国家海洋局
第二海洋研究所

IOCCG
International Ocean-Colour Coordinating Group

SOED
卫星海洋环境动力学
国家重点实验室

Brief introduction on Chinese ocean colour satellite missions

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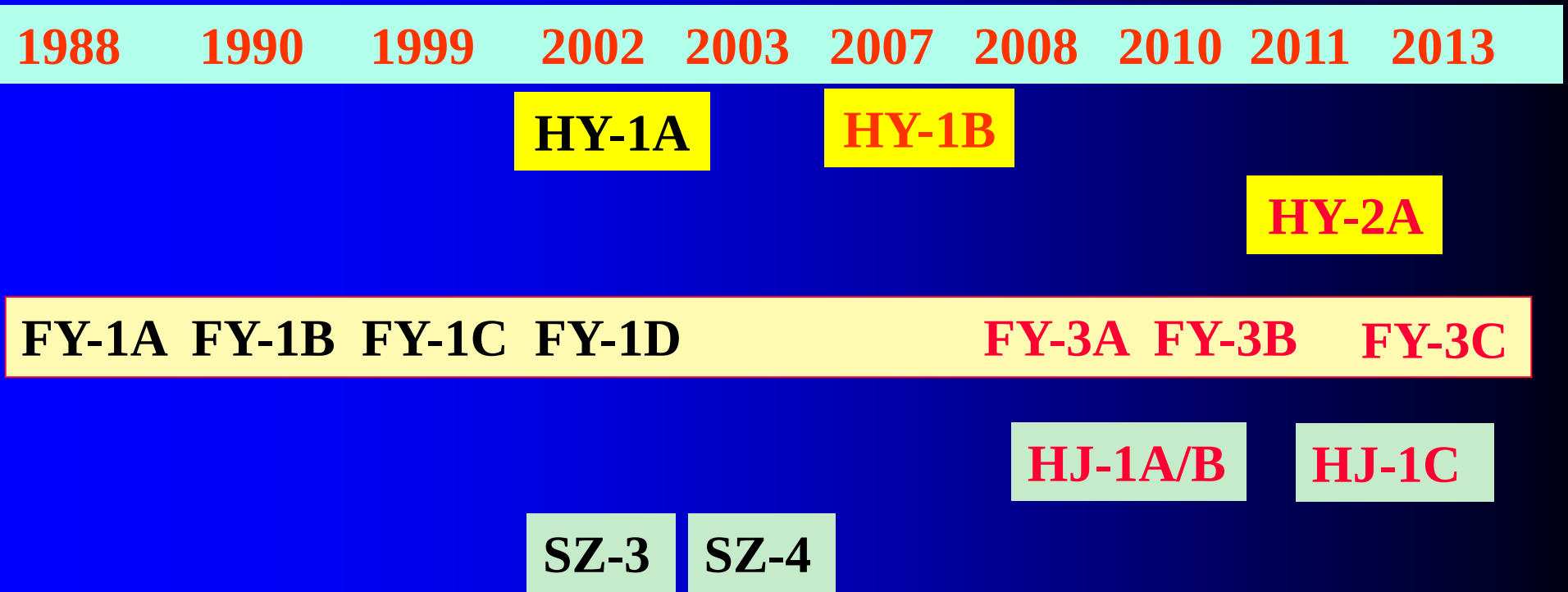
Four series of satellites for ocean color remote sensing

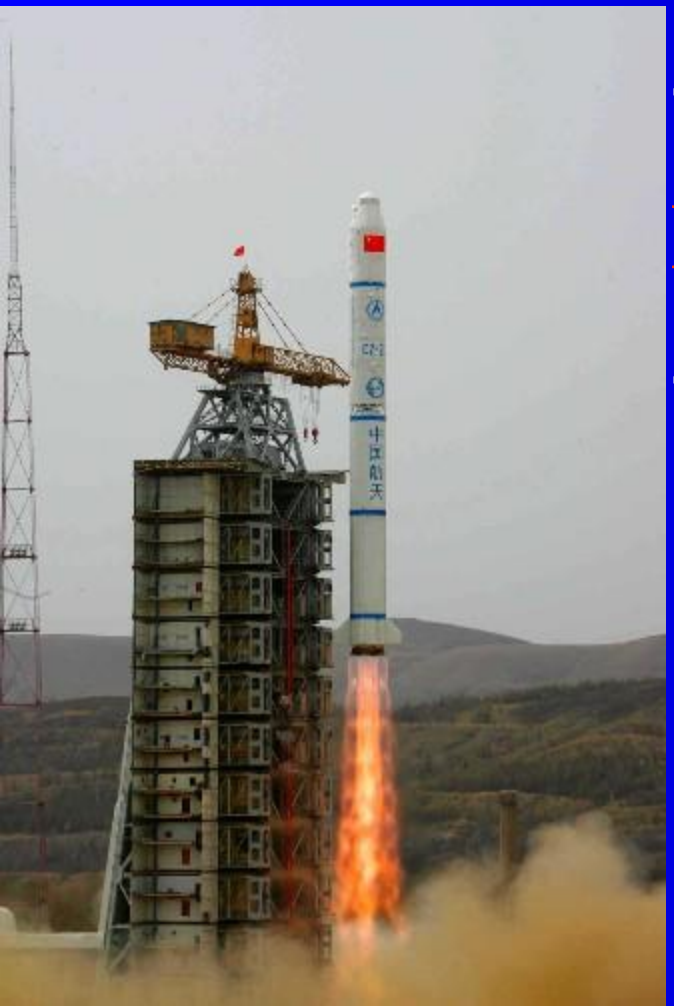
- Ocean Observation Satellites (HaiYang,HY series)
- Meteorological Satellites (FengYun,FY series)
- Environment and Disaster Monitoring Satellites (HJ series)
- Spacecraft (SZ series)



HY-1 satellites

HY-1A launched on May 15, 2002

HY-1B launched April 11, 2007.



COCTS- Chinese Ocean Color and Temperature Scanner (Ten bands)

CZI- Coastal Zone Imager (4 bands CCD Cameral)

Major parameters of COCTS and CZI

Parameter	COCTS	CZI
Spatial resolution	1.1km	0.25km
Scan coverage	2400km	500km
Polarization sensitivity	5%	5%
Digitization	10bit/pixel	12bit/pixel
Pixels/Scan Line	1664	2048
Radiometer accuracy	10%	10%

