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Recent Progress of Earth Observation Satellites in China

HUANG Shusong QI Wenping ZHANG Shuai XIA Tian

WANG Jingqiao ZENG Yong

(*China Centre for Resources Satellite Data and Application*, *Beijing* 100094)

Abstract Currently, China has 32 Earth observation satellites in orbit. The satellites can provide various data such as optical, multispectral, infrared, and radar. The spatial resolution of China Earth observation satellites ranges from low to medium to high. The satellites possess the capability to observe across multiple spectral bands, under all weather conditions, and at all times. The data of China Earth observation satellites has been widely used in fields such as natural resource detection, environmental monitoring and protection, disaster prevention and reduction, urban planning and mapping, agricultural and forestry surveys, land survey and geological prospecting, and ocean forecasting, achieving huge social benefits. This article introduces the recent progress of Earth observation satellites in China since 2022, especially the satellite operation, data archiving, data distribution and data coverage.

Key words China Earth Observation Satellites, Satellite operation, Data archiving, Data distribution, Data coverage

Classified index V474.1

1 Satellite Introduction

Earth observation satellites play a pivotal role in natural resource detection, environmental monitoring and protection, disaster prevention and reduction, urban planning and mapping, agricultural and forestry surveys, land survey and geological prospecting, and ocean forecasting. Their data and information are essential for a nation's economic development, social progress, and national security. Currently, there are 32 Earth observation satellites in orbit. Since 2022, China has launched 9 Earth observation satellites. The status of the new China Earth observation satellites is shown in Table1.

1.1 LT-1A and LT-1B

On 26 January 2022, the LT-1A satellite soared into space with a triumphant launch from the Jiuquan Satellite Launch Center. Following closely, on 27 February 2022, at the same time, the LT-1B satellite was flawlessly propelled into orbit by the Long March 4C carrier rocket, also originating from the Jiuquan Satellite Launch Center. The Land Exploration Satellite 1 project is an important component of the national medium and long term civilian space infrastructure development plan (2015–2025), and it is also the first scientific research satellite project approved by the plan. LT-1A and LT-1B satellites are developed by Shanghai Academy of Spaceflight Technology. The satellite has a design life of 8 years and has six imaging modes.

LT-1A and LT-1B operate on a sun-synchronous orbit at an altitude of 607 km, equipped with advanced L-band multi-polarization multi-channel SAR payloads with a total antenna area exceeding 33 m^2, making them the largest-aperture SAR satellites currently in orbit in China. These satellites possess various imaging modes, with a maximum resolution of 3 m and a maximum observation swath width of up to 400 km. The L-band SAR

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payload, characterized by its long wavelength and strong ability to penetrate vegetation, can provide long-wave synthetic aperture radar data with extensive coverage, high measurement point density, and high repeat observation frequency, enabling early identification of disaster risks in areas with complex conditions and difficult ground access.

LT-1A and LT-1B satellites will operate in close proximity or as a network, utilizing differential deformation measurement and interferometric altimetry techniques to monitor ground deformation and conduct topographic mapping in specified regions. Featuring all-weather, all-time, multi-mode, and multi-polarization capabilities, they can be applied in geology, land use, Earthquake, disaster reduction, surveying and mapping, forestry, effectively enhancing China's capacity for independent satellite detection and prevention of geological disasters. The imaging mode of LT-1A and LT-1B is shown in Table 2.

1.2 GF-3C

The GF-3C satellite was successfully launched on 7 April 2022, from the Jiuquan Satellite Launch Center. Developed by the China Academy of Space Technology, which is part of the China Aerospace Science and Technology Corporation, it is designed to operate for eight years in orbit and features a suite of 12 conventional imaging modes.

GF-3C satellite, one of the two operational satellites outlined in the national medium and long term civilian space infrastructure development plan (2015–2025), operates in a Sun-synchronous return orbit at an altitude of 755 km. Its primary payload is a C-band synthetic aperture radar. This satellite fully inherits the technical solutions of the GF-3 satellite, a key scientific and technological project within the High-Resolution Earth Observation System. Once launched, it will integrate with the existing the GF-3 satellite to create a network, forming a constellation of land and sea radar satellites capable of 1 m resolution and daily revisits. Additionally, it features enhancements such as a ship automatic identification signal receiving system and on-board real-time processing, enhancing capabilities for maritime vessel observation and monitoring of marine emergencies and the natural environment. With the formation of a three-satellite network, it will enhance capabilities for longer-term observation, greater clarity, faster imaging, and im-

