高分遥感应用经验与中阿合作建议

Application Experience of High-resolution Remote Sensing & Suggestion for Cooperation

宁夏遥感测绘勘查院（高分宁夏中心）

Ningxia Institute of Remote Sensing, Surveying & Mapping

(High-Resolution Earth Observation System Center，NingXia)

2017. 9

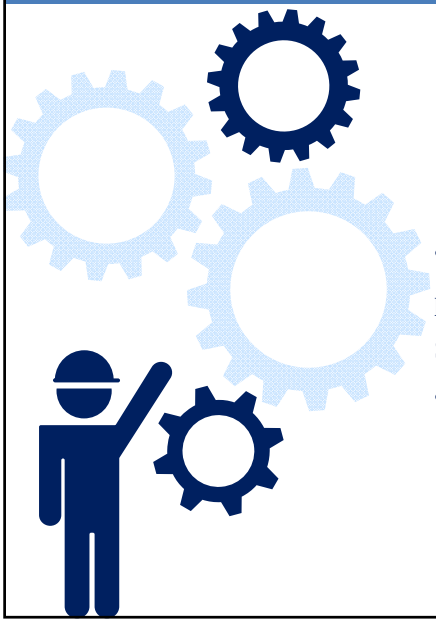
目录 / CONTENTS

PART 01

高分专项介绍

Introduction to the High-resolution Projects

高分专项介绍 High-resolution Projects Introduction



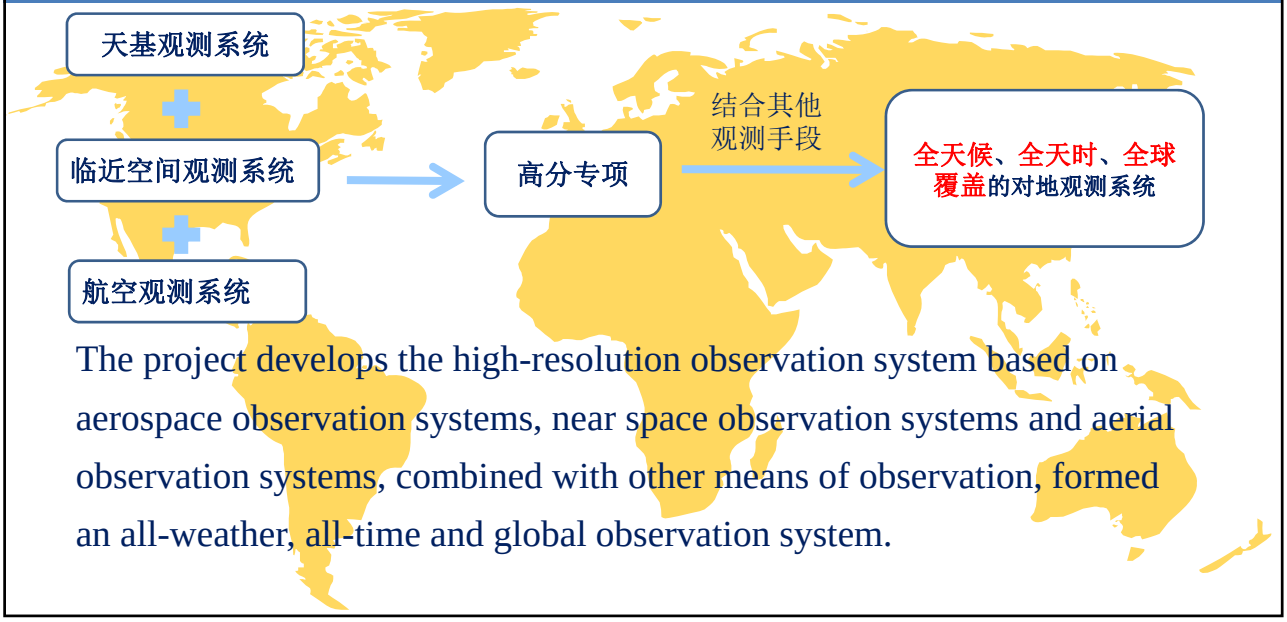
高分辨率对地观测系统重大专项

（简称“高分专项”）

- The High-resolution Earth Observation Systems Projects is one of the 16 major projects in “National Guideline on Medium- and Long-Term Program for Science and Technology Development （2006-2020）”
- A major component of the technology development of China.

我国科技发展的重中之重!

高分专项介绍 Introduction of High-resolution Project

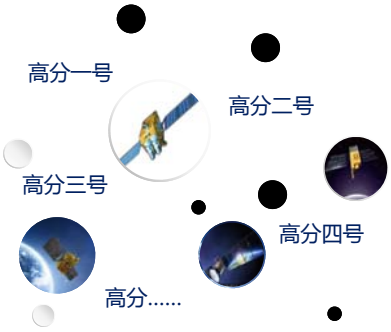


The project develops the high-resolution observation system based on aerospace observation systems, near space observation systems and aerial observation systems, combined with other means of observation, formed an all-weather, all-time and global observation system.

高分专项介绍 High-resolution Projects Introduction

高分系列卫星

9颗星+其他观测平台 ⟶ 2020年前发射并投入使用



覆盖从全色、多光谱到高光谱，从光学到雷达等多种类型，构成一个具有高空间、高时间和高光谱分辨率的对地观测系统。

• High- Resolution including at least 9 high-resolution satellites and other observation platforms, numbered as “GF-1” to “GF-9” . They will all be launched before 2020 and put into use.

• “GF” Series Satellites range from panchromatic, multispectral hyper-spectral to optical radar, constitute an observation system with high spatial resolution, time resolution and spectral resolution.

高分专项介绍 High-resolution Projects Introduction

高分专项卫星特征参数(Satellite Specifications)		
发射时间 (Launch Time)	卫星名称 (Satellite)	传感器 (Sensor)
2013. 4. 26	GF-1	2m全色/8m多光谱/16m宽幅多光谱 （Panchromatic 2m/Multispectral 8m/Wide spectrum 16m）
2014. 8. 19	GF-2	1m全色/4m多光谱 （Panchromatic 1m/Multispectral 4m）
2016. 8. 10	GF-3	1mC-SAR合成孔径雷达 （Synthetic aperture radar 1mC-SAR ）
2015. 12. 29	GF-4	50m地球同步轨道凝视相机 （Earth synchronous orbit camera 50m）
2017	GF-5	可见短波红外高光谱相机/全谱段光谱成像仪 (Visible short wave infrared hyperspectral camera / Full spectrum spectral imager)
2018	GF-6	2m全色/8m多光谱/16m宽幅多光谱 （Panchromatic 2m/Multispectral 8m/Wide spectrum 16m）
2018	GF-7	高空间立体测绘 （High Spatial Stereo Mapping）
2015. 6. 26	GF-8	光学遥感卫星 （Optical remote sensing satellite）
2015. 9. 14	GF-9	光学遥感卫星，地面像元分辨率可达亚米级 (Optical remote sensing satellite, the ground pixel up to sub-meter)

高分一高卫星介绍（GF-1） High-resolution Introduction -GF-1

我国高分专项的第一颗卫星，设计寿命5年至8年。

拥有2米全色分辨率/8米多光谱分辨率相机、70公里的观测幅宽，重访周期4天，覆盖周期41天。

拥有16米分辨率多光谱相机、800公里的观测幅宽，覆盖周期4天。

“GF-1” Satellite is the first High-resolution satellite in our country, design life is 5 years to 8 years. Has 2 meters Panchromatic/8 meters Multispectral spectral resolution camera, 70 km width, Revisit period 4 days, 41 days covered cycle. Has 16 meters Multispectral spectral resolution camera, 800 km width, 4 days covered cycle.

高分二高卫星介绍（GF-2） High-resolution Introduction -GF-2

迄今为止我国空间分辨率最高的遥感卫星。

拥有1米分辨率全色/4米分辨率多光谱相机、45公里的观测幅宽，重访周期5天，覆盖周期69天。

实现了亚米级空间分辨率、多光谱综合光学遥感数据的获取。

“GF-2” is the highest spatial resolution remote sensing satellite in China to date. Has 1 meters Panchromatic/4 meters Multispectral spectral resolution camera, 45 km width, Revisit period 5 days, 69 days covered cycle. It is put into use to achieve a sub-meter spatial resolution, multi spectral acquisition integrated optical remote sensing data.

高分三高卫星介绍（GF-3） High-resolution Introduction -GF-3

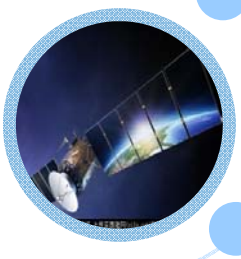
我国首颗分辨率达到1米的C频段多极化合成孔径雷达(SAR)卫星，高分专项“天眼工程”中唯一一颗“雷达星”。

全天时、全天候的成像能力

能为海洋环境监测与权益维护、灾害监测与评估、水利设施监测与水资源评价管理等业务提供全新技术手段。

“GF-3” is China's first 1 meter resolution with C band synthetic aperture radar (SAR) satellite, and it also the special high "eye" project only a "radar satellite“. The satellite has a full - day and all-weather imaging capability. It can be imaged at any time, whether it is day or night, clear sky or thunderstorm or cloudy. And can provide marine environmental monitoring and rights and interests maintenance, disaster monitoring and evaluation, monitoring and evaluation of water conservancy facilities, water resources evaluation management, meteorological research and other technical means of business.