Mudangjian

Beijing

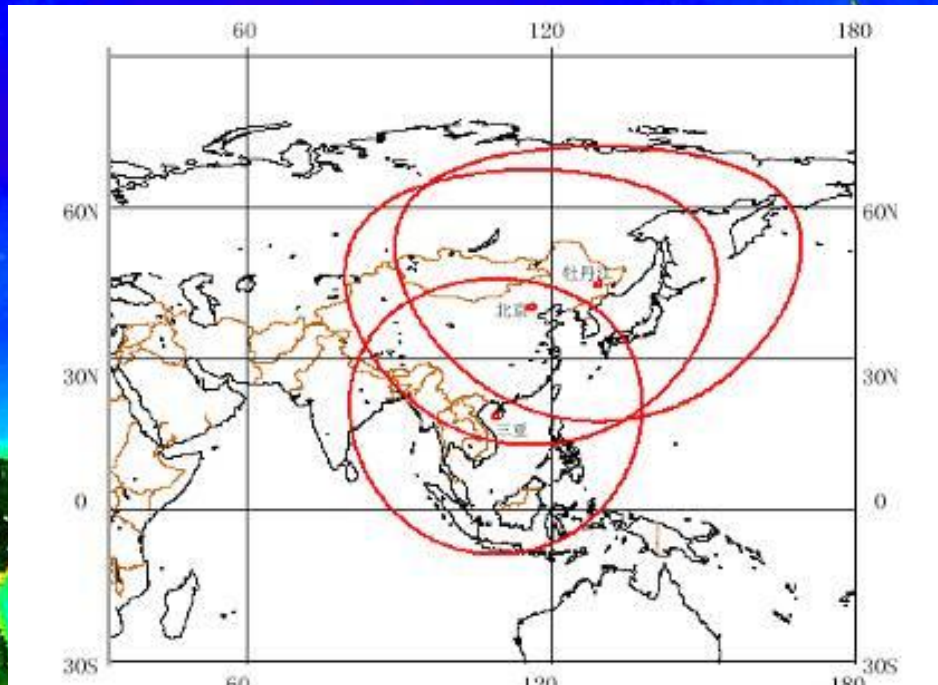
海洋二所站

Hangzhou

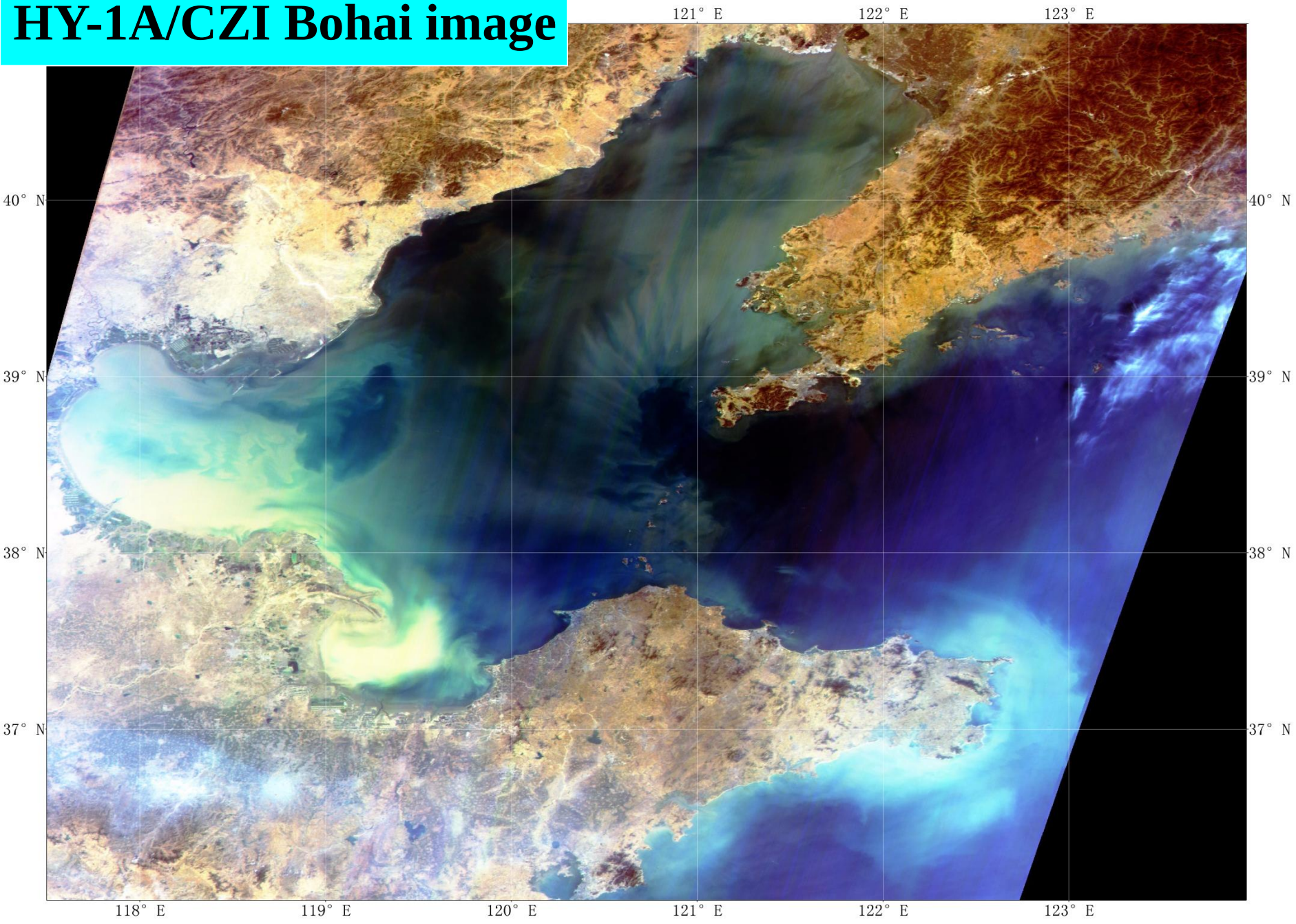
SanYa

Receiving Coverage of HY-1 Satellites Ground Stations

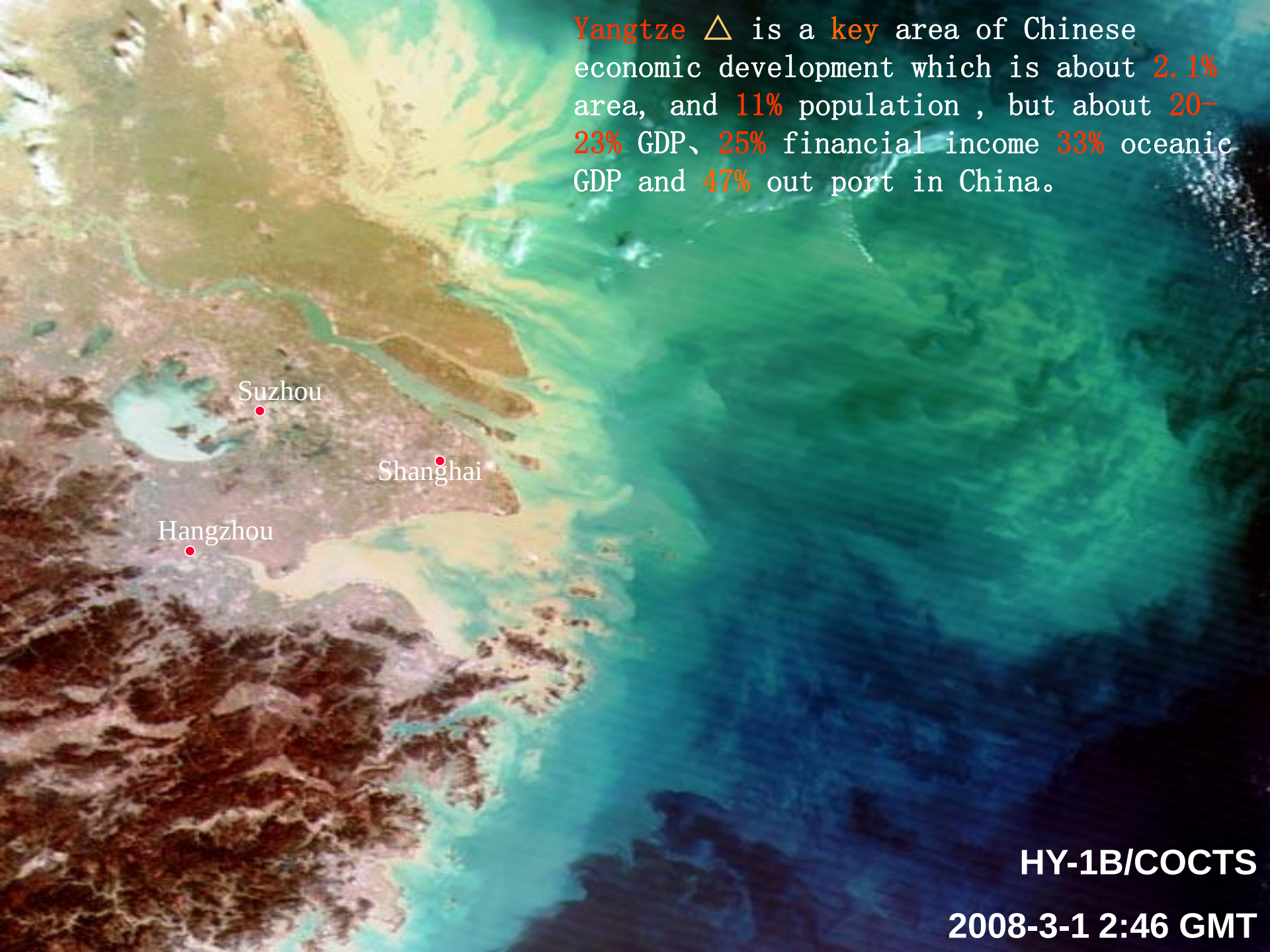
HY-1卫星地面站接收区域



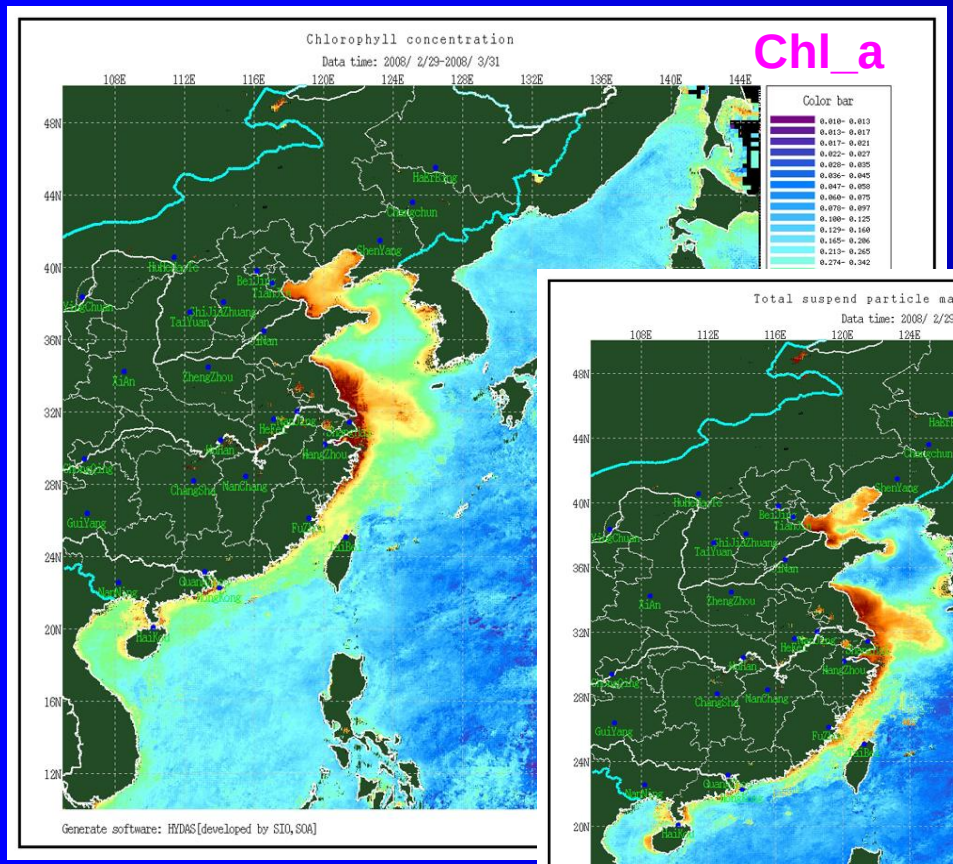
HY-1A/CZI Bohai image



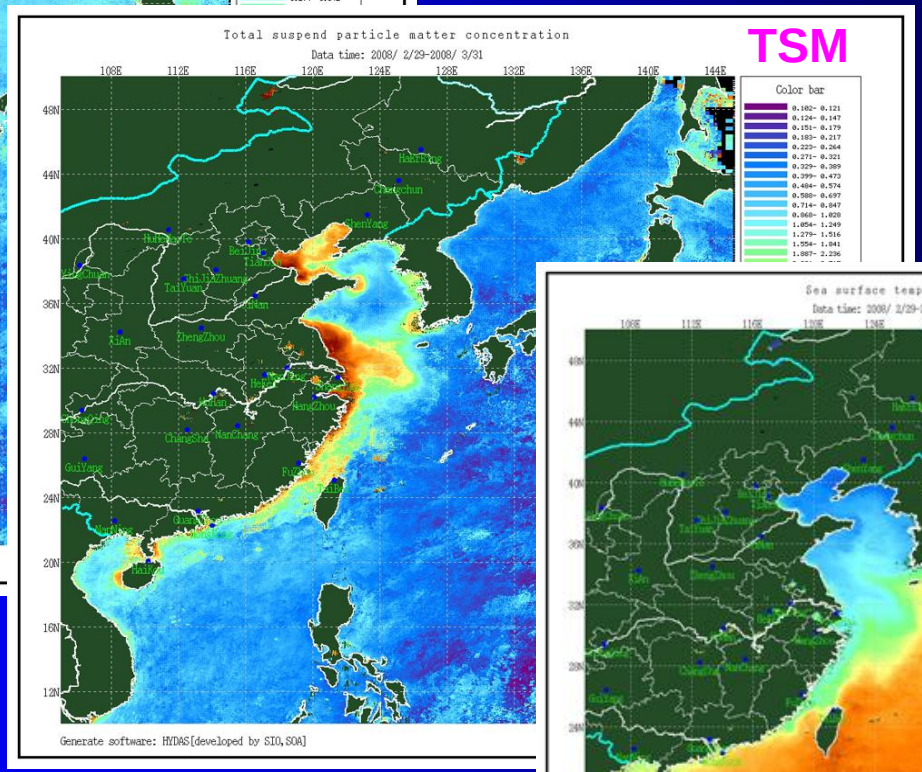
