

## Standardization of Remote Sensing Technology

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# Outline



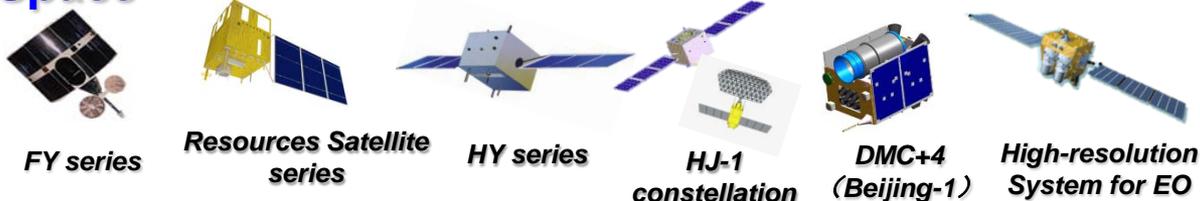
- 1 Background of establishment SAC/TC 327**
- 2 Major Progress of SAC/TC 327**
- 3 International Situation in Standardization of RS**
- 4 Suggestions for Standardization of RS**





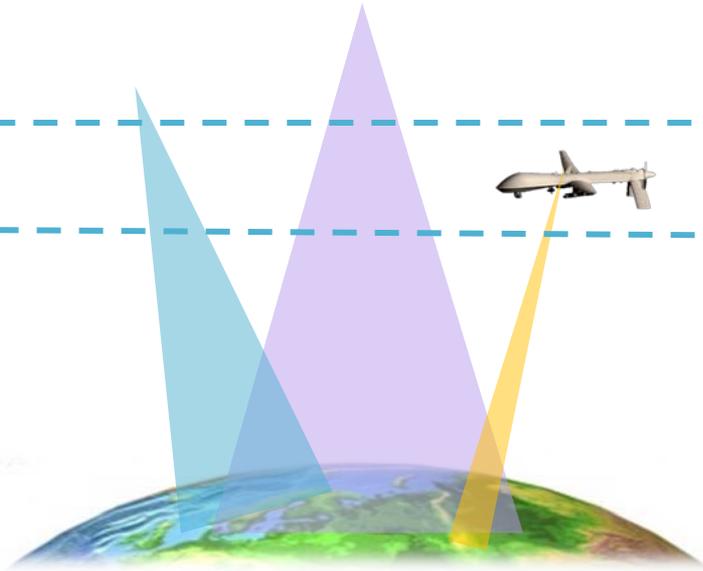
## Earth Observation System in China

### Space



### Near-space

### Airborne



### Standards

## Application

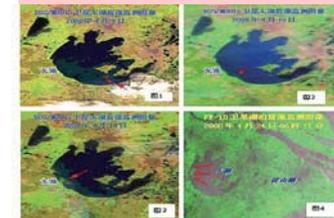