Table 1 List of new Earth observation satellites in China

Number	Satellite name	Code	Launch time	Design life / year
1	L-SAR 01 A	LT-1A	26 Jan. 2022	8
2	L-SAR 01 B	LT-1B	27 Feb. 2022	8
3	Gaofen-3 03	GF-3C	7 Apr. 2022	8
4	Atmospheric environment monitoring satellite	DQ-1	16 Apr. 2022	8
5	Terrestrial ecosystem carbon monitoring satellite	CM-1	4 Aug. 2022	8
6	5 m S-SAR 01	HJ-2E	13 Oct. 2022	8
7	Gaofen-5 01 A	GF-5 01 A	9 Dec. 2022	8
8	5 m S-SAR 02	HJ-2F	9 Aug. 2023	8
9	Land Exploration Satellite 4-01	JZ-1	13 Aug. 2023	8

Table 2 Imaging mode of LT-1A and LT-1B

Serial number	Imaging mode	Resolution/m	Imaging width/km	Polarization mode
1	Strip mode 1	3	50	Optional single polarization
2	Strip mode 2	12	100	Optional single polarization
3	Strip mode 3	3	50	Optional dual polarization
4	Strip mode 4	6	30	Total polarization
5	Strip mode 5	20–30	150–250	Optional single polarization
6	Scan mode	30	400	Optional single polarization

proved functionality, addressing a range of needs including maritime rights defense, disaster prevention and mitigation, environmental monitoring, disaster relief, territorial control, environmental protection, water conservancy, agriculture, and meteorology. This transition from demonstration to operational use of synthetic aperture radar satellite data will support China's strategy to become a leading maritime power. The imaging mode of GF-3C is shown in Table 3[1–5].

1.3 DQ-1

The atmospheric environment monitoring satellite, known as the DQ-1 satellite, was successfully launched on 16 April 2022, from the Taiyuan Satellite Launch Center. This satellite serves as a cornerstone of scientific research within the national medium and long term civilian space infrastructure development plan (2015–2025). Developed by the Shanghai Aerospace Technology Research Institute, which is a subsidiary of the China Aerospace Science and Technology Corporation, the DQ-1 operates in a Sun-synchronous orbit and boasts a comprehensive array of payloads. These include atmospheric detection lidar, a high-precision polarization scanner, a multi-angle polarization imager, an ultraviolet hyperspectral atmospheric composition detector, and a wide-range imaging spectrometer.

Notably, this atmospheric environmental monitoring satellite is not just a research satellite in the nation's medium and long term development plan for civil space infrastructure; it is also a world pioneer, being the first satellite capable of detecting carbon dioxide laser. Equipped with five advanced remote sensing instruments, it promises to significantly enhance global capabilities in carbon monitoring and atmospheric pollution detection. Once operational in orbit, it will usher in a

Table 3 Imaging mode of GF-3C

Number	Imaging mode		Resolution /m			Imaging width /km		Total number of views	Polarization mode
			Nominal	Azimuthal direction	Distance direction	Nominal	Range		
1	Bunching		1	1.0–1.5	0.9–2.5	10 × 10	10 × 10	1	Optional single polarization
2	Hyperfine strip		3	3	2.5–5	30	30	1	Optional single polarization
3	Fine strip 1		5	5	4–6	50	50	1	Optional dual polarization
4	Fine strip 2		10	10	8–12	100	95–110	2	Optional dual polarization
5	Standard strip		25	25	15–30	130	95–150	6	Optional dual polarization
6	Narrow range topsar		50	50–60	30–60	300	300	6	Optional dual polarization
7	Wide range topsar		100	100	50–110	500	500	8	Optional dual polarization
8	Fully polarized strip 1		8	8	6–9	30	20–35	1	Total polarization
9	Fully polarized strip 2		25	25	15–30	40	35–50	6	Total polarization
10	Wave imaging mode		8	8	6–9	20 × 20	20 × 20	1	Total polarization
11	Global topsar model		500	500	350–700	650	650	12	Optional dual polarization
12	Extend incident angle	Low incident angle	25	25	15–30	130	120–150	6	Optional dual polarization
		High incident angle	25	25	20–30	80	70–90	6	Optional dual polarization