Images courtesy of Dr. Mingsen Lin


Yangtze △ is a key area of Chinese economic development which is about 2.1% area, and 11% population , but about 20-23% GDP、25% financial income 33% oceanic GDP and 47% out port in China。
Suzhou
Shanghai
Hangzhou
HY-1B/COCTS
2008-3-1 2:46 GMT

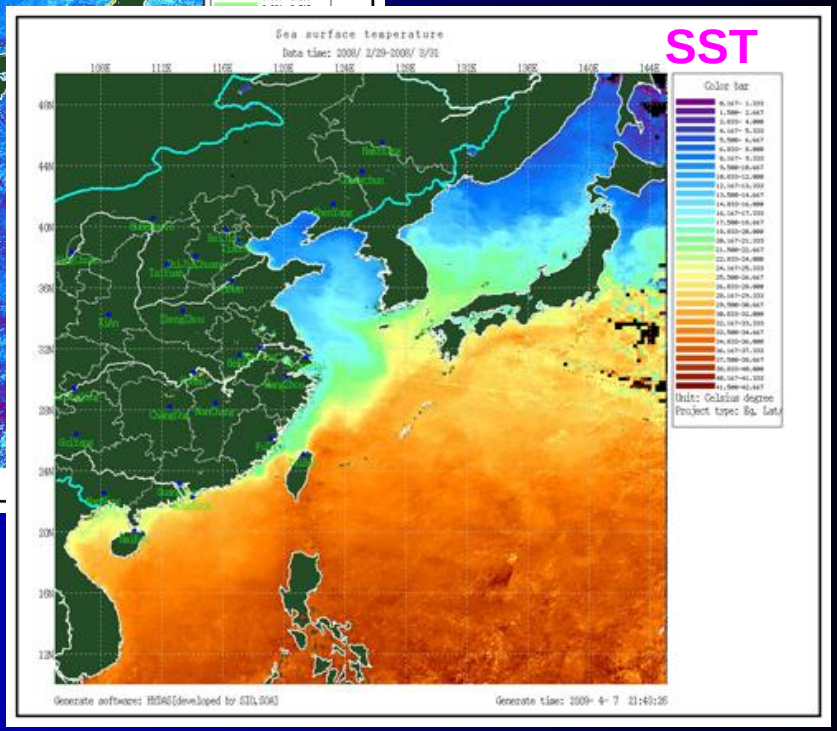
HY-1B/COCTS Monthly averaged products(2008-3)