### Hazard



### Resource survey



### Environment



### Surveying & mapping



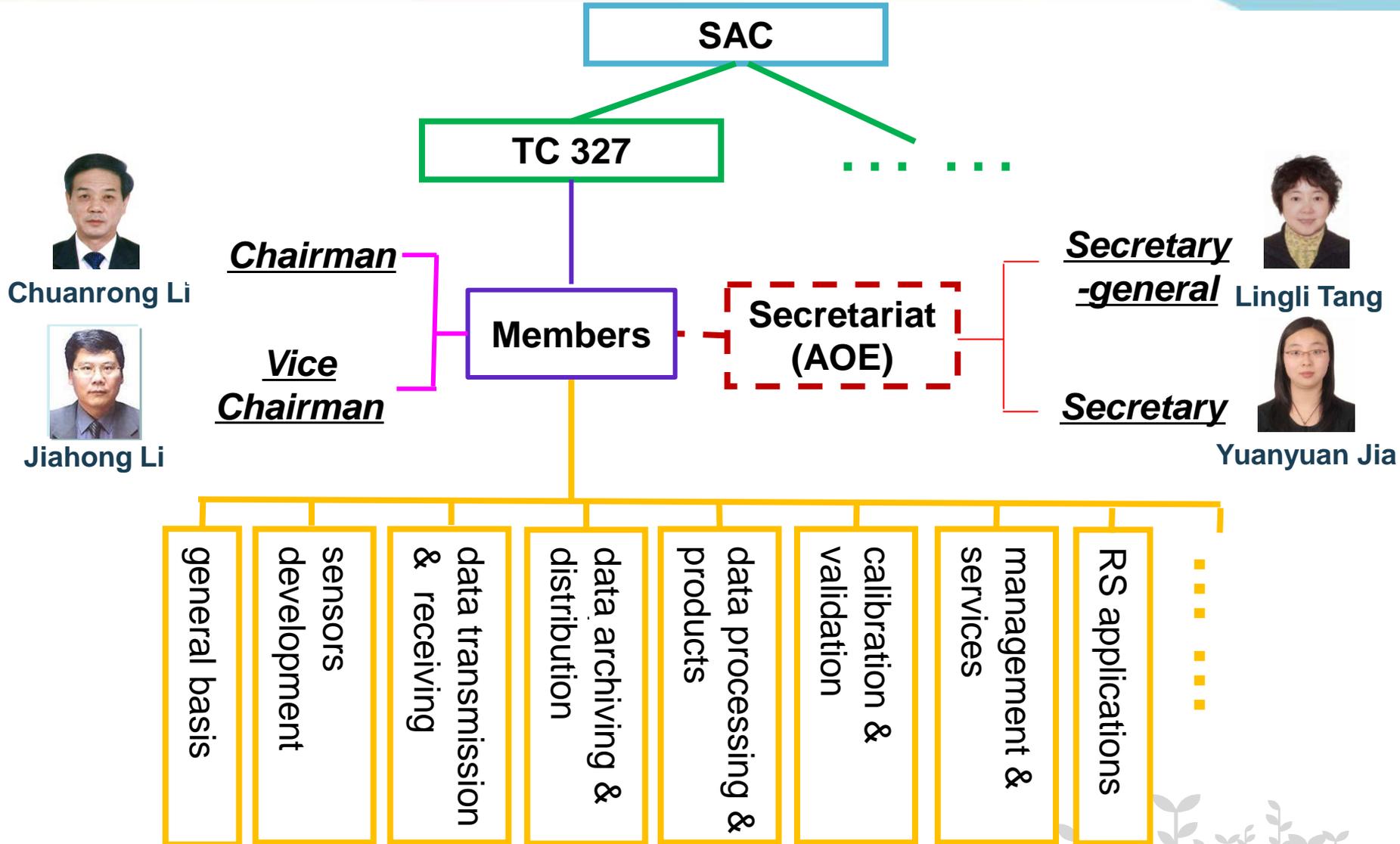


### **Standardization will:**

- **Promote knowledge and technology on Earth observation to be put into practice and on the market**
- **Help disseminate and implement innovative knowledge of Earth observation**
- **Strengthen and enhance the global competitiveness**