高分四高卫星介绍（GF-4） High-resolution Introduction -GF-4



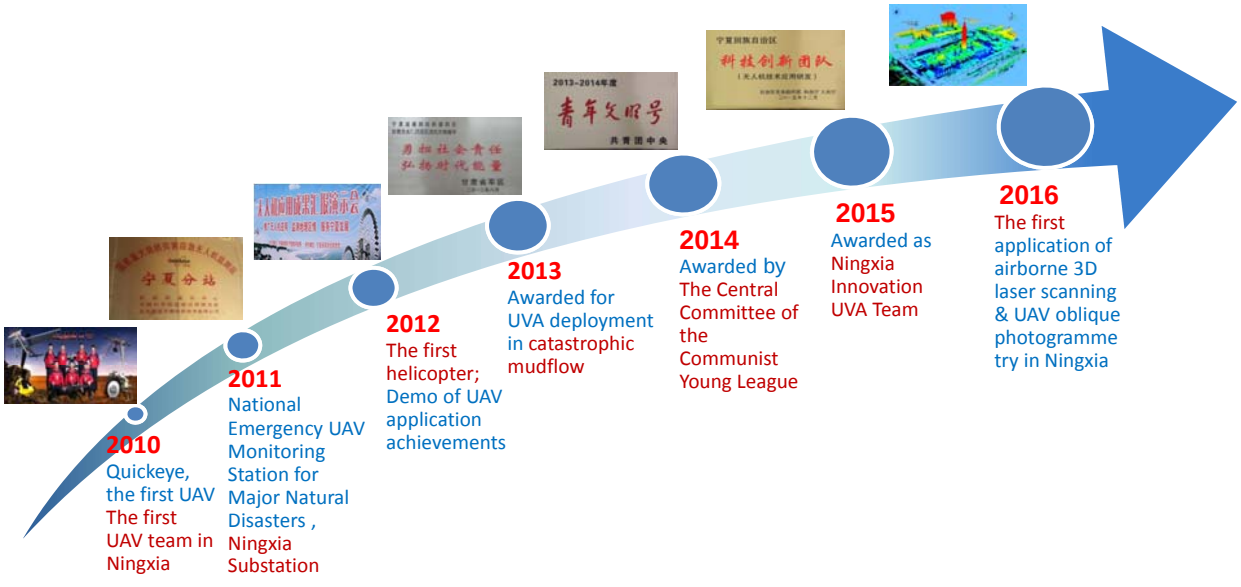
我国第一颗地球同步轨道遥感卫星，设计寿命8年，通过指向控制，实现对中国及周边地区的观测。

可见光50米/中波红外400米分辨率、大于400公里幅宽凝视相机，面阵凝视方式成像。

可见光、多光谱和红外成像能力，可见光、多光谱分辨率优于50m，红外谱段分辨率优于400m

"GF-4" is the first geostationary orbit remote sensing satellite in China. It is equipped with a staring camera which has a visible light of 50 meters / medium wave and an infrared resolution of 400 meters, and the width is greater than 400 kilometers. The imaging method with the array staring mode has the ability of visible light, multi spectrum and infrared imaging. Design life of 8 years, through directional control, to achieve the observation of China and its surrounding areas.

无人机创新团队介绍 Innovation UVA Team Introduction



无人机创新团队介绍 Innovation UVA Team Introduction

Model: fixed-wing

Quickeye

Quickeye III

3D stunt

Training UAV

无人机创新团队介绍 Innovation UVA Team Introduction

Model: multi-rotor

S1000

Inspire 1

Phantom

无人机创新团队介绍 Innovation UVA Team Introduction

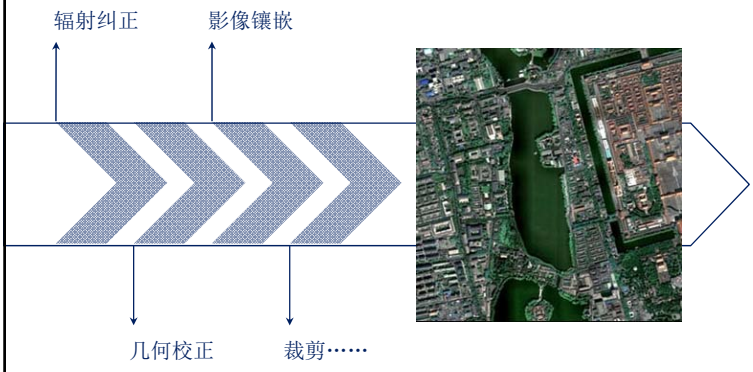
Model: helicopter

25-B

Faccon 190

SL-520

遥感数据处理 Data Processing



In order to meet the demand of making comprehensive analysis and mapping of remote sensing image, original images need radiation correction, geometric correction, image mosaic and cropping and a series of standardized processes, so as to improve the quality of image data and utilization efficiency.

遥感应用工作流程 Workflow of Remote Sensing Application

数据获取

Data Acquisition

数据存储

Data Storage

数据处理

Data Processing

正射影像

Ortho Image

野外踏勘

Field Reconnaissance

遥感解译

Remote Sensing Interpretation

野外验证

Field Verification

成果输出

Result Output

遥感数据产品分级 High-resolution Classification

分析评价信息产品

在专题信息产品基础上，通过地理信息空间分析，生产面向行业、区域、公众服务的分析评价信息产品。

决策咨询报告

在分析评价信息产品基础上，编制决策咨询报告。

几何精校正影像

经过几何校和辐射精校正的光学和SAR图像及融合产品。

专题信息产品

以遥感影像数据为基础，通过遥感解译、专业调查与监测，提取各行业专题数据，生产面向行业、区域、公众服务的专题信息产品。

High-resolution data (1A Grade) after receiving, correction, enhancement and normal shooting and other series of processing to produce primary products (3 Grade). Through remote sensing interpretation, professional investigation and monitoring, production oriented industries, regions, the public service of thematic information products (Grade 4 -7). Such as image maps, thematic elements, thematic maps and other products, on the basis of this, the formation of policy recommendations, the advisory report (8 Grade).

高分应用推广 High-resolution Application & Promotion

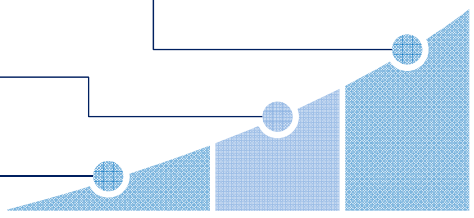
卫星遥感应用作为空间信息产业的重要内容，属战略性新兴产业，采用**“三步走”战略**

产业化促进

区域推广

截止2015年底，已在全国27个省（自治区、直辖市）建设或批复建设省级高分数据与应用中心。

行业示范



Satellite remote sensing application as an important part of the spatial information industry, is a strategic emerging industries. High-resolution application of the promotion of the industry demonstration, regional promotion and industrial promotion of the three step strategy. In the region to promote the application, by the end of 2015, has been in the country 27 provinces (autonomous regions and municipalities) construction or approval of the construction of provincial High-resolution data and Application Center.

高分应用推广 High-resolution Application & Promotion

独立创新思维

测绘领域

环境治理

农作物估产

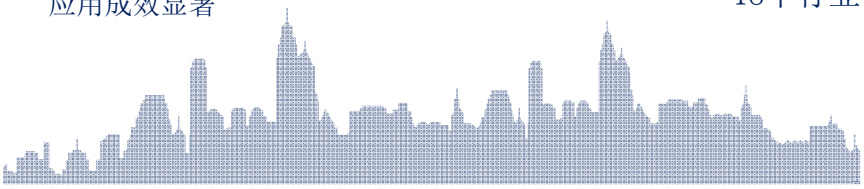
林业调查

国土资源调查

应急监测等工作提供服务支撑

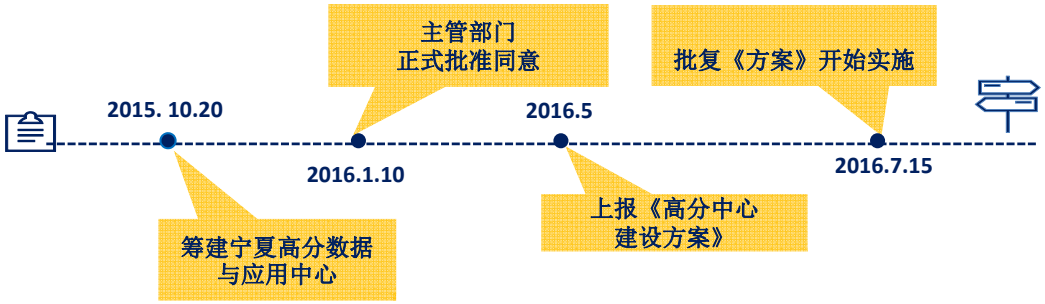
18个行业领域…

应用成效显著



Since the implementation of the project, high resolution satellite data application in surveying and mapping, land, environment, agriculture and forestry and other 18 industries have achieved remarkable results, providing support for the land resources survey, crop yield estimation, environmental management and emergency monitoring work.

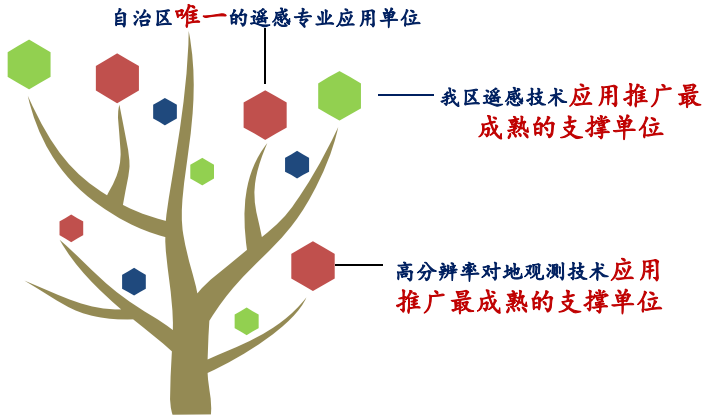
高分宁夏中心介绍 High-resolution Earth Observation Center .NX



To promote High-resolution Projects regional demonstration application, National reply of Ningxia data and application center for High-resolution Earth Observation System (abbreviation as the High-resolution Earth Observation Center .NX).