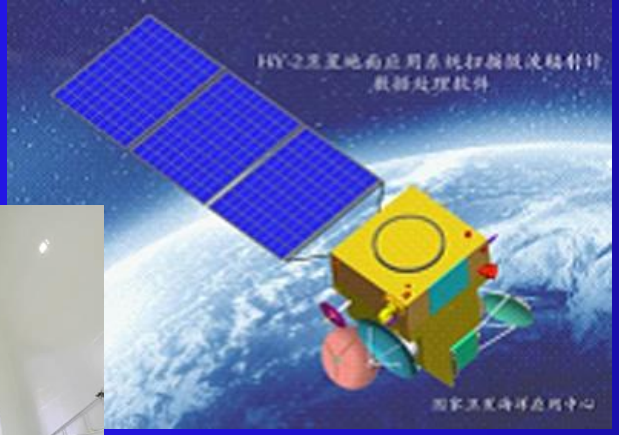
Chl_a



TSM



SST



HY-2A Satellite

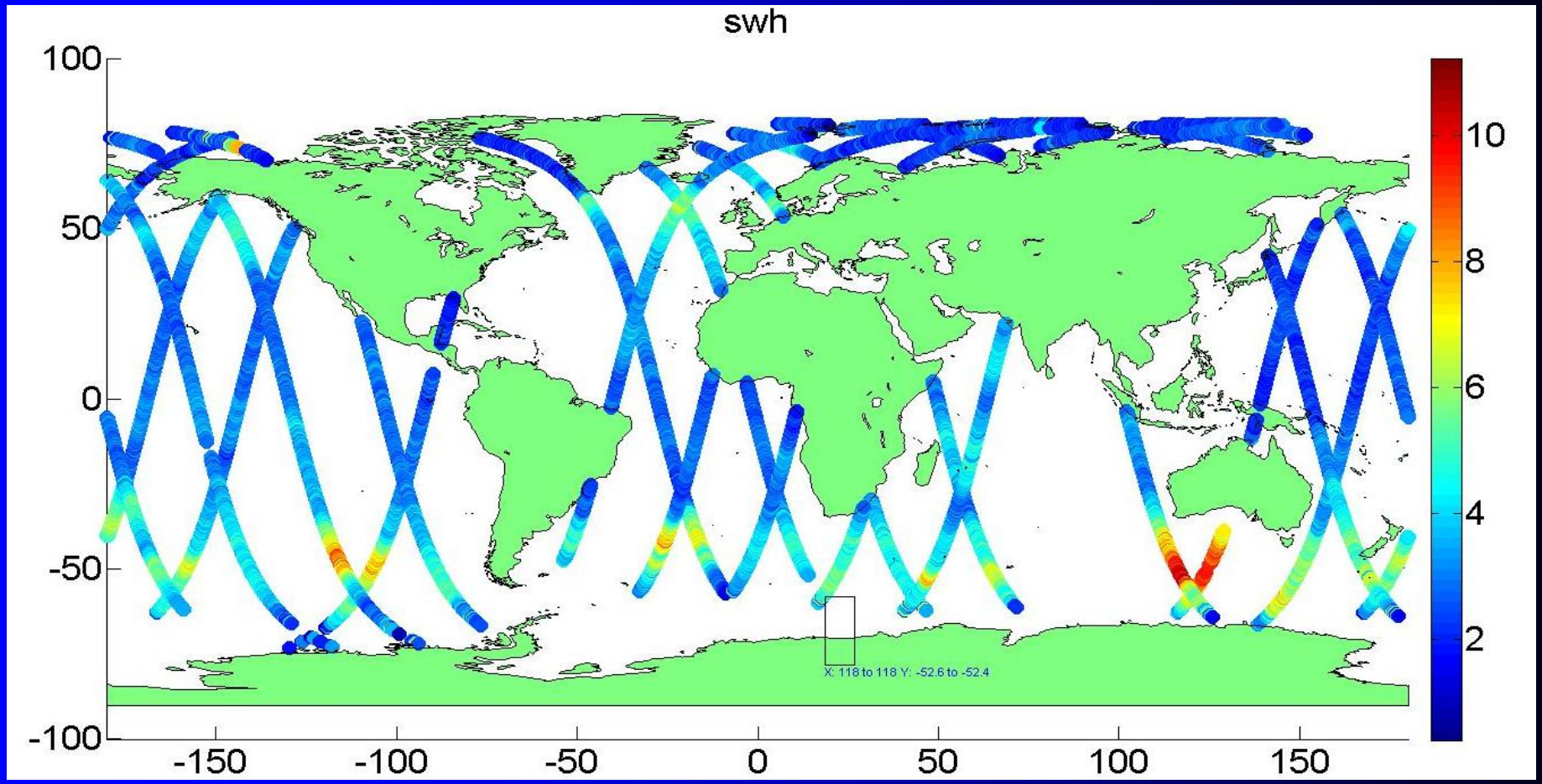
First ocean dynamics satellite of China, HY-2A was launched by Long March rocket, on Aug.16, 2011.

Sponsored by: State Oceanic Administration, (SOA)
Manufacturer: the Chinese Academy of Space Technology (CAST)

3 sensors and Monitor Parameters

Satellite	Payload	Monitor Para. (Main Parameter)	Object
HY-2A	Scatterometer Altimeter Radiometer	***Main Parameter:*** Sea Surface Wind Sea Surface height, Significant wave height, Gravity field and Ocean Circumfluence Sea Surface Temperature ***Secondary Parameter:*** Sea Level,Sea wind speed, Sea Ice and Vapor content	Ocean State Forecast Storm Warn Topography Study Ocean Dynamic Process Median Scale Weather Process and Global Change