Note 1 Ground distance.
Note 2 The time interval between two consecutive observations is about 10 s, and the imaging range in azimuth and range is 10 km respectively.
Note 3 The interval between two consecutive observations is about 100 km, which can be adjusted. The imaging range in azimuth and range is 20 km respectively.
Note 4 The total viewing number is azimuth viewing number by distance viewing number.
Note 5 With GMTI and high resolution and wide range test mode.

leapfrogging improvement in quantitative remote sensing services across various fields, including the ecological environment, meteorology, and agriculture. This advancement will aid China in achieving national strategies such as carbon neutrality and carbon peaking, promoting ecological civilization construction, and bolstering the development of a strong aerospace nation. Additionally, during the "14th Five-Year Plan" period, China aims to launch a high-precision greenhouse gas comprehensive detection satellite to complement and enhance the network observation capabilities of the atmospheric environment monitoring satellite.

The satellite primarily serves as a tool for regional ambient air quality and ecological environment monitoring, offering crucial domestic data to further bolster China's comprehensive atmospheric environment monitoring, global climate change research, crop yield estimation, agricultural disaster monitoring, and other critical application capabilities. By doing so, it aims to advance remote sensing applications in China's ecological environment, meteorology, agriculture, and rural areas, thereby significantly enhancing the comprehensive utilization efficiency of satellite resources and promoting environmental protection efforts. The payloads of DQ-1 are shown in Table 4.

1.4 CM-1

The Carbon Monitoring Satellite for Terrestrial Ecosystems (CM-1 Satellite) was successfully launched at

Table 4 Payloads of DQ-1

Atmospheric lidar	
Detection center wavelength/nm	532, 1064, 1572
Repetition frequency/Hz	20 (Double pulse)
Laser pulse width/ns	15
Main telescope aperture/m	1
High precision scanning polarimeter	
Center wavelength/nm	380, 410, 443, 490, 670, 865, 1380, 1610, 2250; Each channel has polarization detection capability
Spatial resolution/km	Better than 10
Width/km	⩾ 1800
Polarization measurement accuracy	Better than 0.5%
Directional polarization camera	
Spectral range/nm	433–453, 480–500 (P) 555–575, 660–680 (P) 758–768, 745–785 845–885 (P), 900–920
spatial resolution/km	Better than 3.5
Width/km	⩾ 1800
Polarization measurement accuracy	Better than 2%
Ultraviolet hyperspectral atmospheric composition detector	
Spectral range/nm	240–315, 315–403, 403–550, 550–710
Width/km	⩾ 2300
Spectral resolution/nm	Better than 0.3–0.5
Spatial resolution/km	Better than 24 (rail crossing direction) by 13 (along rail direction)
Wide imaging spectrometer	
Spectral range/μm	0.415, 0.443, 0.47, 0.49, 0.555, 0.659, 0.681, 0.753, 0.8 (Panchromatic channel), 0.865, 0.936, 0.94, 1.375, 1.64, 2.13, 3.8 (High gain), 3.8 (Low gain), 7.325, 8.55, 10.8, 12.0
spatial resolution/m	75 (Panchromatic channel), 150 (True color channel), 300 (Long wave infrared split window), Other channels: 600
Width/km	⩾ 2300

11:08 on 4 August 2022, from the Taiyuan Satellite Launch Center. As the world's first satellite to combine active and passive observation for forest carbon sink monitoring, its successful launch signifies China's entry into the era of remote sensing-based carbon sink monitoring.

The Carbon Monitoring Satellite for Terrestrial Ecosystems was developed by the China Academy of Space Technology, a subsidiary of the China Aerospace Science and Technology Corporation. It is equipped with four satellite payloads: a multi-beam lidar, a multi-angle multispectral camera, a hyperspectral detector, and a multi-angle polarization imager. By utilizing a remote sensing system that integrates point-to-surface and active-passive sensing, and employing comprehensive remote sensing techniques including "laser, multispectral, multi-angle, hyperspectral, and polarization", it captures multi-factor remote sensing information of forest carbon sinks, enhancing the accuracy of carbon sink inversion and significantly elevating China's quantitative capabilities in land remote sensing.