Ningxia Institute of Remote Sensing, Survey & Mapping as a technical support unit, bear the High-resolution earth observation system. Ningxia construction and operation.

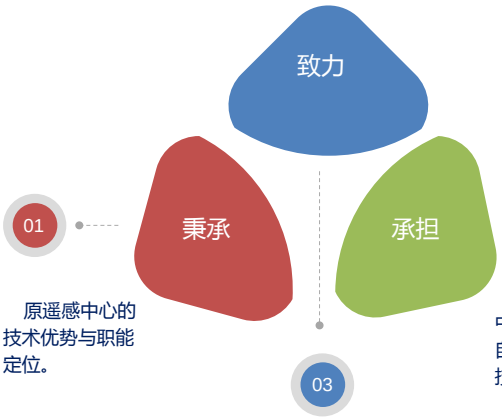
技术依托单位 Technical Support Unit



宁夏遥感测绘勘查院—
隶属于自治区地质局的全额公益性事业单位

Ningxia Institute of Remote Sensing, Survey & Mapping is part of the Geological Bureau of Ningxia Hui Autonomous Region of the full benefit of public institutions. Is the only remote sensing professional applications in the autonomous region. It is the most mature supporting unit for the application of Remote Sensing Technology (including high resolution earth observation technology).

技术依托单位 Technical Support Unit



原遥感中心的技术优势与职能定位。

国土资源部、科技部、中国地调局等省部级，以及自治区发改委、国土厅、科技厅等五十余项。

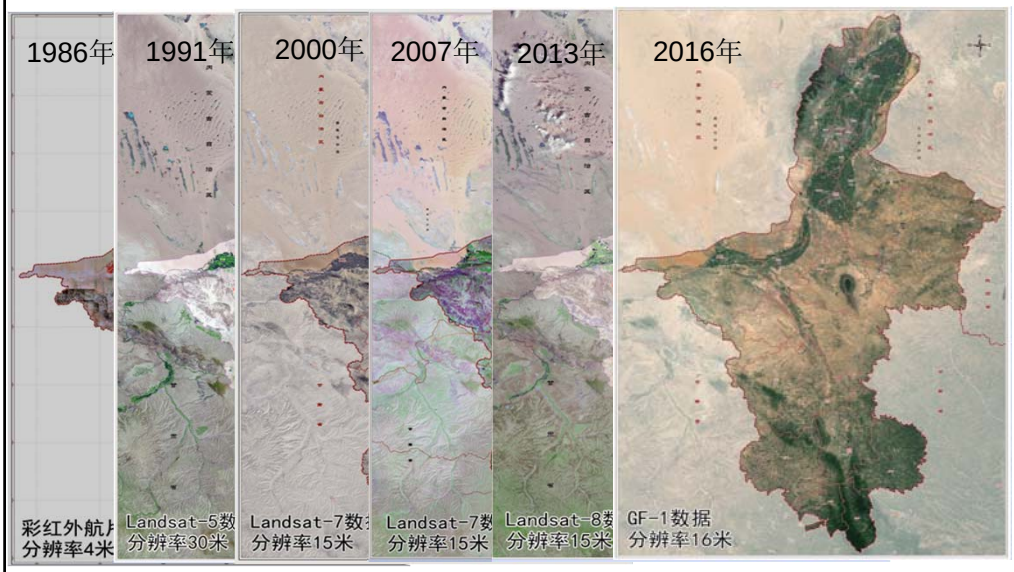
自治区国土、农林、水利、生态、城建规划等各行业提供专业技术支撑与服务。

Our company is committed to the autonomous land, agriculture, forestry, water conservancy, ecology, urban construction planning and other industries to provide professional technical support and services. In recent years, has undertaken to complete the Ministry of land and resources, the Ministry of science and technology, Chinese Geological Survey Bureau and other provincial and autonomous region development and Reform Commission, national land agency, the office of science and technology, the large and medium-sized survey, application and research more than fifty projects, made a series of excellent application achievements.

技术依托单位 Technical Support Unit

Award Certificate

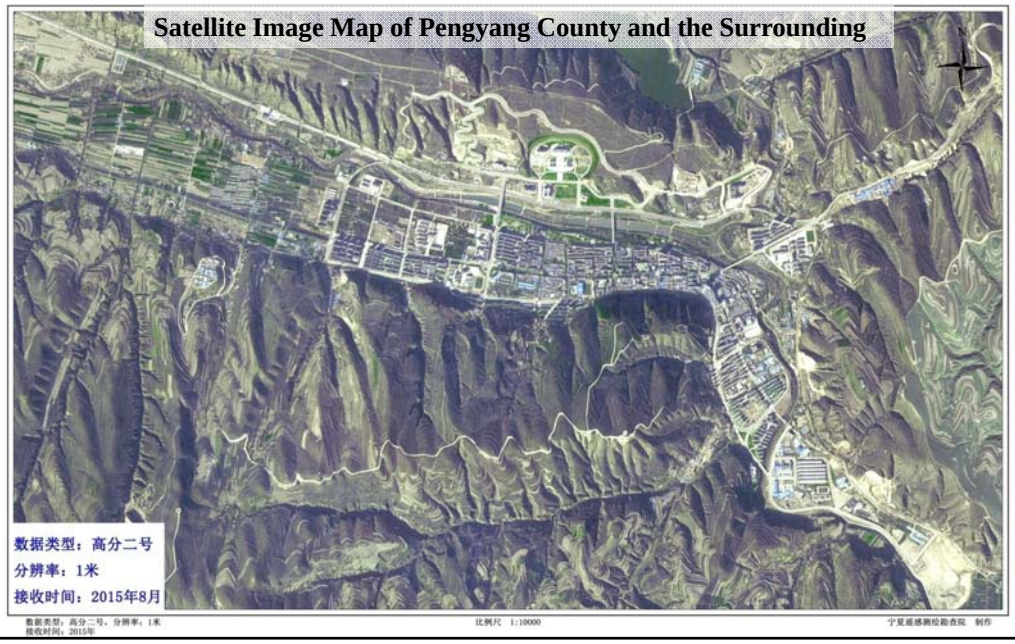
宁夏系列遥感影像图 A Series of RS Maps



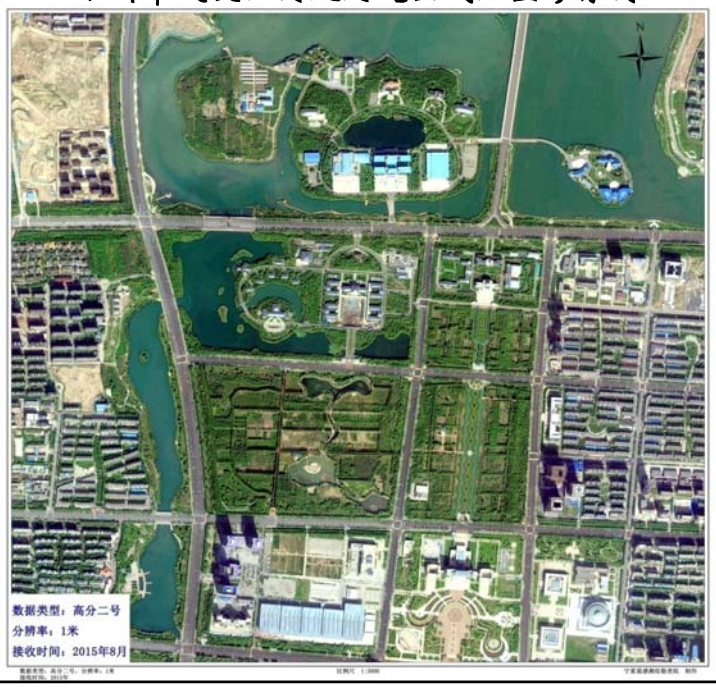
A series of Satellite Image Maps (1986-2016) of Ningxia Hui Autonomous Region