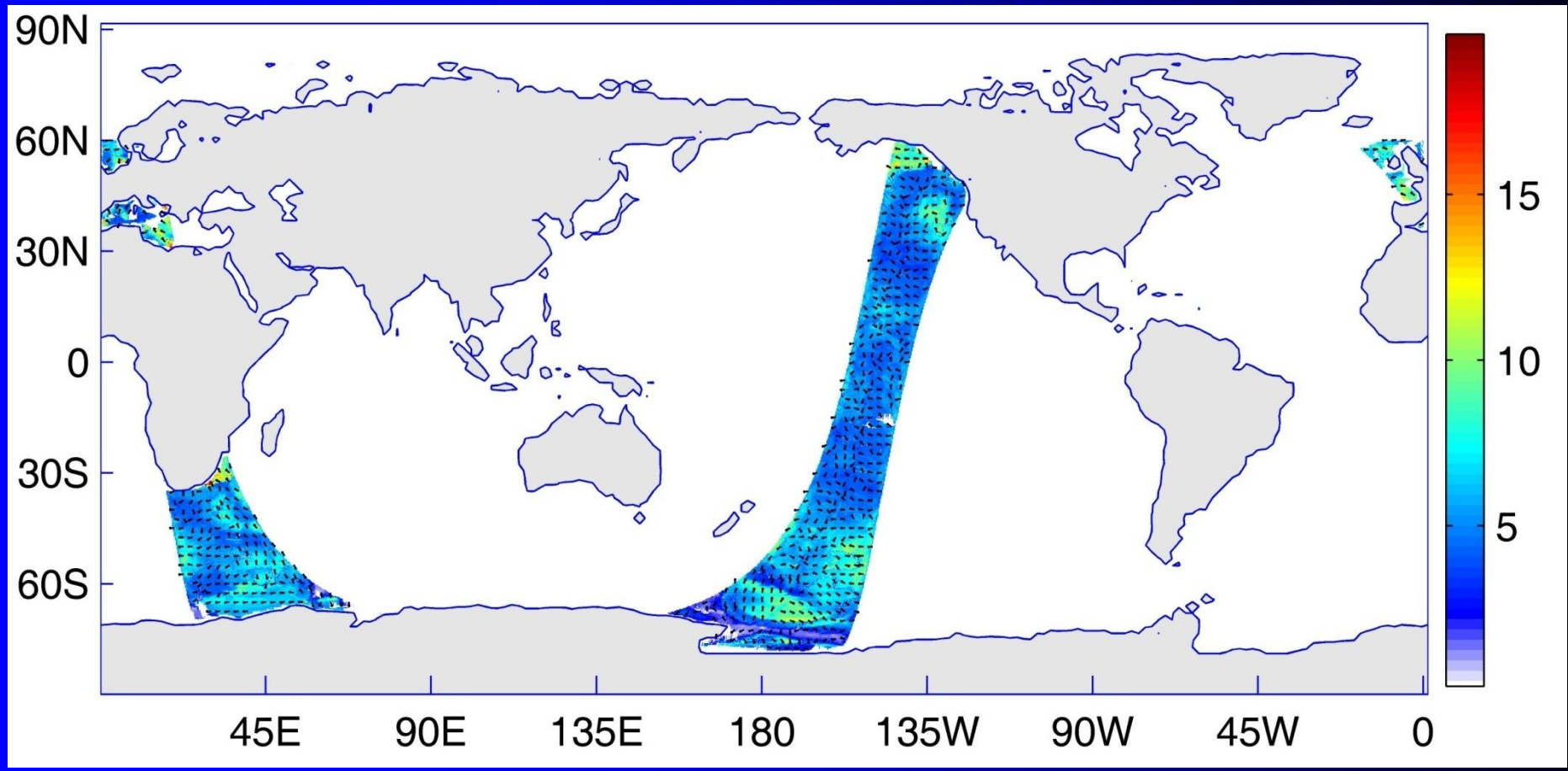
HY-2A/ALT Significant wave height



Images courtesy of Dr. Mingsen Lin

HY-2A/SCA Sea Surface Wind

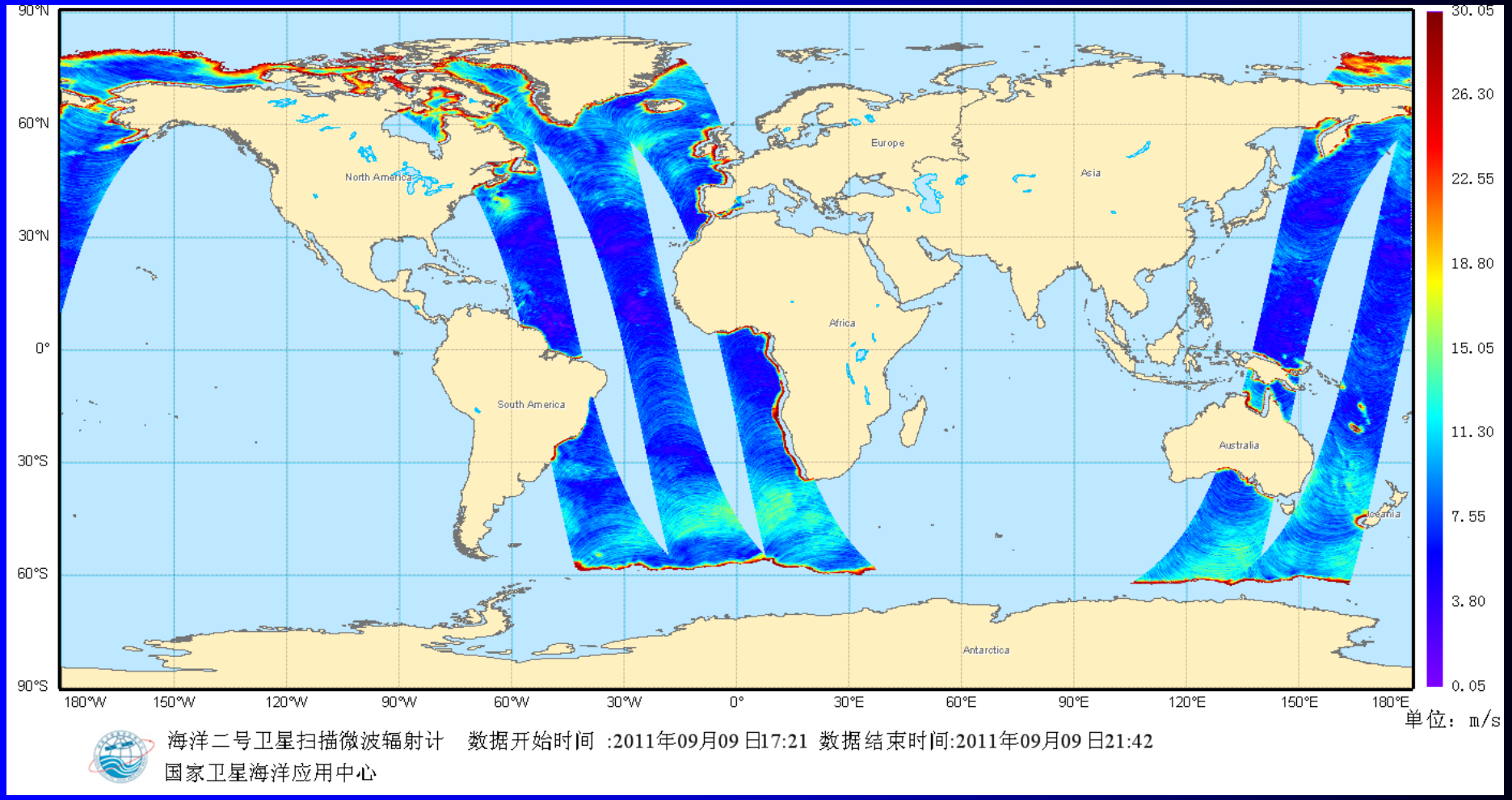
（Sept.28 23:00, 2011, 610 orbit ）



Images courtesy of Dr. Mingsen Lin

HY-2A/RAD Sea Surface Wind Speed

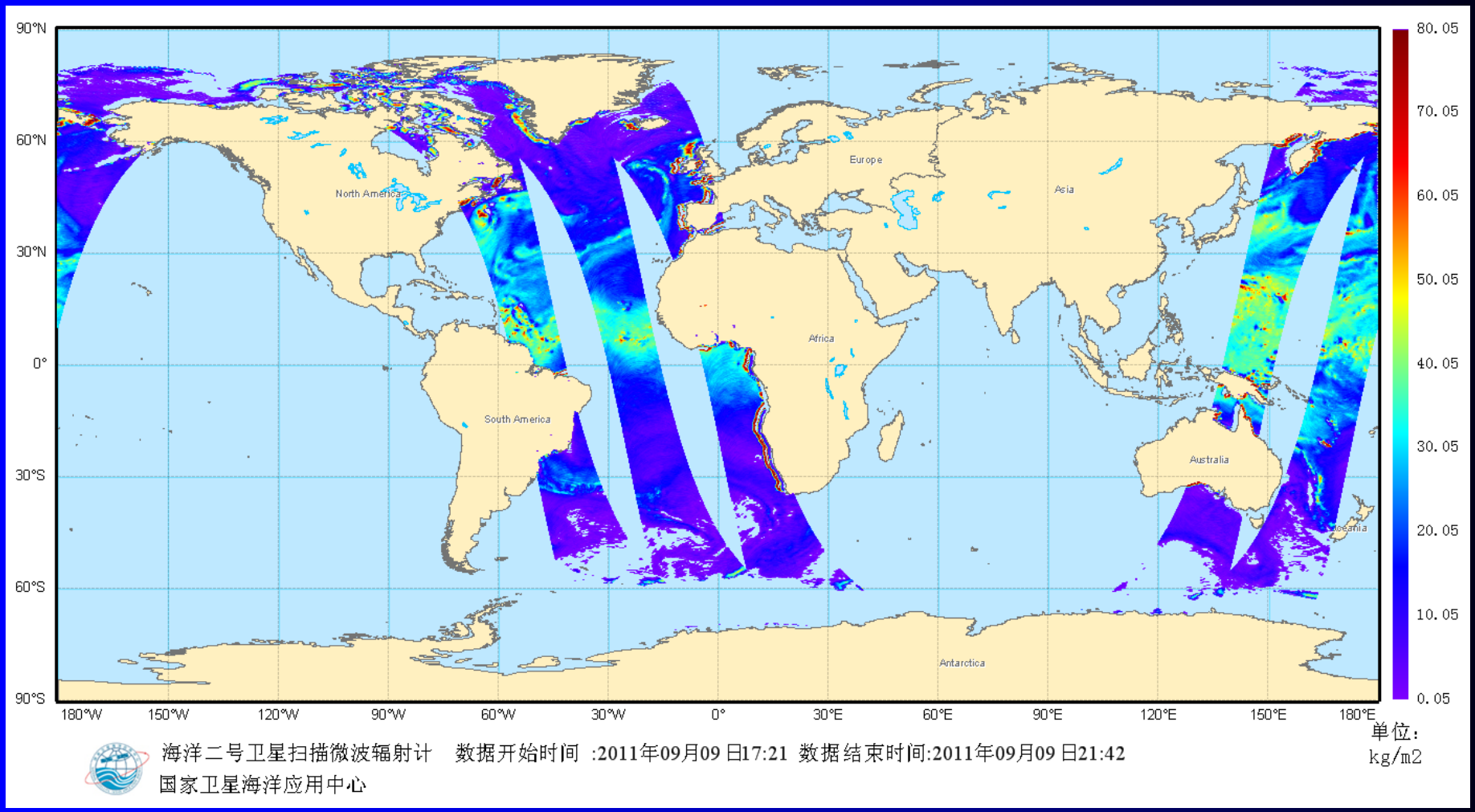
（Sept.9 17:21-21:42, 2011）



Images courtesy of Dr. Mingsen Lin

HY-2A/RAD Atmospheric Vapor content

（Sept.9 17:21-21:42, 2011）



Images courtesy of Dr. Mingsen Lin

FY-3 satellites

FY-3A launched on May 7, 2008

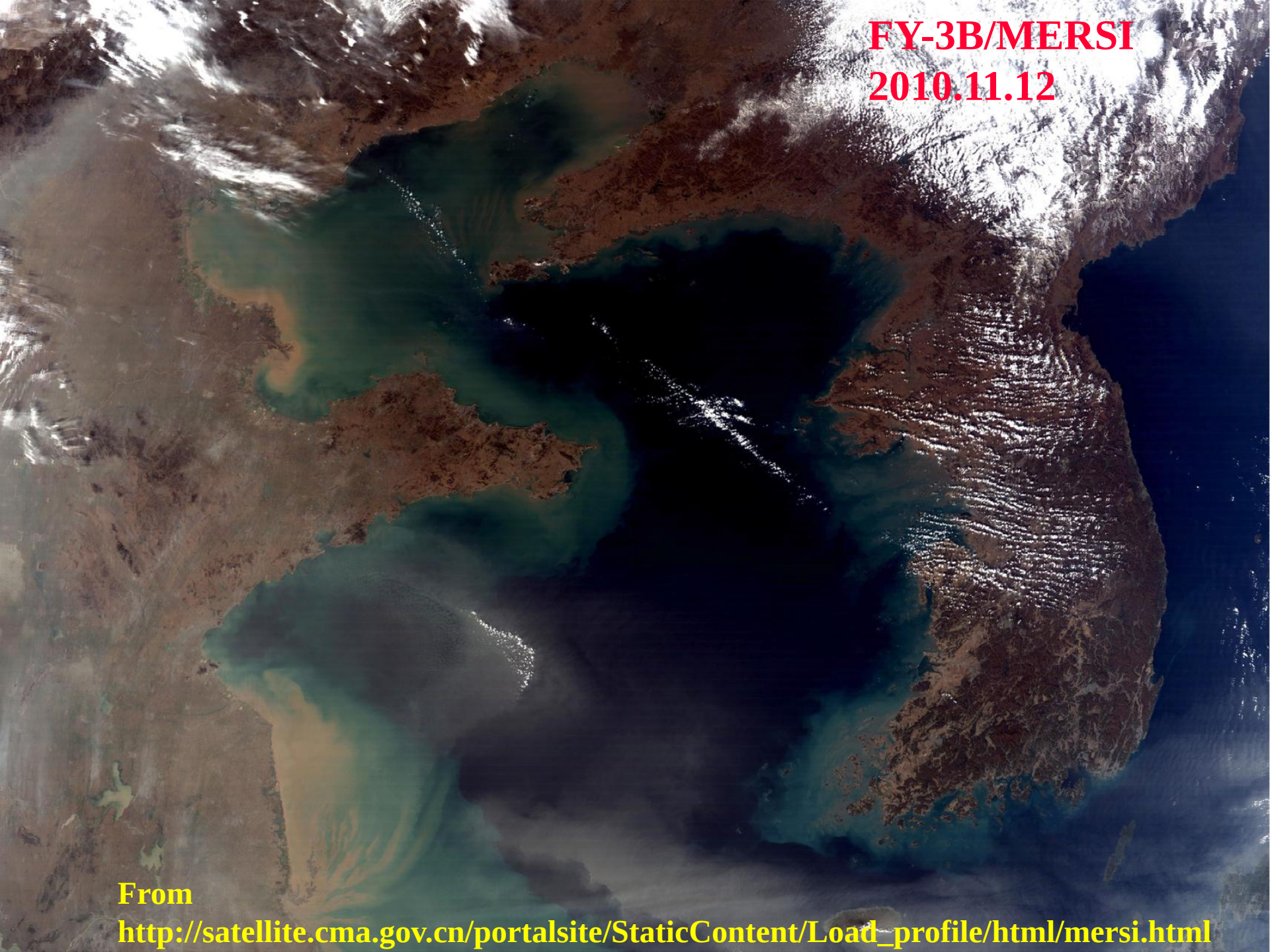
FY-3B launched on Nov. 5, 2010

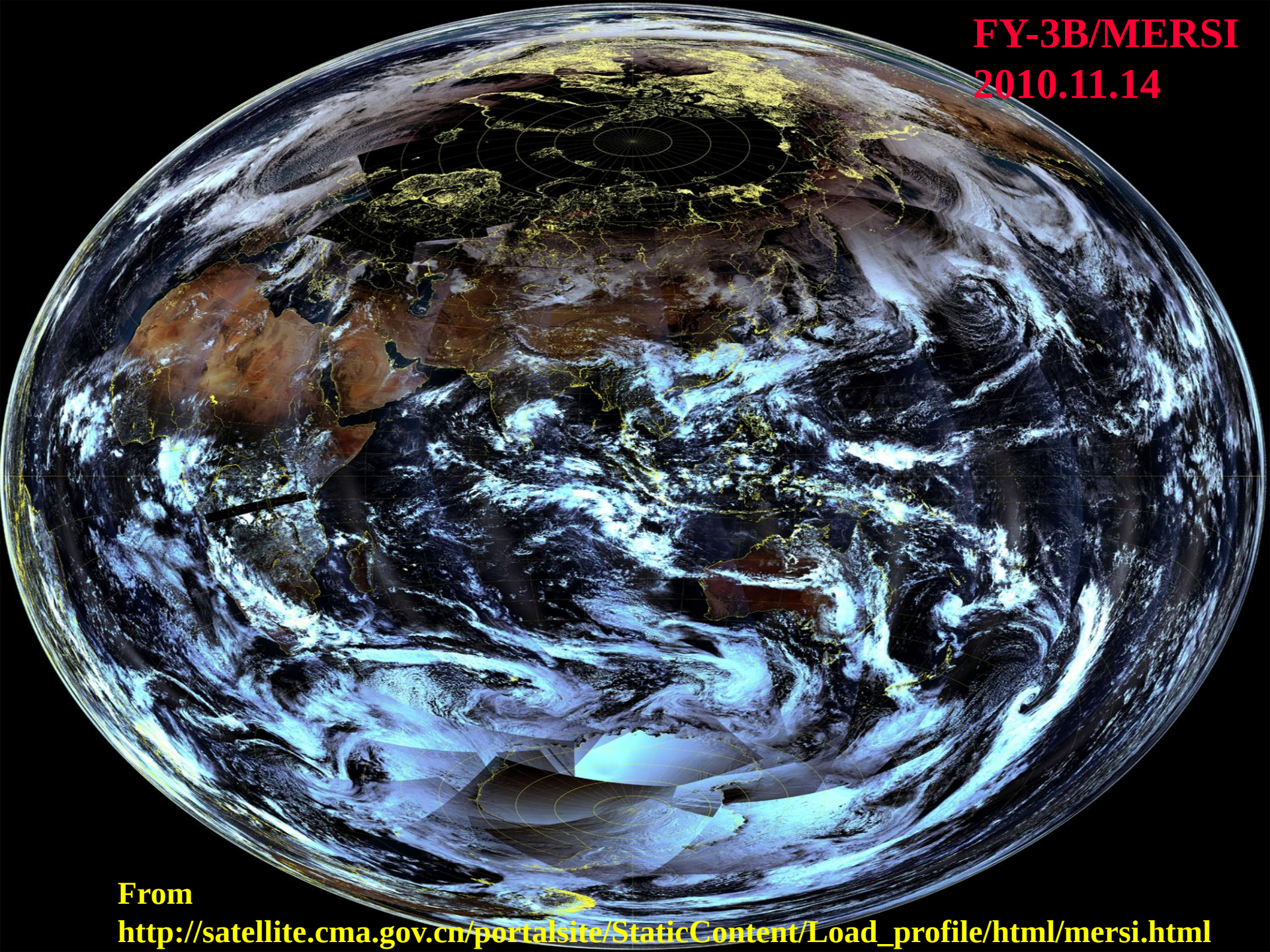
FY-3C launched on Sep. 23, 2013

MERSI-

Medium Resolution Spectral Imager

Band	Wavelength (μm)	Resolution
1	0.445-0.495	250m
2	0.525-0.575	250m
