Status Report on BeiDou International Exchange and Training Center

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Dec, 2015
LOCATION OF THE CENTRES

Regional Centres for Space Science and Technology Education
(affiliated to the United Nations)

Central America
Mexico (CRECETELC)

South America
Brazil (CRECETELC)

Africa
Morocco (CRASTE-LF)
Nigeria (ARCESSTE-E)

Asia
China (CRESSSTEAP)
India (CSSSTEAP)
Jordan (RIJGC)
New UN Regional Centre / ICG Information Centre

Inaugurated on November 17, 2014, Beihang University
Annul Work Plan

Action 1
1 Construction of personnel and system to facilitate the sustainable development of the Centre

Action 2
2 Organizing education and training to serve the Centre member countries and other developing countries.

Action 3
3 Capacity building of the Centre for Space Application programme

Action 4
4 Organizing Activities for Promoting Visibility of the Centre

Action 5
Publications
Education and training

Three Master/ Ph.D Degree Program 2015

Remote Sensing and GIS  GNSS  Small Satellite Technology

Enrollment

17  Recommended by RCSSTEAP
24  Recommended by APSCO
1   Recommended by Partner of RCSSTEAP

All courses are offered in English and registration has finished in Sept. 2015
Three Short Training Program 2015

- 6 days lectures
- 1.5 day technical visits
- 0.5 day participants’ presentation
- 1 day lab work
- 1 day free

- Satellite Navigation Technology and Applications (April 19-29)
- Remote Sensing and GIS technology and Applications (September 14-22)
- Space Law and Policy workshop (September 17-25)
1 Overview
2 Education and Training
3 Courseware and Tools
4 Conclusion and Recommendation
1 Overview

Inaugurated on August 24, 2012, Beihang University
1 Overview

Construction mode

• CSNO Sponsored/Supported

• Industry/Institutions Participated

• Built upon University

Implement:

Mutual benefits, Sustainable Development
1 Overview

2 Education and Training

3 Courseware and Tools

4 Conclusion and Recommendation
### 2.1 GNSS Degree Program

#### Training Procedures of Master’s Program

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<th>1&lt;sup&gt;st&lt;/sup&gt; stage: Course Study in China (9 months)</th>
<th>Module I: 2 months for fundamental courses</th>
<th>Module II: 4 months for major courses</th>
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<td>(Leading to Course Completion Certificate of BUAA)</td>
<td>Module III: 3 months for pilot project (practice)</td>
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<th>2&lt;sup&gt;nd&lt;/sup&gt; stage: Thesis Research (6-12 months)</th>
<th>I. Advanced Project</th>
<th>II. Thesis preparation and Defense</th>
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<td>(Leading to Master’s Degree in Engineering of China)</td>
<td>III. Graduation and Granting Master’s Degree of China</td>
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2.2 GNSS Courses

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<td>Principle of Global Navigation Satellite Systems</td>
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2.3 Capacity Building

Beidou Satellite Navigation System
Exhibition Hall (Located at Beihang Aerospace Museum)

GNSS Smart Classroom

Experiment equipment
2.3 Capacity Building
2.3 Capacity Building

During discussion and expr., students will improve their
- Knowledge Basis
- Thinking Ability and Brain Storm
- Communication Capability
- Scientific Spirit
2.3 Capacity Building

From PASSIVE to ACTIVE study
2.3 Capacity Building

GNSS Expriment

GNSS Signal Relay to Classroom
1 Overview
2 Education and Training
3 Courseware and Tools
4 Conclusion and Recommendation
3.1 Principle Courseware

Courseware: GNSS principle
3.2 Visualization Tools

GNSS constellation/orbit visualization,

*Link to ICG information Portal*

http://bdietc.buaa.edu.cn/sat
3.3 Signal Processing Tools

Signal Processing for GNSS

- Antenna
  - Antenna Gain
  - Antenna Pattern
  - Standing Wave Ratio
  - Anti-Jamming
- Signal Process
  - Signal Acquisition
  - Signal Tracking
  - Signal Decoding
  - Filter Algorithm
- Signal Analysis
  - Time Domain
  - Frequency Domain
  - Eye Diagram
  - Consistency Analysis
- Application
  - GNSS Application
  - GNSS IC Chip
  - GNSS Product

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3.3 Signal Processing Tools

Software Receiver for GNSS
3.3 Signal Processing Tools

GNSS Satellite Coverage
3.3 Signal Processing Tools

Satellite Orbit and Signal Modulation
1 Overview
2 Education and Training
3 Courseware and Tools
4 Conclusion and Recommendation
4.1 Education/Training Program in 2016

**GNSS Degree Program in 2016:**
GNSS, Remote Sensing and GIS, Space Law and Policy

**Training Program in 2016:**
- GNSS technology and applications
- Micro Satellite technology and applications
- Remote Sensing and GIS applications

http://bdietc.buaa.edu.cn and http://rcssteaap.buaa.edu.cn
4.2 Conclusion and Recommendations

More cooperation in GNSS Education (e.g. textbooks/teaching materials, faculty/students exchange) among ICG member states and UN Regional Centres is needed to satisfy the increasing demands in the use of space technology especially for developing countries.

New ICT technologies (e.g. online education/MOOCs) should pay much more attention nowadays, as it has been changing the way of education and training and also it can reduce education cost and benefit much more people.
Thank you for your attention

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