The satellite employs a combined active-passive measurement approach to detect the vegetation biomass of terrestrial ecosystems, addressing issues such as terrestrial ecosystem carbon monitoring, terrestrial ecology and resource survey monitoring, and monitoring and evaluation of major national ecological projects. It serves the national goal of achieving "carbon peak and carbon neutrality", providing operational support and research services for forestry, grassland, ecological environment, surveying and mapping, meteorology, agriculture, and emergency disaster relief. The payloads of CM-1 are shown in Table 5.

1.5 HJ-2E and HJ-2F

The HJ-2E and HJ-2F satellites, part of the Environmental Disaster Reduction II series, were triumphantly launched on 13 October 2022, and 9 August 2023, respectively, from the Taiyuan Satellite Launch Center. Developed by the Fifth Academy of China Aerospace Science and Technology Corporation, these satellites are designed to have an operational lifespan of 8 years and offer four distinct conventional imaging modes.

As outlined in the national medium and long term civilian space infrastructure development plan (2015–2025), the HJ-2E and HJ-2F satellites operate in a sun-synchronous orbit at an altitude of 499 kilometers. Their primary payload is an S-band synthetic aperture radar. Once in orbit, these twin satellites will form a network, marking the initial establishment of a constellation of satellites for emergency management and ecological environment monitoring, along with a comprehensive space-ground operational application system. This constellation will provide essential support for emergency management and ecological environment operations, primarily aiming to localize SAR satellite remote sensing data for these purposes. Additionally, the satellites will serve industries such as natural resources, water conservancy, agriculture, forestry, grasslands, and Earthquake monitoring. The imaging mode of HJ-2E and HJ-2F is shown in Table 6[1,2].

1.6 GF-5 01A

The GF-5 01A satellite was successfully launched from the Taiyuan Satellite Launch Center on 9 December 2022. As a successor to the Gaofen-5 satellite, GF-5 01A boasts three payloads: the Advanced Hyperspectral Imager for the Visible and Shortwave Infrared (AHSI), the Wideband Thermal Infrared Imager (WTI), and the Environmental Monitoring Instrument for Atmospheric Trace Gases (EMI). GF-5 01A possesses the world's foremost comprehensive capabilities in wide-band longwave infrared detection with medium-to-high spatial resolution, offering unparalleled visible short-wave hyperspectral imaging and unprecedented spatial resolution for detecting atmospheric trace gases. Remarkably, it will mark the first time in orbit that a satellite performs three-axis maneuvering for lunar calibration.

The networking of GF-5 01A with GF-5 02 will significantly enhance China's hyperspectral observation capabilities in the atmospheric, aquatic, and terrestrial domains. This will cater to the urgent need for comprehensive environmental monitoring, providing domestic hyperspectral data support for critical environmental operations such as atmospheric and water environmental monitoring. The payloads of GF-5 01A are shown in Table 7.

1.7 JZ-1

The JZ-1 satellite was successfully launched on 13 August 2023, from Xichang Satellite Launch Center. Developed by the China Academy of Space Technology, a subsidiary of the China Aerospace Science and Techno-

Table 5 Payloads of CM-1

Multi-beam lidar			
Laser beam		Vegetation detection 5 beam, aerosol detection 1 beam	
Laser wavelength/nm		1064/532	
Laser altimeter range/km		506 ± 20	
Aerosol polarization detection/nm		Horizontal and vertical polarization (532)	
Ranging accuracy (static)/m		⩽ 0.3	
Vertical sampling interval for aerosol detection/m		⩽ 30	
Multi-angle and multi-spectral camera			
Angle	0° camera	± 19° camera	± 41° camera
Spectral segment/nm	B1 band: 450–520 B2 band: 520–590 B3 band: 630–690 B4 band: 770–890	B1 band: 450–520 B2 band: 520–590 B3 band: 630–690 B4 band: 770–890 P-band: 500–760	B1 band: 450–520 B2 band: 520–590 B3 band: 630–690 B4 band: 770–890 B5 band: 690–730
Ground pixel resolution (vertical rail direction)/m	Better than 2	Better than 4 / 8 (panchromatic/multispectral)	Better than 6 /12 (red edge/multispectral)
Static MTF	⩾ 0.2	P-band ⩾ 0.18, Others ⩾ 0.2	B5 band ⩾ 0.15, Others ⩾ 0.2
Width/km		⩾ 20	
Quantization bits/bit		12	
Hyperspectral detector			
Spectral segment		670–780 nm, ⩾ 366 channels	
Spectral resolution/nm		⩽ 0.3	
Ground pixel resolution/km		⩽ 2	
Width/km		⩾ 30	
Quantization bits / bit		14	
Multi-angle polarization imager			
Working spectrum segment/nm		There were 8 spectral bands: 433–453, 480–500 (P), 555–575, 660–680 (P), 758–768, 745–785, 845–885 (P), 900–920. 490, 670 and 865 spectral bands have polarization measurement capability	
Polarization analysis		Linear polarization, three polarization directions 0°, 60°, 120°	
Multi-angle observation		Along the rail ⩾ 9 angles	
Subsatellite point spatial resolution/km		⩽ 3.5	
Width/km		⩾ 800	