3	0.625-0.675	250m
4	0.84-0.89	250m
5	10.25-12.75	250m
6	0.402-0.422	1000m
7	0.433-0.453	1000m
8	0.48-0.5	1000m
9	0.51-0.53	1000m
10	0.555-0.575	1000m
11	0.64-0.66	1000m
12	0.675-0.695	1000m
13	0.755-0.775	1000m
14	0.855-0.875	1000m
15	0.895-0.915	1000m
16	0.93-0.95	1000m
17	0.97-0.99	1000m
18	1.02-1.04	1000m
19	1.615-1.665	1000m
20	2.105-2.155	1000m


FY-3B/MERSI
2010.11.12
From
http://satellite.cma.gov.cn/portalsite/StaticContent/Load_profile/html/mersi.html


FY-3B/MERSI
2010.11.14
From
http://satellite.cma.gov.cn/portalsite/StaticContent/Load_profile/html/mersi.html

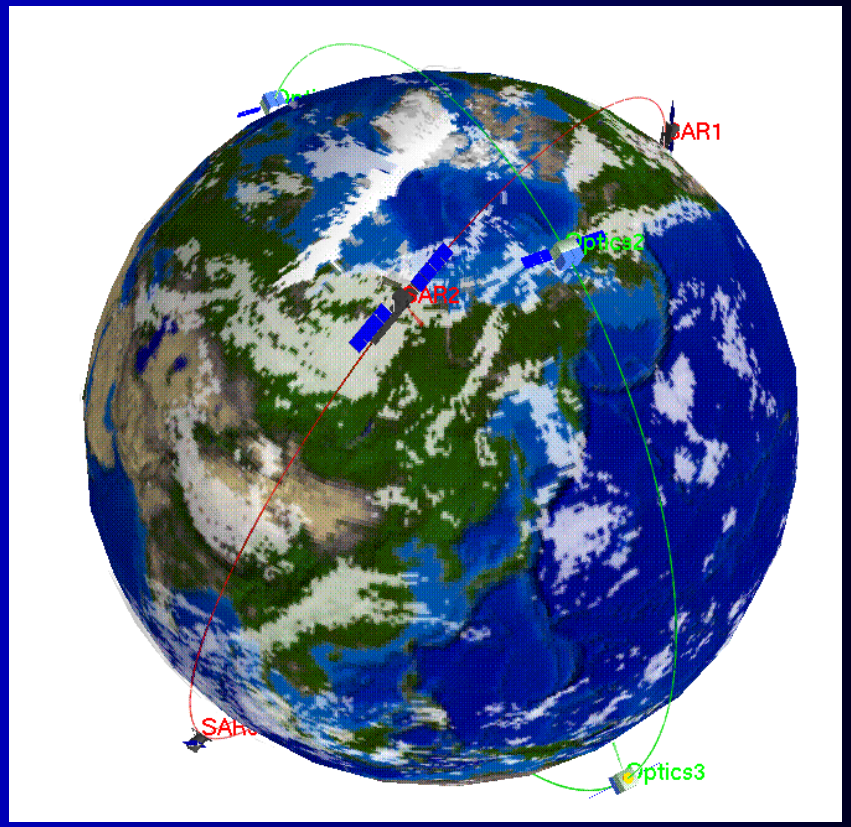
Environment and Disaster Monitoring Satellite Constellation (HJ)

- **The Optical Satellite:**

649km sun synchronous orbit . Four satellites are 90° phase distributed in the same orbit plane.