银川市城区卫星影像图

Satellite Image Map of Central Business District. Yuehai Bay. in Yinchuan



Satellite Image Map of Phoenix Park and the Surrounding. Yinchuan



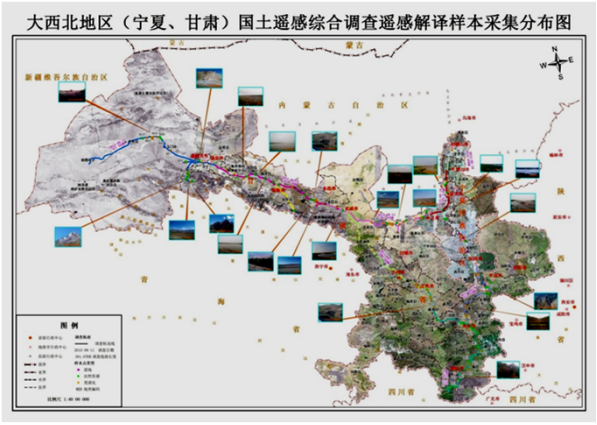
PART 02

示范应用经验

Applications & Experience

资源环境领域 Resource Environment

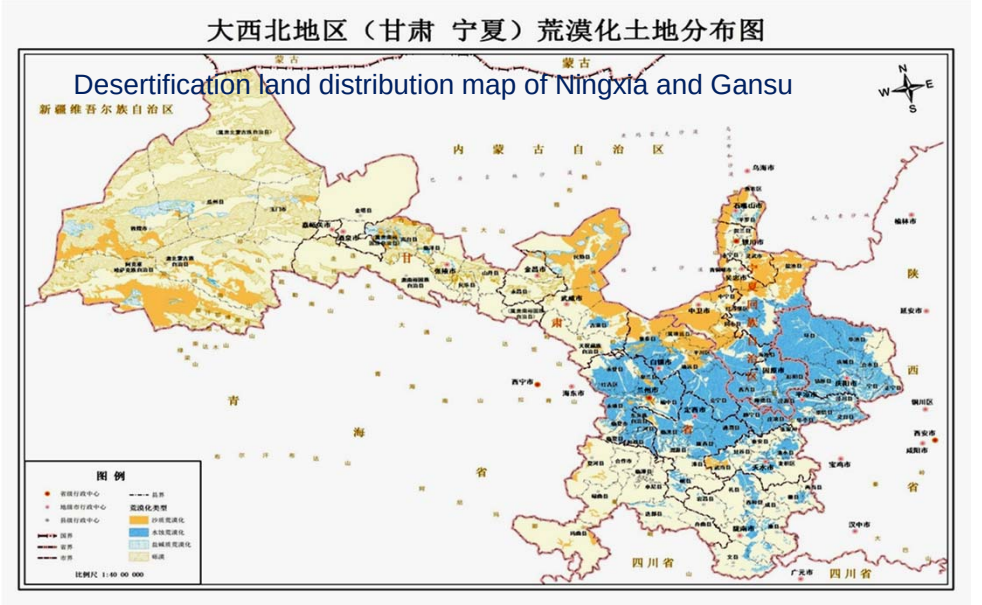
国土资源遥感综合调查 (Remote sensing integrated survey of Land and resources)



以高分辨率卫星遥感数据为基础，开展甘肃、宁夏两省区林地、草地、地表水、湿地和荒漠化等自然资源与生态环境遥感解译，编制系列成果图件及综合分析与评价报告，为国土空间管护提供科学依据。

Based on High-resolution satellite image, to carry out forest, grassland, wetland and surface water, desertification and other natural resources and ecological environment remote sensing interpretation in Gansu, Ningxia two provinces. Compilation series maps and comprehensive analysis and evaluation report, and provide scientific basis for the management and protection of land and space.

资源环境领域 Resource Environment



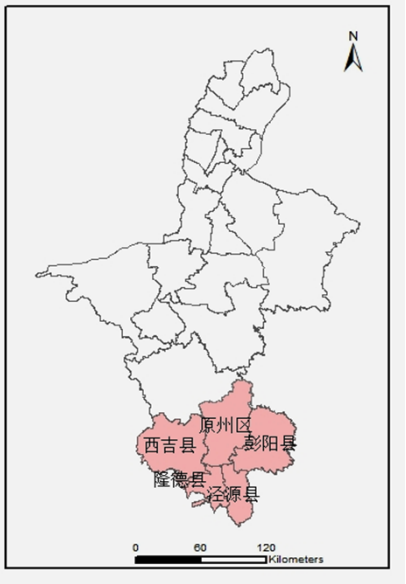
精准扶贫（To take targeted measures in poverty alleviation）

宁夏南部贫困地区农业土地资源精细化调查

Delicacy Investigation of Agricultural land resources in Ningxia South

宁夏是西部地区、民族地区、欠发达省区。固原市位于宁夏南部地区，现有贫困人口27.7万人，是自治区脱贫攻坚的主战场。固原市属黄土丘陵区，自然条件恶劣。是国家14个集中连片特困地区之一 。

Ningxia is the western region of China, ethnic minority areas, less developed provinces. Guyuan is located in the south of Ningxia Province, is a loess hilly areas, poor natural conditions, the existing poor population of 277 thousand people, is the main battlefield of poverty.



宁夏南部贫困地区农业土地资源精细化调查

Delicacy Investigation of Agricultural land resources in Ningxia Southern Area

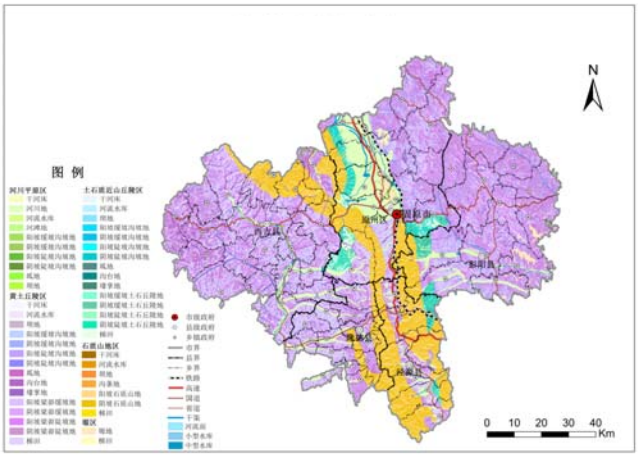
利用高分辨率遥感数据、3S结合技术，开展农业资源的类型、数量、质量及其空间分布的调查，建立农业土地资源精细化管理信息数据库，进行农业土地资源适宜性评价。为宁夏的精细扶贫战略、区域经济和生态协调发展规划提供决策依据。

Using High-resolution remote sensing data, 3S technology, to investigate the type, quantity, quality and spatial distribution of agricultural resources. The precision management information database of agricultural land resources was established, and the suitability evaluation of agricultural land resources was carried out.

宁夏南部贫困地区农业土地资源精细化调查

固原市高分卫星影像图

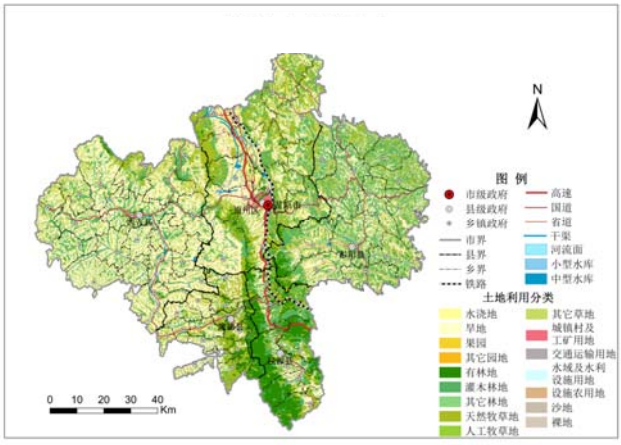
High-resolution Satellite Image Map of Guyuan