### (1) Development of national standards on remote sensing

- 5 to be published
- more than 10 in review
- more than 20 in planning

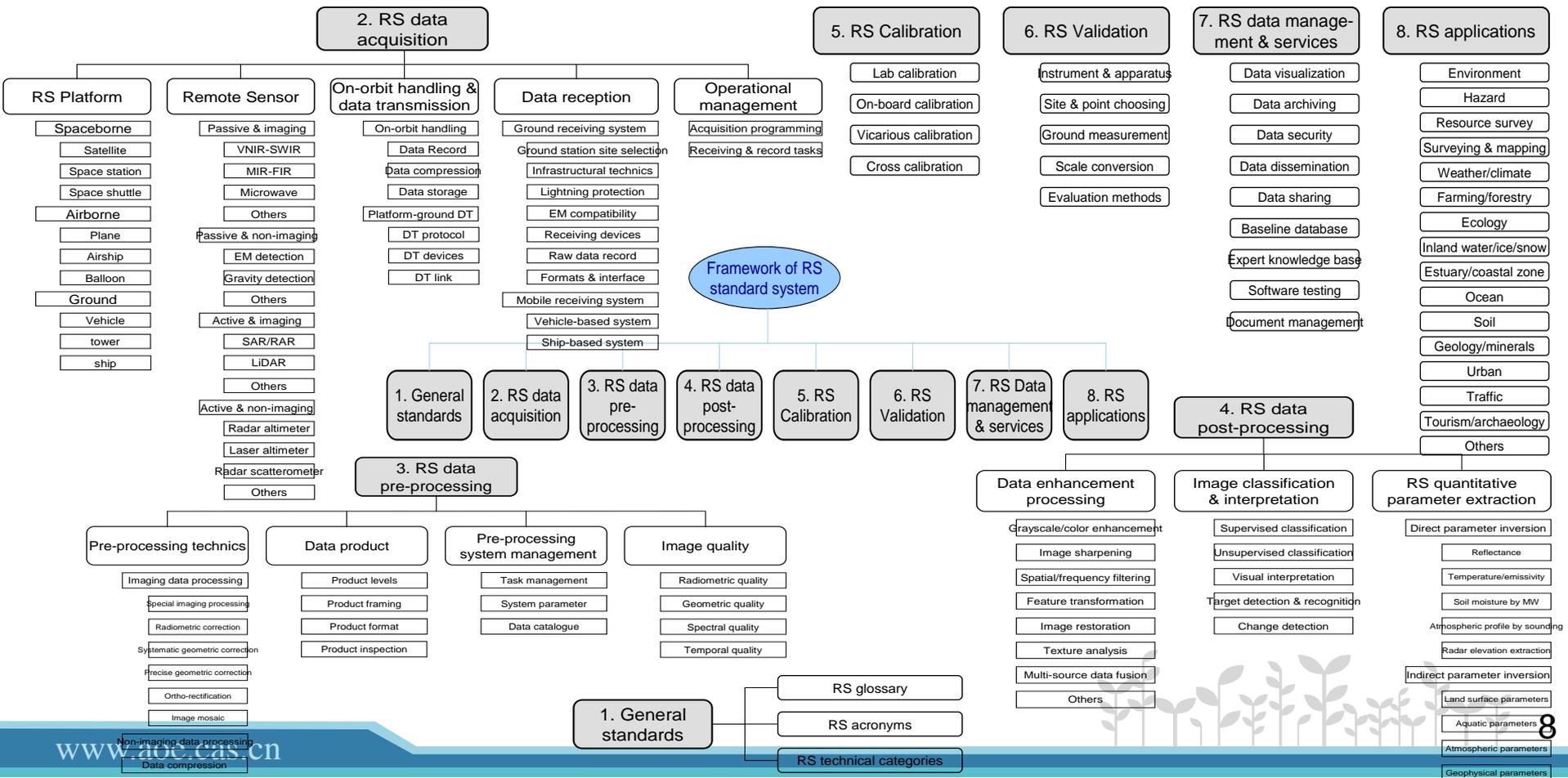
#### Standards to be published

No.	Title
1	Test methods of space-borne multi-spectral remote sensing camera with wide field of view
2	Interface for remote sensing satellite raw data record and interchange format
3	Specifications for vegetation index product from satellite remote sensing
4	Technical rules for producing 3D digital products in scale of 1:10 000 1:50 000 based on airborne InSAR
5	Spectral calibration technology in laboratory for hyperspectral sensor



## (2) Remote Sensing Standards System

- Preliminary framework has been sketched
- List of standards system is still under construction.





## (3) Interaction mechanism

- Set up a mutual promotion mechanism between excellent project outputs and national standard development through cooperation with the National Remote Sensing Center of China (NRSCC).
- Carry out the registration and review of RS standards produced from National High-tech R&D Program (863 Program).



Workshop on RS Standardization



Review conference of Standards

863 计划地球观测与导航技术领域  
项目课题遥感技术标准与规范登记表

课题名称:			
所属项目名称:			
标准名称: (中文):		标准名称: (英文):	
成果形式:	请选择:	标准类别:	请选择:
起草单位:			
主要起草人:			
起始时间:		完成时间:	
目的、意义:			
主要范围和技术内容:			
阶段、 审核:	研究阶段	(填写标准研究进度安排及各阶段成果):	
	立项阶段	完成建议书及草案:	<input type="checkbox"/> 是 <input type="checkbox"/> 否 通过专业标准技术委员会审议:
	立项状态:	<input type="checkbox"/> 已立项 (请在此填写计划编号):	
	起草阶段	完成征求意见稿:	<input type="checkbox"/> 是 <input type="checkbox"/> 否
	征求意见	通过领域专家审议及公开征求意见:	<input type="checkbox"/> 是 <input type="checkbox"/> 否 完成送审稿:
发布	审批并发布:	<input type="checkbox"/> 是 <input type="checkbox"/> 否	标准编号及名称:

\*“成果形式”如选择项目内部标准,则“阶段审核”中只填写研究阶段。

Registration form



## (4) Capacity building

### ● Website



<http://www.rsstandard.cn>

### Main modules:

- News & Information
- Reports & achievement
- Standard development & revision
- Knowledge of standardization
- RS standards query

English version



## (4) Capacity building

- Education and training



Organization of training



Participate in training





## ISO

- the largest developer of International Standards;
- more than 19,500 International Standards covering almost all aspects of technology and business.