- **The SAR Satellites:**

500km sun synchronous orbits . Four satellites are 90° phase distributed in the same orbit plane.



HJ satellites

- **HJ-1A** launched on Sep. 6, 2008
- **HJ-1B** launched on Sep. 6, 2008
- **HJ-1C** launched on Nov. 19, 2012

Sensor	Band no.	Spectral (μm)	Res. (m)	Swath (km)
CCD Camera	1	0.43～0.52	30	700
	2	0.52～0.60	30	
	3	0.63～0.69	30	
	4	0.76～0.9	30	
Infrared Multi-spectral Camera	5	0.75-1.10	150	720
	6	1.55-1.75		
	7	3.50-3.90		
	8	10.5-12.5	300	
Hyper-spectral Imager		0.45～0.95 (110-128 bands)	100	50

HIS has 115 Bands

band	start	end	width	band	start	end	width
1	459	461.08	2.08	16	492.39	494.79	2.4
2	461.08	463.19	2.1	17	494.79	497.21	2.42
3	463.19	465.31	2.12	18	497.21	499.66	2.45
4	465.31	467.45	2.14	19	499.66	502.13	2.47
5	467.45	469.61	2.16	20	502.13	504.62	2.5
6	469.61	471.8	2.18	21	504.62	507.15	2.52
7	471.8	474	2.2	22	507.15	509.69	2.55
8	474	476.22	2.22	23	509.69	512.26	2.57
9	476.22	478.47	2.24	24	512.26	514.86	2.6
10	478.47	480.73	2.27	25	514.86	517.48	2.62
11	480.73	483.02	2.29	26	517.48	520.14	2.65
12	483.02	485.33	2.31	27	520.14	522.81	2.68
13	485.33	487.66	2.33	28	522.81	525.52	2.71
14	487.66	490.01	2.35	29	525.52	528.25	2.73
15	490.01	492.39	2.38	30	528.25	531.02	2.76

Access the HY-1/HY-2 satellite data

国家卫星海洋应用中心

National Satellite Ocean Application Service

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定向服务 Service

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- 预报中心
- 监测中心
- 东海水产所
- 三省一市
- 广东海南
- 卫星遥感渔海况
- 海冰监测

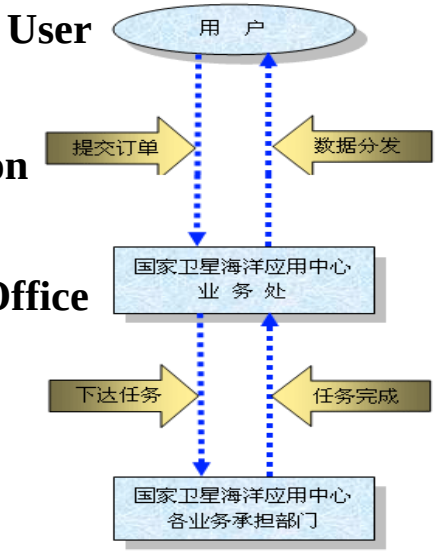
首页 > 定向服务 >数据分发

http://www.nsoas.gov.cn

数据分发流程

国家卫星海洋应用中心业务处负责组织中心对外的卫星数据分发业务。用户根据自己的需求，向业务处提出申请，经业务处审核并报中心领导批准后，与用户签订协议。业务处根据用户的需求向中心各业务部门下达任务单。任务完成后，由业务处通知用户办理取货手续。具体步骤如下：

1. 数据查询。查询方式有两种：第一，用户登录到国家卫星海洋应用中心网站（www.nsoas.gov.cn），查询有关产品数据信息，确定自己的数据需求；第二，用户直接到国家卫星海洋应用中心来查询需求数据。
2. 订单提交。用户根据需求，填写《卫星数据分发申请表》（该表可在中心网站上获取），向中心业务处提出申请，经中心业务处审核并报中心领导批准后办理相关收费手续。
3. 任务下达。中心业务处向各业务部门下达任务。承担任务部门根据订单要求安排人员进行产品制作。
4. 数据分发。承担部门完成任务后即通知业务处，最后由中心业务处与用户联系，将数据交付到用户手中。



数据分发业务流程图

User

Submit Application

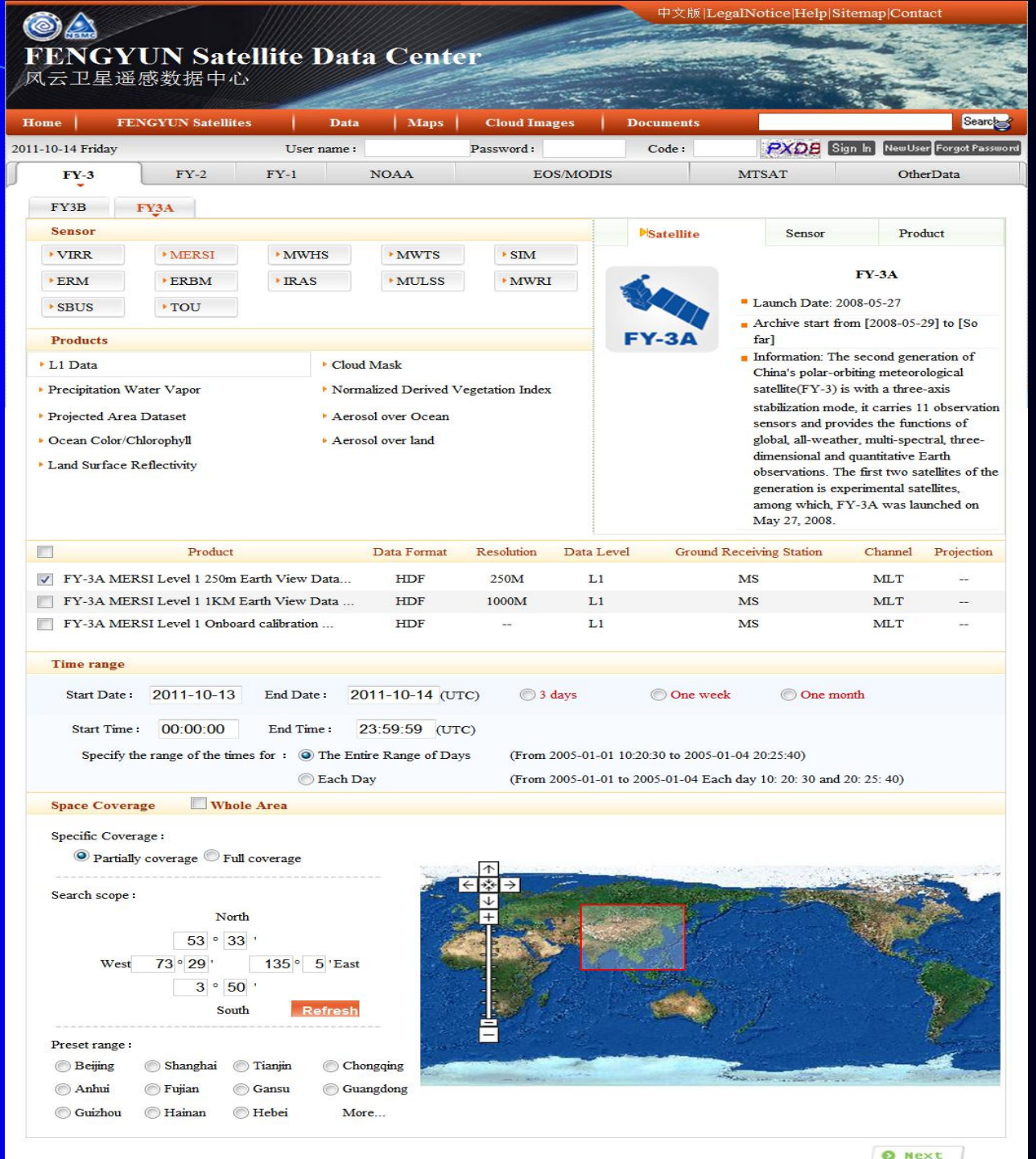
Data Distribution (FTP or DVD)