固原市坡度分级图

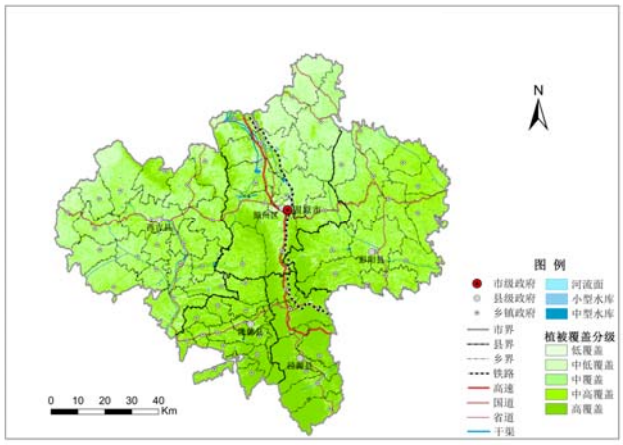
Slope Classification Map of Guyuan

宁夏南部贫困地区农业土地资源精细化调查



固原市土地利用图

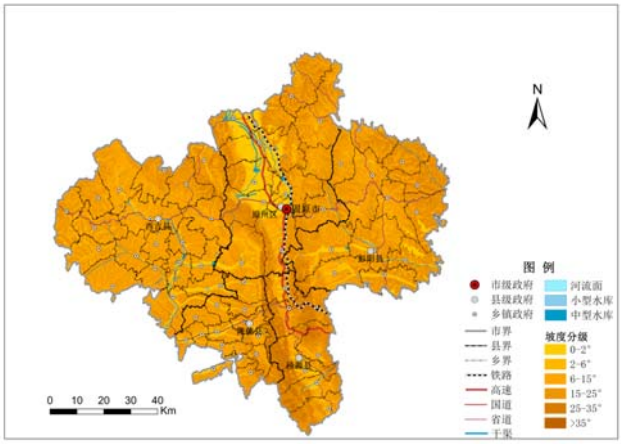
Land-use Map of Guyuan



固原市植被覆盖度图

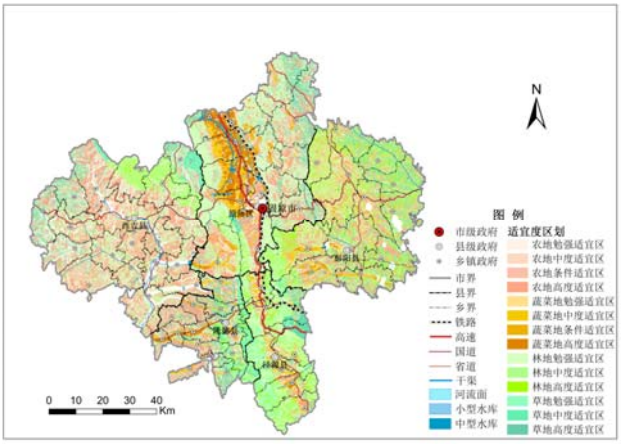
Vegetation Coverage Map of Guyuan

宁夏南部贫困地区农业土地资源精细化调查



固原市坡度图

Slope Map of Guyuan



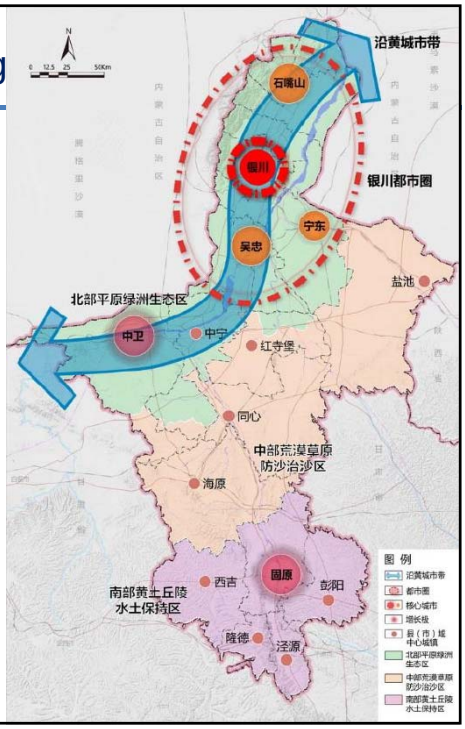
固原市农林草适宜度区划图

Agriculture and Forestry Grass Suitability Zoning Map of Guyuan

高分典型应用示范—空间规划(Spatial Planning

宁夏空间规划（多规合一）改革试点实施效果动态监测和评估

Space planning implementation effect dynamic monitoring and evaluation **in Ningxia**

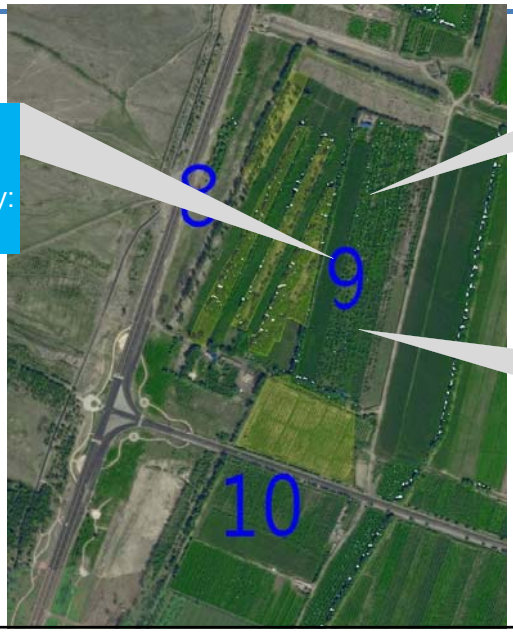


高分典型应用示范—空间规划(Spatial Planning)

宁夏回族自治区空间规划是党中央授权的省级改革试点工作，2016年自治区开展了城乡、国土、环保、林业、交通、水利行业等“多规合一”工作；高分宁夏中心作为技术支撑单位，从空间规划的编制、审查、评议到监督、评估等各个环节提供全方位技术支撑与服务。

Space planning of Ningxia is a provincial reform experiment authorized by the CPC Central committee. 2016 Autonomous Region to carry out urban and rural areas, land, environmental protection, forestry, transportation, water conservancy and other "multi regulatory" work, High-resolution Earth Observation Center, NX as a technical support unit, from the preparation, review, evaluation and other aspects of the space planning to provide a full range of technical support and services.

高分典型应用示范—空间规划(Spatial Planning)



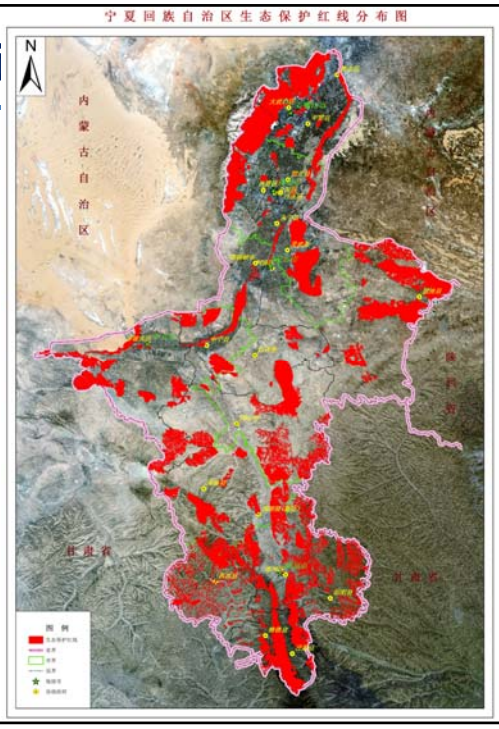
2015年，土地利用变更调查：耕 地
Land use change survey: Arable land, 2015

2015年，林业变更调查：林 地
Forestry change survey: Woodland, 2015

高分卫星影像解译：林地
High-resolution image interpretation: Woodland

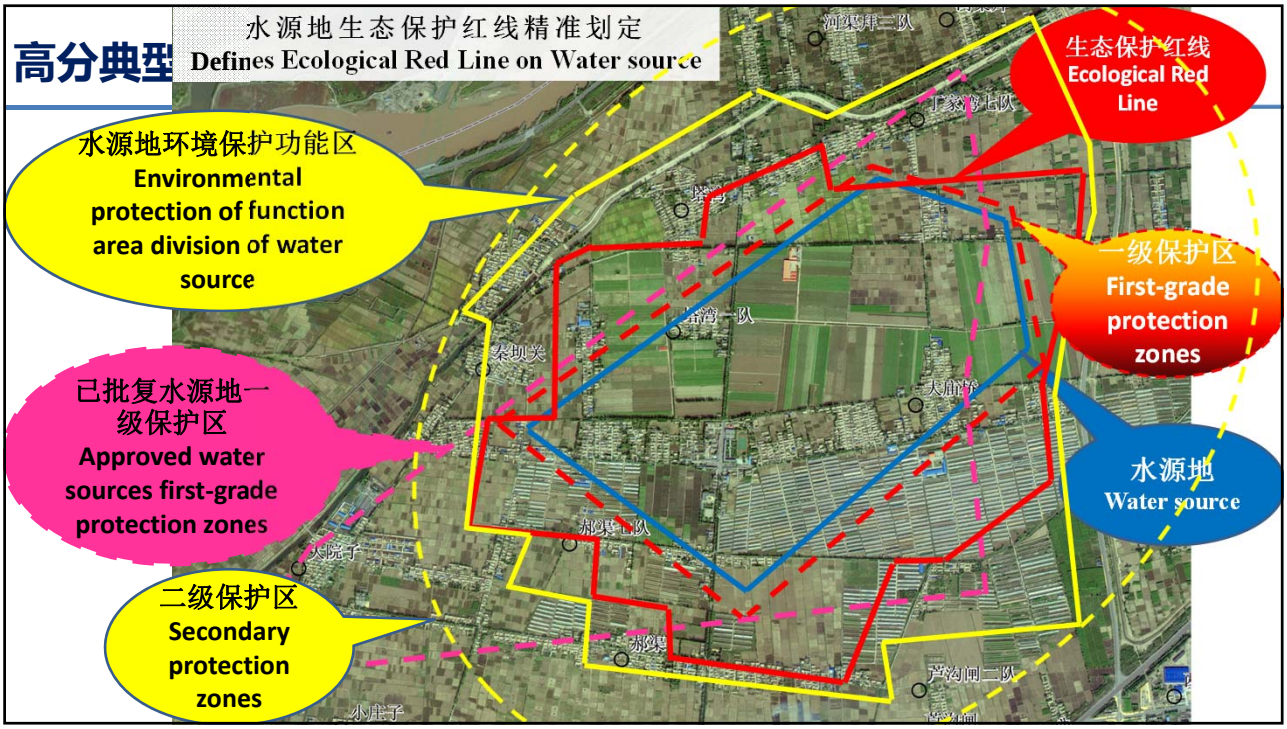
高分典型应用示范 Ecological Red Line)

以最新的高分影像数据为底图，以地理新技术为手段，为全区各类生态红线的快速、准确精细划定提供技术支撑。



With the High-resolution image for the map, with a new technology as a means of geography, to provide technical support for the rapid, accurate and precise delineation of all kinds of ecological red lines in the region.

高分典型



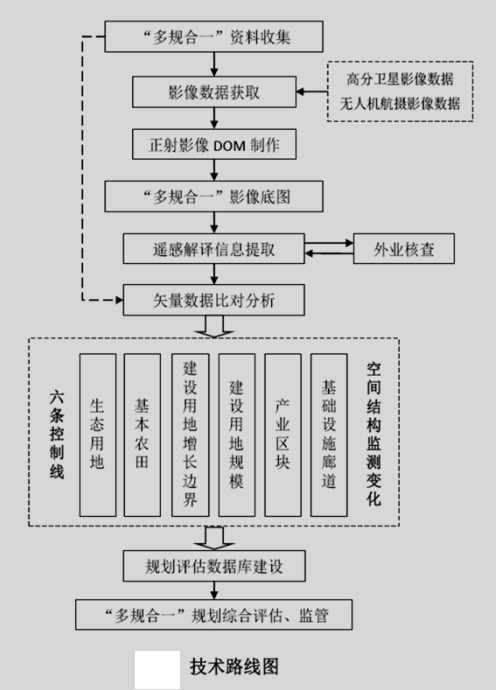
高分典型应用示范—空间规划(Spatial Planning)

宁夏是全国第二个省级空间规划改革试点省区，2016年自治区开展了城乡、国土、环保、林业、交通、水利行业等“多规合一”工作；高分宁夏中心作为技术支撑单位，从空间规划的编制、审查、评议到监督、评估等各个环节提供全方位技术支撑与服务。

2016 Autonomous Region to carry out urban and rural areas, land, environmental protection, forestry, transportation, water conservancy and other "multi regulatory" work, High-resolution Earth Observation Center, NX as a technical support unit, from the preparation, review, evaluation and other aspects of the space planning to provide a full range of technical support and services.