logy Corporation, the satellite's ground system construction and operation are managed by the China Centre for Resources Satellite Data and Application and the Aerospace Information Innovation Research Institute, Chinese Academy of Sciences. With an on-orbit design life of 8 years, the satellite boasts four conventional imaging modes.

The JZ-1 is a remote sensing research satellite outlined in the national medium and long term civilian space infrastructure development plan (2015–2025). Operating in a near 36000 km inclined geosynchronous orbit, satellites in this orbit resemble drawing an 8 in the sky, allowing for relatively consistent observation of vast areas with short revisit periods and wide imaging coverage.

Table 6 Imaging mode of HJ-2E and HJ-2F

Serial number	Imaging mode	Resolution /m			Imaging width /km		Visual number $A\times E$	Polarization mode
		Nominal	Azimuthal direction	Distance direction	Nominal	Range		
1	Unipolar stripe	5	5	3.7–5	35	35–41	1×1	Selectable single polarization
2	Dual polarization strip	5	5	3.7–5	35	35–41	1×1	Optional dual polarization
3	Monopolar scanning	25	20–25	16.5–24.5	95	95–109	1×3 1×4	Selectable single polarization
4	Dual polarization scanning	25	20–25	16.5–24.5	95	95–109	1×3 1×4	Optional dual polarization

Note 1 A × E stands for azimuthal visibility by distance visibility.
Note 2 View number 1 × 3 is only used at the farthest wave position.

Table 7 Payloads of GF-5 01A

Visible short wave infrared hyperspectral camera (AHSI)	
Spectral range	0.4–2.5 μm, 330 channels in total
Spatial resolution/m	30 ± 0.1
Width/km	60 ± 1
Spectral resolution/nm	VNIR: ⩽5. SWIR: ⩽10
Quantization bits /bit	12
Wide range thermal infrared imager (WTI)	
Spectral segment/μm	B1: 8.01 ± 0.08 –8.39 ± 0.12 B2: 8.42 ± 0.12 –8.83 ± 0.12 B3: 10.3 ± 0.15 –11.3 ± 0.08 B4: 11.5 ± 0.08 –12.5 ± 0.16
Subsatellite ground pixel resolution/m	⩽ 100 (Star point) @705 km
Width/km	⩾ 1500
Quantization bits/bit	12
Atmospheric trace gas differential absorption spectrometer (EMI)	
Spectral range/nm	240–290, 290–380 390–530, 550–710
Spectral resolution/nm	0.3–0.6
Stray light	$< 6 \times 10^{-4}$
Total field of view /(°)	114 (Rail crossing direction)
Spatial resolution/km	Better than 24 (Perpendicular to the track) × 13 (Along the track)
Quantization bits /bit	14

As the world's first geosynchronous orbit SAR (Synthetic Aperture Radar) satellite, the JZ-1 is equipped with an L-band SAR as its primary payload. Upon successful launch, it will enable China to achieve all-weather, day-and-night, high-frequency revisit (hourly), and wide-coverage observation capabilities, covering both domestic and neighboring regions with a 20 m resolution. This significant achievement fills a gap in China's high-orbit SAR field, primarily satisfying the needs of disaster prevention and mitigation applications while also catering to the requirements of industries such as land resources, water conservancy, meteorology, oceanography, forestry, and agriculture. The satellite is currently undergoing in-orbit testing.

2 Satellite Operation

In daily situations, the imaging is arranged comprehensively based on user demands and satellite constraints. As of 31 May 2024, the GF-3C satellite has imaged a total of 8755 circles, the LT-1A satellite has imaged a total of 7076 circles, the LT-1B satellite has imaged a total of 6742 circles, the HJ-2E satellite has imaged a total of 4644 circles, the GF-5 01 A satellite has imaged a total of 3595 circles in infrared and 2655 circles in hyperspectral. The satellite operation and control situation is detailed in Table 8.

