples specially children. It became difficult to me to wait for the morning because it seemed the watch was motionless. At last the Sun raised in the sky, I saw my dreamed Beijing/China and my heart became calm. Early in the morning I saw an old man working very easily and seemed no tiredness in him which made me astonished, I thought the old man is stronger than me. After that I met some participants of several countries and discuss with them. I was pleased for their behavior. After sometimes I saw a group of children, realized their beauty and movement which remembered me about the topic that I read in my primary school, also I got practical idea and my dream has been going to be true.

On 10:00 O`clock I went to the International School building and completed my registration. It was needed to go several rooms to complete my registration but I became surprised because it didn't need more times. All participants were in a line but well disciplined. During the time of my registration I also followed the Beihang's staffs; all of them were laborious, dutiful and punctual which also surprised me. All dreams of a man never come to be true but I have come in China, I'm very happy because my dream is become as true in my life. I convey my best wishes to Beihang University as well as APSCO also that to the Chinese Government to give this chance.

Krishna Prosad Mondal MASTA2015-RS&GIS

I am a man who did not born with silver spoon. I have suffer a lot to be graduated. After graduation, I have got a chance to study China, where is have known as the Mythological country. I had obtained information about China from different books and newspapers. It is a great opportunity to compare my obtained information in real life. On September14th ,I traveled for China from my country. It was a nice pleasure trip for me for going abroad at first time. I impressed, when my flight landed in Kunming Airport. There had three hour interruption for another flight. I had seen the co-operation mentality of Chine people in airport. The only one language barrier is not any fact the comparisons of cooperative mentality. I had reached the Beijing Airport at 2:00 am. And it was a horrible for me, because did not come anyone for receiving. But the cooperative mentality people again came for me and I reached the Da Yuncun dormitory safely. During the way of airport to Beihang University, I enjoyed very much and also impressed for good communication system. Some of student helped to get a room in building 10 of the dormitory. After the academic processes, I become a student of Beihang university and I feel proud to be a part of your family. I am impressed on the activates such as punctuality, honesty of the Chinese people.

During our orientation program, the Vice Dean said "Money is not factor, you should remember that we have a limitation of power. So be careful about utilize of electricity". The most impression sentence not only the campus but also my China life. It was not only a sentence it also a real love for a nation. It is a great lesson for me.

Mohammed DJERALFIA MASTA2015-RS&GIS

China, I started to heard about this country since I was child from my father because he was a combatant in the Algerian liberation war (1954 to 1962), he always told me that China really helped us with weapons, equipment and logistics. And I am here today in China. Before coming here ,I was taught it will be a normal city, but no, it is a very huge city, a modern city with large roads, highways everywhere, big subway networks, big buildings and many huge and modern universities. The city is a mixture of traditional architecture and the European one. I had a visit before to Rotterdam in Netherlands, and I can say that Beijing is better because it is bigger and very active. Also, I really like the people here, they are very active, a hard workers and they always smile even when they don' t understand what you are saying. You should or you must know Chinese when you come to live in China because unlike the European people where you can speak English with them, here you have only Chinese, but I think learning Chinese will be a very amazing thing. For the university, in Algeria there are small and the access is restricted only for the participants, but here if we took the example of Beihang University it is very huge, it is a city, there is shops, banks and supermarkets. We can find anything we want here. Until this moment that I am writing these words I have seen only a few places of Beijing, so perhaps after a month or two I will have a

clear vision about Beijing and China.

Md.Hasanuzzaman MASTA2015- Micro-Satellite Technology

First of all I think dreams come true for me. In my childhood I always read Chinese culture, Chinese food, Chinese lifestyle, Chinese agriculture, Chinese technology and Chinese people in our text book. When I read this tropics I thought that one day I should go to China. When I came in Beihang University, Beijing, China I was excited and so happy because Beihnag University is one of the world famous Aeronautical and Astronautical University.

On First day I meet our International school dean, vice-dean and teachers. They are very good and they have good personality. International School has a lot of foreign participants of CSC (Chinese Scholarship Council) with MASTA. All of the participants of International School were very good. Their manner, attitude and combination is good. In Beihang University Campus is very nice. Our dormitory is good. University canteens food is something different for our country but good and healthy.Beihang University playground is very nice. All participants of Beihang University are very intelligent. Here I don't understand Chinese language because I don't know Chinese language. But I learn it in my class and I know it's a nice language. Chinese people are very gentle and peaceful. They are very hard working people. China is one of the most powerful country in the world. Chinese two cities are very famous in the world Beijing and Shanghai. My another dream is Great Wall visit because it's one of the greatest structure in the world. When all dreams are coming true here in Beihang University. I should learn and earn a lot of aeronautical and astronautical knowledge and work for my country.

Thanks for every person in International School and Beihang University.

RCSSTEAP

Additional words

Current issues Records the main works RCSSTEAP done from June 2015 to November 2015, which including training programs, conferences, campus activities, capacity building and so on. Besides, in order to let readers learn more about space technology applications from various perspectives through issues, based on Progress of International Space Technology Applications, Cooperative Partner and Participants' Contributions columns established, we add Experts Interview in current issues. Through this column, more and more readers can hear the sound from authorities in aerospace field about the hot topics in aerospace.

"Newsletter" as a diary which recording every footprints RCSSTEAP moved forward. It also likes a small trumpet which makes its efforts to promote the space technology application education.

"Newsletter" is connecting us. Your understanding and support have always been our motivations. And your comments and suggestions are always welcomed.

Editor

联合国附属空间科学与技术教育亚太区域中心（中国）

Regional Centre for Space Science and Technology Education in Asia and the Pacific(China)

(Affiliated to the United Nations)