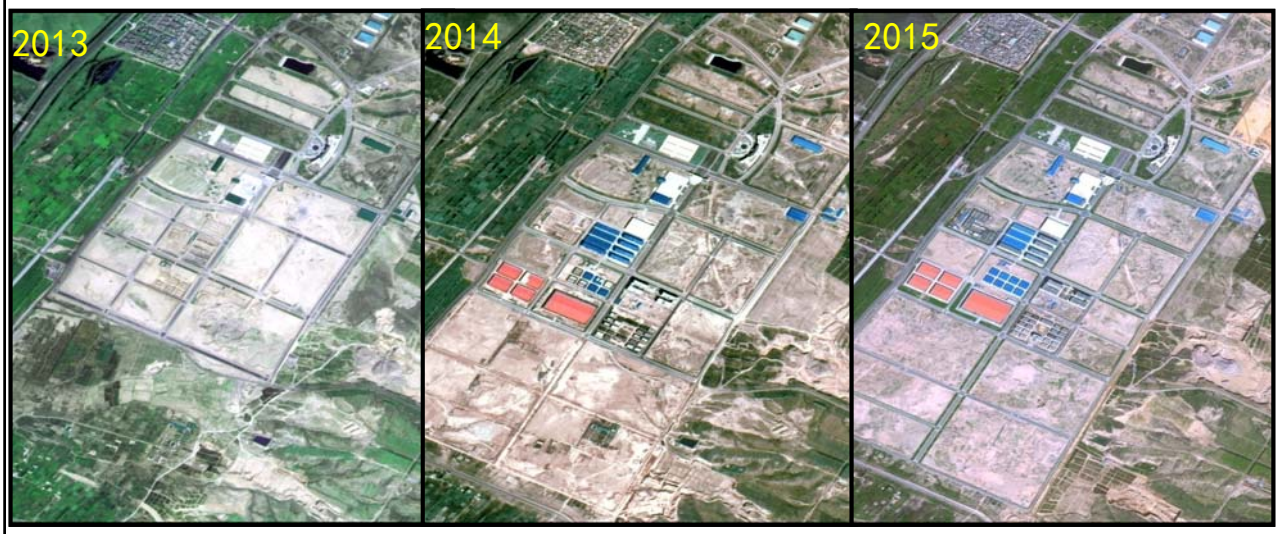
应用高分遥感数据，开展宁夏空间规划暨多规合一（试点）实施效果动态监测和评估，有效解决目前规划底图不新、边界不清、对中规划重叠交叉以及规划实施进度掌握不明等问题，为自治区空间规划制定、各类规划实施效果的监管与评估提供技术支撑。

Based on High-resolution satellite image, To carry out the dynamic monitoring and assessment of the implementation of the Ningxia space planning The planning map is not new, the boundary is not clear, the planning of overlapping and progress in the implementation of planning master unknown problems to solve.



技术路线图

综合保税区（Comprehensive Bonded Zone）



高分典型应用示范—特色农作物(Characteristic Crop)

宁夏特色农作物分布动态监测与快速提取技术研究

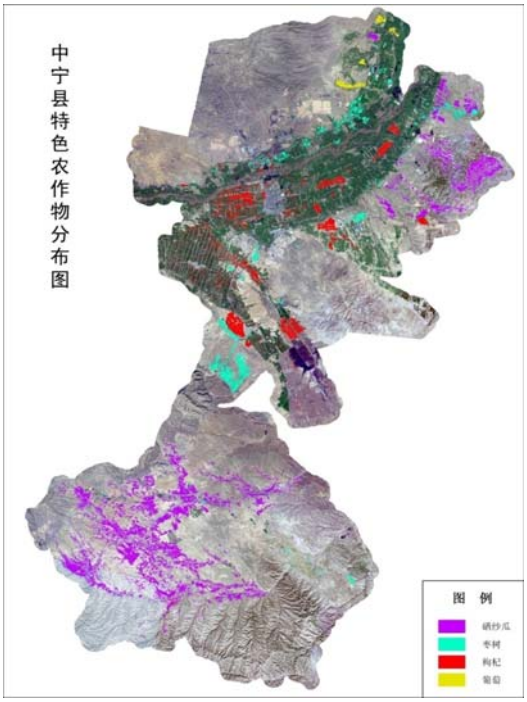
Research on dynamic monitoring and rapid extraction of **Characteristic** crop distribution in Ningxia

以国产高分数据为基础，开展宁夏特色分布结构调查监测，通过遥感技术快速提取枸杞、硒砂瓜、葡萄、红枣等我区特色优势农作物信息。

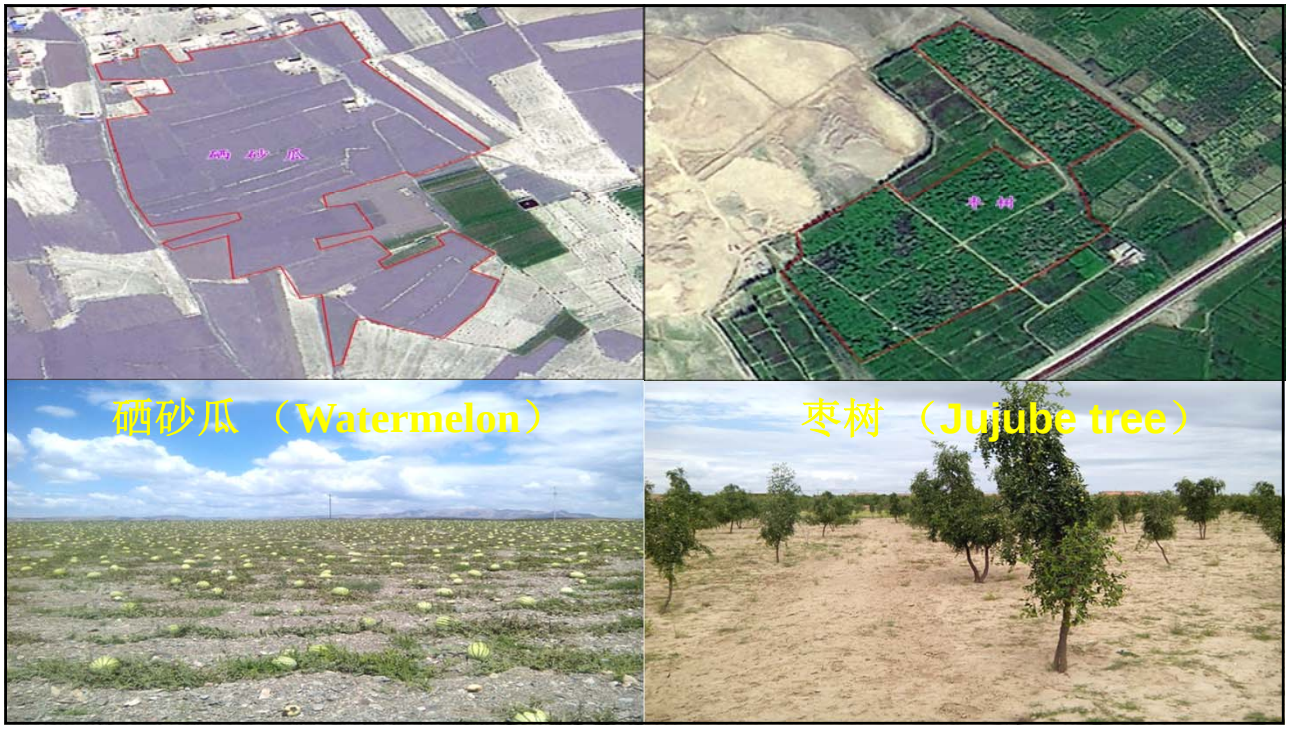
Based on High-resolution satellite image, to carry out the investigation and monitoring of the distribution structure of the characteristics of Ningxia. Extracted from the characteristics of the region by remote sensing technique, such as WolfBerry Extract, Watermelon, grapes, Jujube and other characteristics of the region.

研发一套基于国产高分数据的农作物种植结构遥感自动化信息提取技术方法，掌握特色农作物种植空间结构分布现状，形成一套基于高分数据的农情速报体系，为农业经济发展提供决策支撑。

The research and development of a set of remote sensing automatic information extraction technology of crop planting structure based on the domestic high score data, and to master the distribution of the spatial structure of the characteristics of crop planting.