**International  
Organization for  
Standardization**

## IEC

- founded in 1906;
- the leading organization for International Standards for all electrical, electronic and related technologies.

**International  
Electrotechnical  
Commission**

## ITU

- the United Nations specialized agency for information and communication technologies;
- allocate global radio spectrum and satellite orbits, develop the technical standards.

**International  
Telecommunication  
Union**

**Main organizations**



No TC dedicated to RS standardization in ISO.

TC related with RS, include:

Title	Scope
ISO/TC 20 <i>Aircraft &amp; space vehicles</i>	materials, components and equipment for construction and operation of aircraft and space vehicles
ISO/TC 42 <i>Photography</i>	still picture imaging including chemical and electronic
ISO/TC 130 <i>Graphic technology</i>	terminology, test methods and specifications in the field of printing and graphic technology from the original provided to finished products
ISO/TC 146 <i>Air quality</i>	special application fields
ISO/TC 147 <i>Water quality</i>	
ISO/TC 190 <i>Soil quality</i>	
ISO/TC 172 <i>Optics &amp; photonics</i>	systems, devices, instruments, ophthalmic optics, optical & photonic components, as well as materials.
ISO/TC 211 <i>Geographic information/Geomatics</i>	geographic information, methods, tools and services for data management, acquiring, processing, analyzing, accessing, presenting and transferring.







## ➤ WG 6: Imagery

### Published standards/specifications

- ISO/TR 19120:2001 Geographic information - Functional standards
- ISO 19101-2:2008 Geographic information - Preference model - Part 2: Imagery
- ISO 19115-2:2009 Geographic information - Metadata - Part 2: Extensions for imagery and gridded data
- ISO/TS 19129:2009 Geographic information - Imagery, gridded and coverage data framework
- ISO/TS 19130:2010 Geographic information - Imagery sensor models for geopositioning
- ISO/TS 19139-2:2012 Geographic information - Metadata - XML Schema Implementation - Part 2 : Extensions for imagery and gridded data

### Under preparation

- WI 19130-2 Geographic information - Imagery sensor models for geopositioning - Part 2: SAR/InSAR, Lidar, and Sonar
- WI 19159-1 Geographic information - Calibration and validation of remote sensing imagery sensors - Part 1: Optical sensors
- WI 19163 Geographic information - Content components and encoding rules for imagery and gridded data



- based on the background of geographic information
- lack of RS technical and theoretical support
- unable to support the standardization of the entire field of RS technology.





Title
ISO/TC 20 <i>Aircraft &amp; space vehicles</i>
ISO/TC 42 <i>Photography</i>
ISO/TC 130 <i>Graphic technology</i>
ISO/TC 146 <i>Air quality</i>
ISO/TC 147 <i>Water quality</i>
ISO/TC 190 <i>Soil quality</i>
ISO/TC 172 <i>Optics &amp; photonics</i>
ISO/TC 211 <i>Geographic information/Geomatics</i>



- ◆ The work scope of existing TC can not cover the whole remote sensing.
- ◆ Lack of standards:
  - from signal to data, including acquiring, receiving, archiving, pre-processing, etc.
  - from data to product, such as information extraction, calibration & validation.
  - from scientific research to market, for instance, industrial applications, management & service, etc..



A new ISO/TC be required to support the development of remote sensing.





### New ISO/TC: Remote Sensing

#### Scope

- Standardization in the field of RS technology, particularly EO data quality assurance which will include terminology, methods, instruments and systems for the sensor calibration & performance assessment, data processing & quality evaluation, product validation, and data management & services.





### WG 1: Imaging quality assessment

- Imaging quality assessment - optical sensor – Part 1: radiometric quality
- Imaging quality assessment - optical sensor – Part 2: geometric quality
- Imaging quality assessment - optical sensor – Part 3: spectral quality

### WG 2: Data evaluation & validation

- Data quality evaluation and its rating scale for optical RS
- Guidelines for validation of RS data & product

### WG 3: Cal/Val data acquiring & management

- Radiometric reference targets for post-launch Cal/Val
- Data record requirements on land surface parameters for Cal/Val
- Requirements on spectrum measurement for Cal/Val
- Requirements on location and equipment of radiometric calibration site



## Part IV: Suggestions for Standardization of RS



- ❑ We are in the internal process to provide a proposal to ISO to establish a new ISO/TC as mentioned above through SAC, the representation of China in ISO.
- ❑ We really hope to have support from all of you.
- ❑ Any comments regarding to the issue are very welcome.





*Thank you*