3 Data Archiving

In general, data acquired by the satellites will be processed into Levels 0 and 1 for storage. As of 31 May 2024, the archiving of each satellite is shown in Table 9.

4 Data Distribution

The data of China Earth observation satellites are distributed to the research institutions, governments, commercial companies and individuals. By the end of May 2024, the distribution of each satellite is shown in Table 10.

5 Data Coverage

Since its launch, the satellite has demonstrated excellent global coverage capabilities. By the end of May 2024, the Level 1 data of LT-1A satellite had achieved an effective global coverage spanning 100.67 million square kilometers (see Figure 1), while the LT-1B satellite covered 96.94 million square kilometers (see Figure 2). The level-1 data of GF-3C satellite excelled, achieving an impressive 202.37 million square kilometers of effective global coverage (see Figure 3). Similarly, the Level 1 data of DMC sensor on the CM-1 satellite delivered 55.61 million square kilometers of effective global coverage (see Figure 4). The HJ-2E satellite covered 68.46 million square kilometers (see Figure 5), and the HJ-2F satellite achieved 40.98 million square kilometers of effective global coverage (see Figure 6). The AHSI sensor on the GF-5 01 A satellite achieved a remarkable 64.86 million square kilometers of effective global coverage (see Figure 7). The respective satellite coverage maps are presented below for reference.

Table 8 Statistics of satellite operation (Cumulative, as of 31 May 2024)

Satellite	Number of imaging turns	Imaging time/h	Track adjustment/times
GF-3C	8755	1090.22	21
LT-1A	7076	587.04	119
LT-1B	6742	562.37	127
HJ-2E	4644	373.44	6
GF-5 01 A(infrared)	3595	1218.76	7
GF-5 01 A (hyperspectral)	2655	203.95	7

Table 9 Statistical results of satellite data archiving (as of 31 May 2024)

Satellite	Sensor	Level 0	Level 1
LT-1A	SAR	19335 scenes /292.69 TB	190213 scenes/317.63 TB
LT-1B	SAR	18120 scenes /271.76 TB	182057 scenes/295.48 TB
GF-3C	SAR	24109 scenes /260.44 TB	288748 scenes /649.24 TB
HJ-2E	SAR	13017 scenes /140.78 TB	205890 scenes/321.23 TB
HJ-2F	SAR	4864 scenes /52.46 TB	71121 scenes/109.49 TB
GF-5 01 A	ACPC	6314 scenes /35.17 GB	6255 scenes/130.94 GB
	AHSI	85679 scenes /236.43 TB	84887 scenes /127.17 TB
	EMI	8205 scenes /84.39 TB	8185 scenes/19.93 TB

Table 10 Statistics of satellite data distribution (as of 31 May 2024)

Satellite (payload)	Distribution/scenes
LT-1A	197369
LT-1B	188308
GF-3C	247913
DQ-1 (WSI)	485734
Cm-1 (DMC)	657968
HJ-2E	354273
GF-5 01 A	288289
HJ-2F	95319
total	2515173

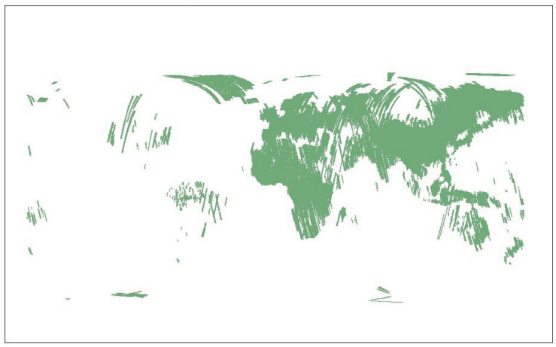


Fig. 1 Global coverage of effective data of LT-1A satellite (as of 31 May 2024)



Fig. 2 Global coverage of effective data of LT-1B satellite (as of 31 May 2024)