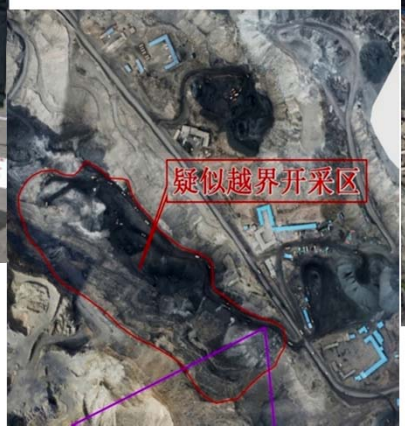

枸杞（Wolf Berry Extract）
葡萄（Grape）


硒砂瓜（Watermelon）
枣树（Jujube tree）

无人机应用服务—矿山开发执法监测(Mining law enforcement monitoring)

Joint Law Enforcement

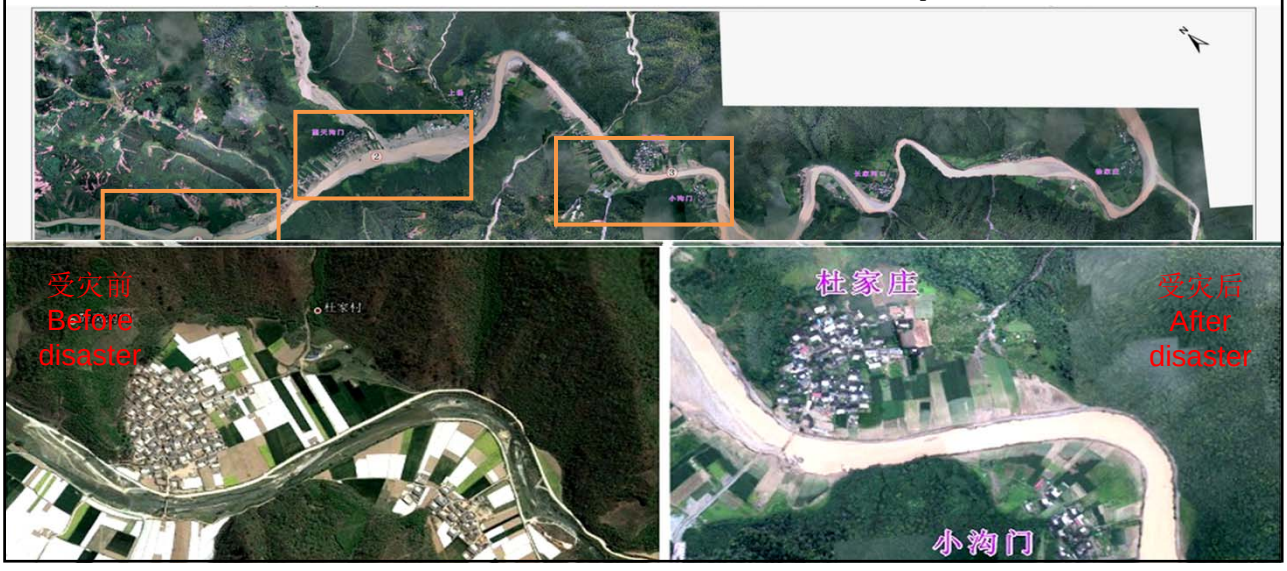
Cross-border Mining



Unlicensed Mining

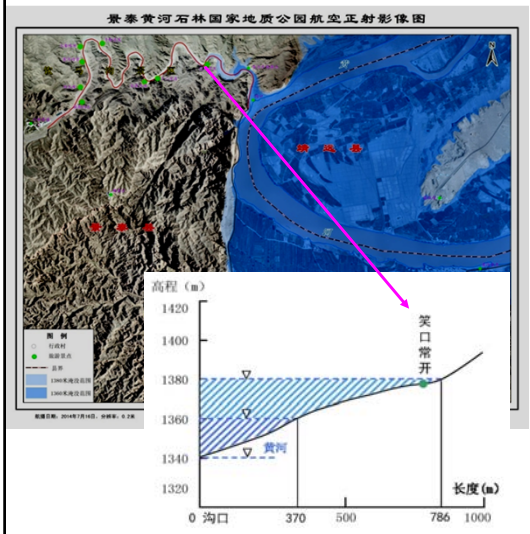
无人机应用服务—应急保障(Emergency Support)

无人机航拍甘肃天水娘娘坝镇重点受灾区域灾情图（Disaster area map of Gansu Tianshui）

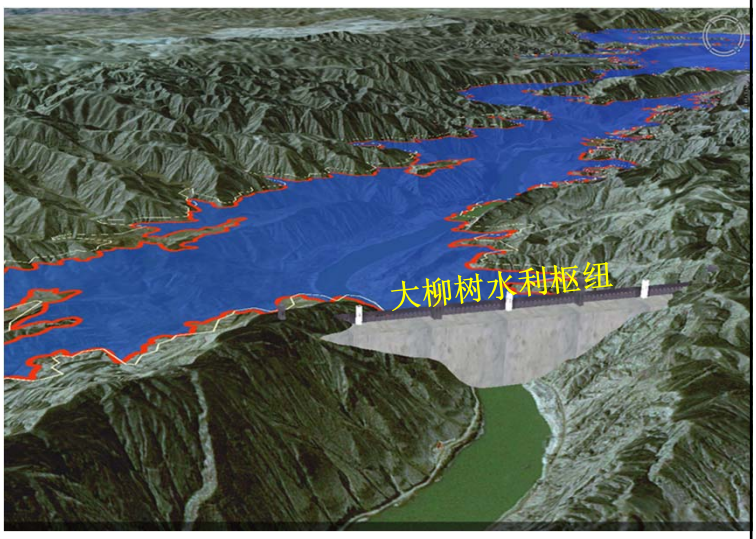


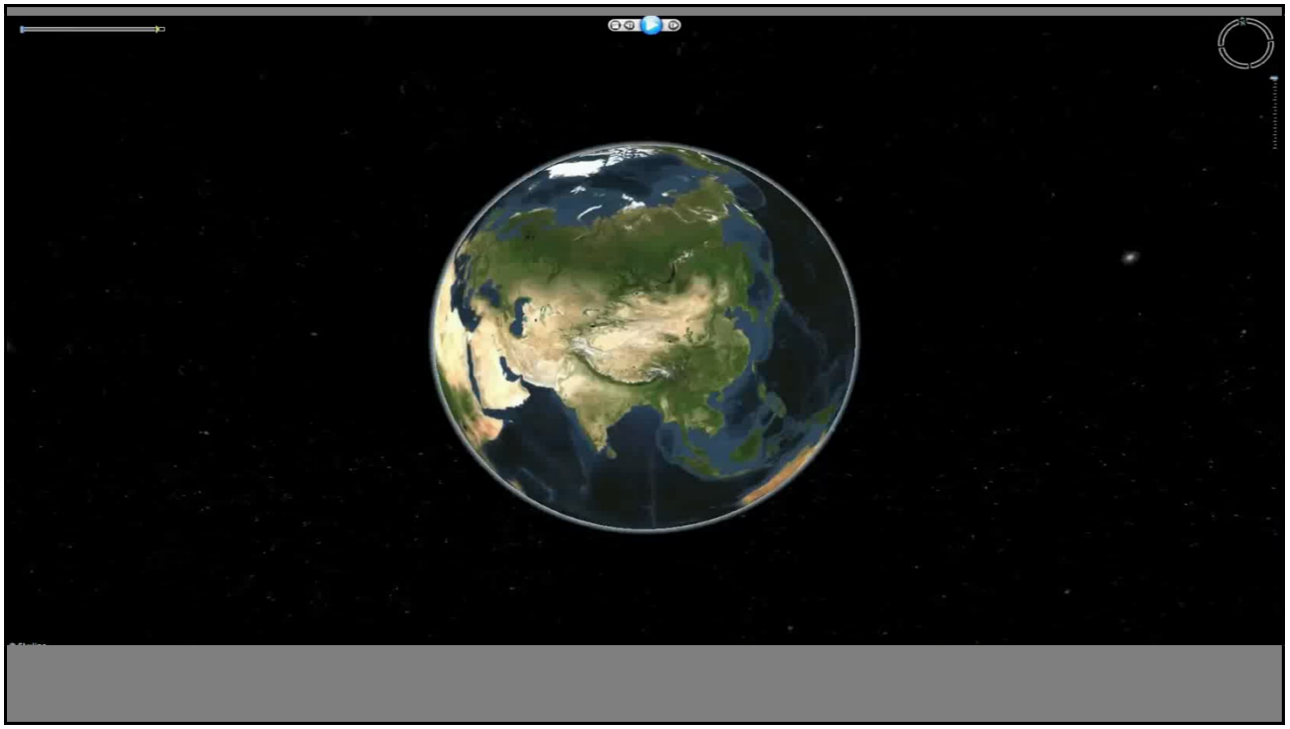
重大工程前期规划研究(Prophase research of Major Projects)

Inundation Analysis



3D Simul of Major Projects





遥感应用方向 (Direction of Remote Sensing Applications)

1. 国土资源类：国土资源调查、土地利用类型识别、土地资源评价、用地监测、地籍管理等；

1.Land and Resources：Land and Resources Investigation; Land Use Type Identification; Land Resources Evaluation、 Land Use Monitoring、Cadastral Management, etc.

2. 林业生态类：林草种类、面积、覆盖度调查；森林长势与变迁、蓄积量；产草量载畜量；草原退化监测；生态环境分类、生境识别等；

2. Forestry Ecology：Grass Species、Area、 Coverage Survey; Forest Growth and Change、Volume; Yield Grazing Capacity; Grassland Degradation Monitoring; Ecological Environment Classification, Habitat Identification, etc.

遥感应用方向 (Direction of Remote Sensing Applications)

3.农业类：耕地面积；农作物种类面积与长势；农作物估产与统计；农作物水旱灾及虫害影响；农业生产潜力与管理；精细农业应用等;

3. Agricultural: Cultivated Land Area; Area and Growth of Crops; Estimation and Statistics of Crop Yield; Flood or Drought Disaster and Insect Pests of Crops; Potential and Management of Agricultural Production; Fine Agricultural Applications, etc.