Operation Office

Data processing department

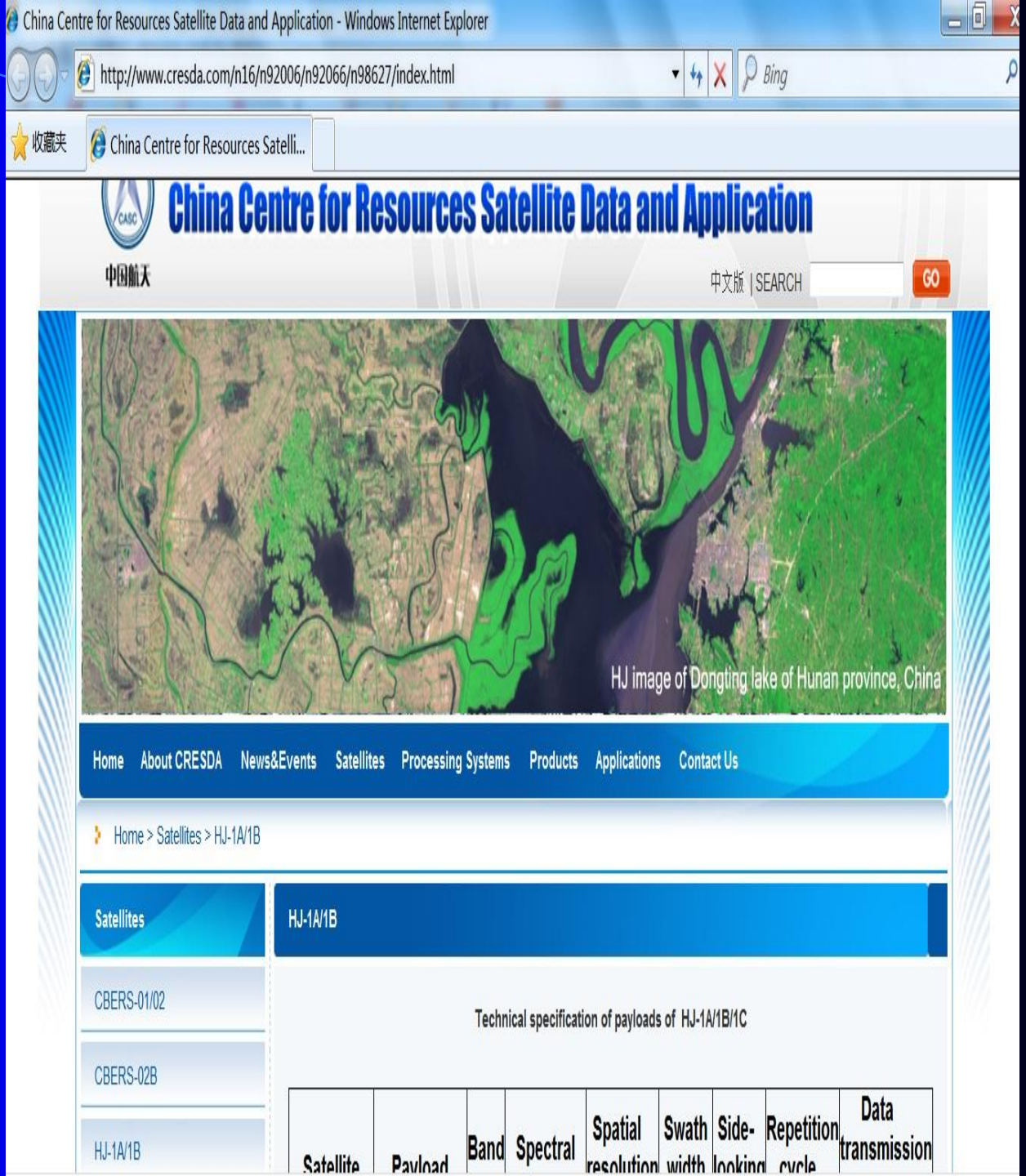
Access the FY-3A/B/C satellite data

http://satellite.cms.gov.cn/ArssEn/



Access the HJ-1A/B/C satellite data

http://Cresda.com/

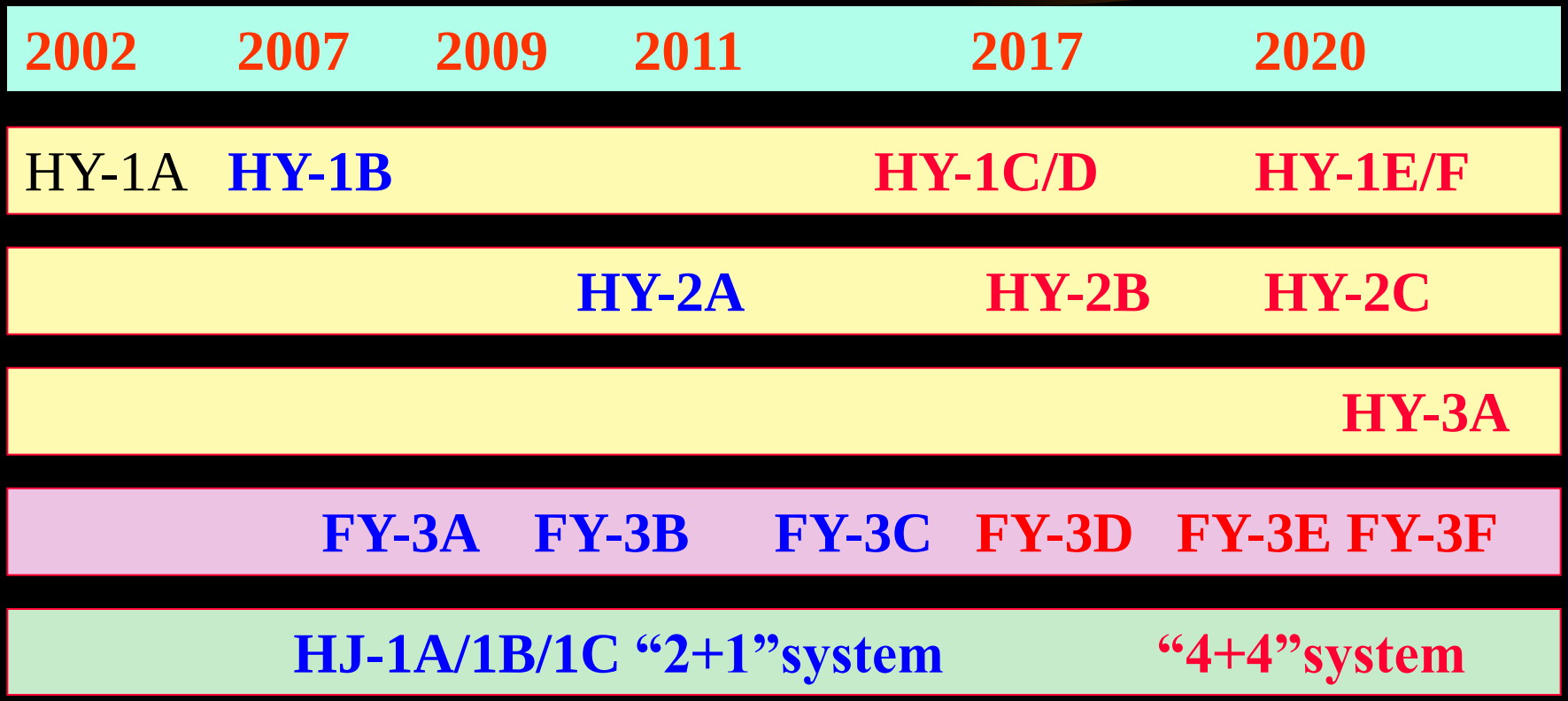


1、The Present Chinese satellite missions for ocean remote sensing

2、The future Chinese satellite missions for ocean remote sensing

中国海洋卫星的计划

Future Ocean Observation Satellite mission for ocean remote sensing in China



Summary (1)

- **Four satellite missions can be used for the ocean remote sensing, including the Ocean Observation Satellites (HaiYang,HY), Meteorological Satellites (FengYun,FY), Environment and Disaster Monitoring Satellites (HJ), and Spacecraft (SZ).**
- **The HY-1B and HY-2A are operational running.**
- **The three satellites FY-3A/B/C are operational running with global monitoring capacity.**
- **The three satellites HJ-1A/B/C are operational running with high spatial and spectral resolution.**

Summary (2)

- China will continue to launch more Satellites, including the HY-1 series for ocean color and temperature, HY-2 series for ocean dynamic, HY-3 series for ocean SAR, and CFOSAT-satellite cooperation project between China and France.
- China will launch the meteorological satellites, environment and disaster monitoring satellites, which can be used for the ocean remote sensing.
- The data quality of all satellites will be significantly improved. All data can be available with the approval of applications. We expect to make much more contributions in the IOCCG community.

谢谢!

Thanks for your attention!