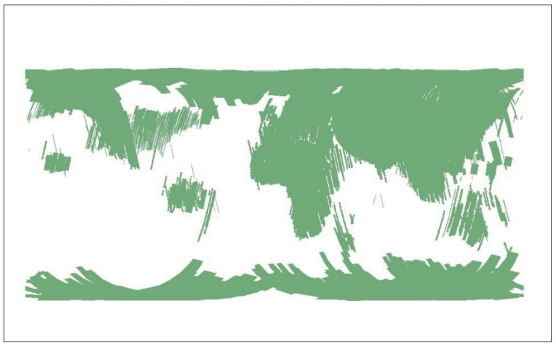


Fig. 3 Global coverage of effective data of GF-3C satellite (as of 31 May 2024)



Fig. 4 Global coverage of effective data of CM-1 (DMC) satellite (as of 31 May 2024)

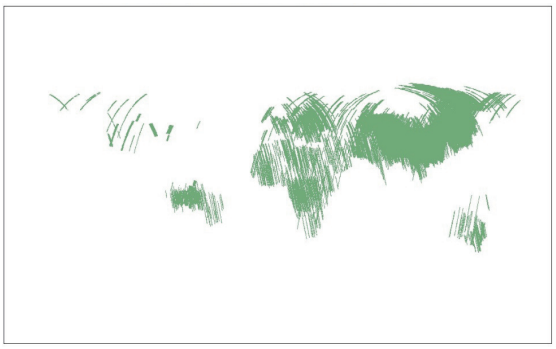


Fig. 5 Global coverage of effective data of HJ-2E satellite (as of 31 May 2024)

6 Conclusion

After more than 20 years of development, Earth observation satellites possess the capability to observe across multiple spectral bands, under all weather conditions, and at all times. The increasing number of civilian Earth observation satellites and diverse payload types have promoted the development of remote sensing technology applications. At the same time, the improvement of remote sensing technology application level has put forward higher requirements for satellite payload indicators and image quality, promoting the development of civilian Earth observation satellites and ground process-

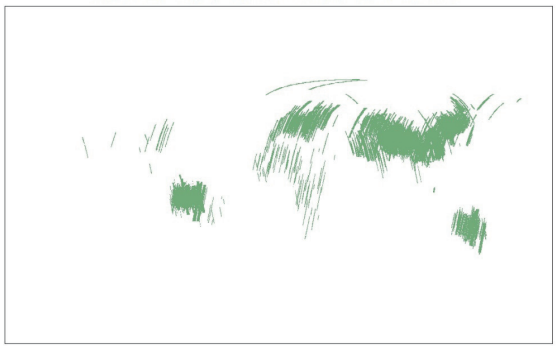


Fig. 6 Global coverage of effective data of HJ-2F satellite (as of 31 May 2024)

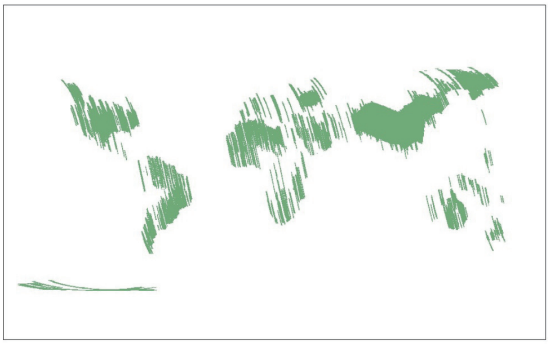


Fig. 7 Global coverage of effective data of GF-5 01 A (AHSI)satellite (as of 31 May 2024)

ing systems.

By 2030, the number of Earth observation satellites in China will reach 40, and the payload and orbit types will become more diverse, further improving the high spatial, high temporal, high spectral, and high radiation resolution. Earth observation satellites will provide rich, stable, and sustainable scientific data for various fields of national economy and people's livelihood, promote the further improvement of remote sensing technology application level, and create greater social and economic benefits.

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Author Biography



HUANG Shusong Male, born in September 1989 in Yangxin County, Shandong Province, is currently a senior engineer at China Centre for Resources Satellite Data and Application. He is engaged in the research of remote sensing satellite operation management, data process and direct economic benefit evaluation of Remote Sensing Satellite
E-mail: hssong1989@126.com



ZENG Yong (Corresponding author) Male, born in February 1972 in Zhangshu City, Jiangxi Province, is currently the Assistant Director and Researcher at China Centre for Resources Satellite Data and Application. He is mainly responsible for the research and operation of ground processing systems for civilian land satellites, dedicated to the mechanism related research of remote sensing image processing, analysis, and visual interpretation
E-mail: zy720221@sina.com