4.水文水利类：河流及流域变迁；湖泊演化；水库淹没；水情预报；灌溉管理；水系水域及水文下垫面调查；土壤含水量、旱情强度监测等;

4. Hydrology and Water Conservancy: Changes in Rivers and River Basins; Lake Evolution; Reservoir Inundation; Hydrological Forecasting; Irrigation Management; Survey of Water Area and Hydrological Underlying Surface; Soil Moisture, Drought Intensity Monitoring, etc.

遥感应用方向 (Direction of Remote Sensing Applications)

5.地质矿产类：基础地质调查；岩性识别；构造识别；成矿信息提取、成矿靶区圈定；多源数据融合；油气勘查应用等;

5. Geology and Mineral Resources: Basic Geological Survey; lithology Recognition; Structure Identification; Metallogenic Information Extraction, Delineation of Metallogenic Target Area; Multi-source Data Fusion; Oil and Gas Exploration Applications, etc.

6.环境类：地理环境调查监测；生态环境调查与监测；水环境调查监测；酸雨监测；江河湖海的水域污染；陆面温度；湿地资源调查；土壤调查；海岸带等;

6. Environment: Geographical Environment Investigation and Monitorin; Ecological Environment Investigation and Monitoring; Water Environment Investigation and Monitoring; Acid Rain Monitoring; Water Pollution in Rivers and Lakes; Land Surface Temperature; Wetland Resources Investigation; Soil Survey; Coastal Zone , etc.

遥感应用方向 (Direction of Remote Sensing Applications)

7.灾害防治类：沙尘暴；洪水火灾病虫害、土壤侵蚀、土地沙漠化、盐渍化、沼泽化、崩滑流地质灾害调查；煤层自燃；地震预报及震后灾害评估等;

7. Disaster Prevention and Control: Sand storm; The Flood Fire Pests, Soil Erosion, Land Desertification, Salinization, Swamp, Geological Disasters Investigation; Spontaneous Combustion of Coal Seam; Earthquake prediction and earthquake disaster assessment, etc.

8.城市管理类：现状调查、城市规划及结构布局分析、城市（绿地）生态系统分析与管理、城市交通、热岛研究；城市化监测等.

8. City Management: Current Situation Investigation、 Urban Planning and Structural Layout Analysis、 Analysis and Management of Urban (green) Ecosystem、 Urban Traffic、 Heat Island； Urbanization monitoring, etc.

PART 03

中阿合作建议

Suggestion for Cooperation

中阿合作建议—阿拉伯试地区试点应用(Pilot areas in Arabia application)

面向阿拉伯地区，开展遥感应用“走出去”

For the Arabia area, to carry out the remote sensing application“going out”.

宁夏作为全国第一个省级内陆开放型经济试验区和“中阿博览会”的永久举办地，丝绸之路经济带战略支点和中阿国际合作先行区。高分宁夏中心将形成辐射周边省市乃至阿拉伯国家的数据服务与应用示范。

Ningxia as the first provincial inland open economic zone and “China-Arab States Expo" held permanent, strategic fulcrum and the Sino Arab international cooperation bridgehead Silk Road Economic Belt. High-resolution earth observation system. Ningxia will form the radiation surrounding provinces and cities and Arabia national data services and application demonstration.

中阿合作建议—阿拉伯试地区试点应用(Pilot areas in Arabia application)

正在推进的几项工作 (Several work being advanced)

- 在数据对外使用政策方面，报请国家高分办审核并予以支持。
- 下载部分阿拉伯重点地区的高分数据，开展编图工作。
- 积极开展宣传、推广工作。

- **In terms of data on the use of foreign policy， Audit and support by the national High-resolution.**
- **Download some of the key areas of Arabia high score data, to carry out the revision of maps.**
- **Actively carry out publicity and promotion work.**

中阿合作建议—阿拉伯试地区试点应用(Pilot areas in Arabia application)

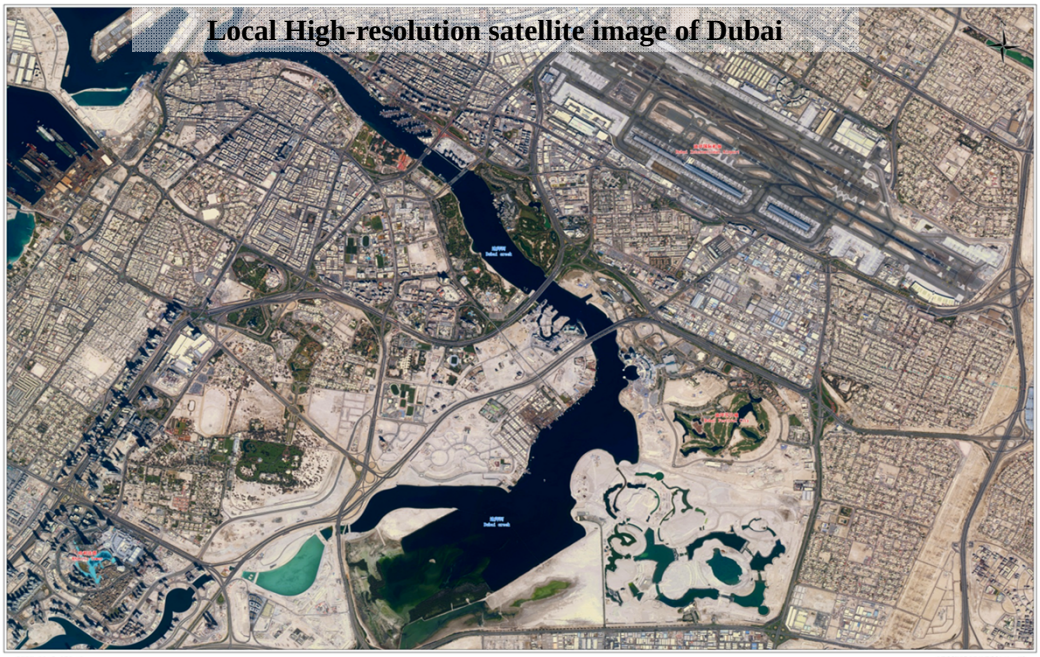
先期重点推进两个方面的应用
(Advance to promote the application of two aspects)

- 在阿联酋落实椰枣等农作物监测高分数据应用服务项目。
- 在沙特吉赞经济城“中沙工业园”落实工业园土地动态监测。

- High-resolution data application service project for crop monitoring such as date palm in the United Arab Emirates.
- Industrial park land dynamic monitoring in “China-Arab Industrial park” In Saudi Arabia JIZAN Economic city.

高分典

迪拜局部高分卫星影像图



中阿合作建议(Suggestion of Sino Arab Cooperation)

1. 粮食生产与安全预警空间信息服务

服务领域：耕地资源监测、后备耕地资源调查、粮食生态适宜性评估、粮食生产潜力评估、粮食生产风险评估。

1.Spatial information service for crop production and security early warning.

Service areas: monitoring of cultivated land resources, investigation of reserve cultivated land resources, assessment of crop ecological suitability, assessment of crop productivity potential and assessment of crop production risk.

中阿合作建议(Suggestion of Sino Arab Cooperation)

2. 水资源及环境生态监测与评价空间信息服务

服务领域：水资源综合调查与监测、水资源动态变化与监测、湿地与水资源环境监测、湿地水环境评价等，为中东区域提供水资源的水源寻找与现状调查，水资源动态监测与演变规律分析、水资源空间优化配置分析、湿地与水环境监测评价服务。

2. Spatial information service for monitoring and evaluation of water resources and environment.

Service areas: Comprehensive survey and monitoring of water resources, water resources dynamic change and monitoring, wetland and water resources environment monitoring, wetland water environment assessment, etc.. The survey of water resources for the Middle East region, the analysis of the dynamic monitoring and evolution of water resources, the analysis of the optimal allocation of water resources, and the evaluation of wetland and water environment monitoring.

中阿合作建议(Suggestion of Sino Arab Cooperation)

3. 交通调查、分析及综合管理空间信息服务

服务领域：提供交通运输遥感数据中心数据处理分发服务，交通基础设施调查及信息管理服务，交通设施监测与分析服务，重大（国防）公路建设辅助支持服务。

3. Spatial information service for traffic investigation, analysis and comprehensive management.

Service areas: To provide transportation of remote sensing data center data processing distribution service, investigation and information management services, transportation infrastructure, traffic monitoring and analysis of service facilities, major (Defense) support services in highway construction.

中阿合作建议(Suggestion of Sino Arab Cooperation)

4. 能源勘察与开发动态监测空间信息服务

服务领域：阿拉伯国家的油气资源调查评价、油气开发动态监测和油气勘探开发环境影响评价与监测等。

4. Spatial information service for dynamic monitoring of energy exploration and development.

Service areas: Investigation and evaluation of oil and gas resources in Arabia countries, monitoring of oil and gas development, impact assessment and monitoring of oil and gas exploration and development environment, etc..

中阿合作建议(Suggestion of Sino Arab Cooperation)

5. 城市生态宜居监测与评估空间信息服务

服务领域：城市生态要素遥感监测、城市生态宜居遥感评估、城市生态安全风险预警、城市生态环境发展情景模拟。

5. Spatial information service for monitoring and evaluation of urban ecological livability.

Service areas: Remote sensing monitoring of urban ecological factors, remote sensing assessment of urban ecological livability, early-warning of urban ecological security risk and scenario simulation of urban ecological environment development.

Thank You !