

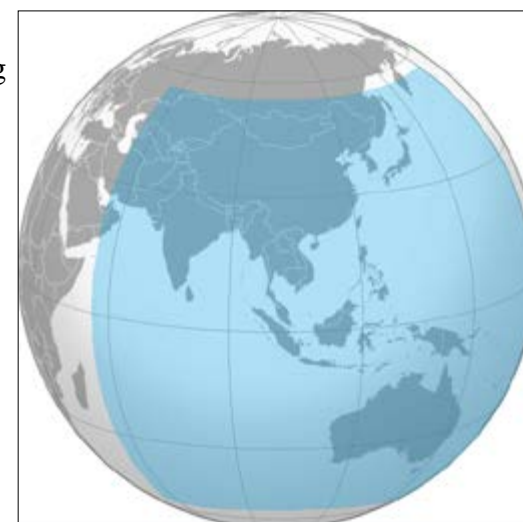


Beidou Navigation System on Track for Completion by 2020

OE Watch Commentary: According to its lead designer, China's Beidou satellite navigation system is rapidly nearing completion. In September, the chief designer of the system, Yang Changfeng [杨长风] stated that it would be completed in 2020.

The accompanying passage in China's *Guangming Daily* features remarks by Yu Xiancheng [于贤成], president of the China Satellite Navigation and Positioning Association, who said that phase three of the system is seeing rapid growth with launches of 19 of the newest version of the satellites. According to public catalogs of satellites in orbit, 25 Beidou satellites have been launched since the beginning of 2017, and overall 52 remain in orbit. With the launching of newer Beidou-3 satellites augmented by ground stations around the globe, the positioning, navigation, and timing (PNT) system is now capable of "meter-, sub-meter, decimeter-, and even centimeter-level positioning" with significant implications for defense and civilian applications.

The passage also provides some important insights into China's strategy for the system. Beidou is already acting as a major vehicle for job creation and growth. According to the article, there are some 10,000 companies and institutions related to satellite navigation and location services in China, which employ 500,000 people. Moreover, in 2018, the value of China's satellite navigation and service industry reached 301.6 billion yuan (\$42.6 billion USD). The beginning of global services in December 2018 is also meant to help China expand business opportunities abroad, particularly under the framework of the Belt and Road initiative. **End OE Watch Commentary (Wood)**



Coverage Polygon of BeiDou Navigation Satellite System since 2012.

Source: Derivative work by Daveduv via Wikimedia, https://commons.wikimedia.org/wiki/File:Beidou_Navigation_Satellite_System_2012.png, CC BY-SA 3.0

“In 2018, the total output value of China's satellite navigation and location service industry reached 301.6 billion yuan (42.6 billion USD), of which Beidou contributed 80 percent...”

Source: “我国北斗系统在轨卫星已达39颗 明年全面完成建设 (China's Beidou system now has 39 satellites in orbit, System Will Be Completed Next Year),” *Guangming Daily* [光明日报], 12 September 2019. http://www.xinhuanet.com/politics/2019-09/12/c_1124988764.htm

Beidou System Begins Global Service

On September 10, Yang Changfeng [杨长风], chief designer of Beidou satellite navigation system, gave remarks at the 8th Annual Meeting of China Satellite Navigation and Location Services and China Beidou Application Conference held in Zhengzhou, Henan Province. In his speech, he said “In 2020, China will complete the comprehensive construction of the global Beidou system on schedule, and application of the system will also be accelerated...”

The theme of this years' conference is “Beidou serving the world, integrating innovative applications”. On December 27, 2018, Beidou 3's basic system began providing global services. Since the beginning of this year, Beidou has made great global achievements, especially in providing service along the “Belt and Road”.

The reporter learned from the conference that in November 2017, the first Beidou-3 satellite was successfully launched. Since then, the construction of the Beidou-3 system has entered a high launch tempo. Between November 5, 2017, and November 19, 2018, China launched 19 Beidou-3 satellites...Of the 39 Beidou satellites in orbit, 21 are Beidou-3 satellites. 18 are in medium-earth orbits, one in a geostationary orbit and two in an inclined geosynchronous orbit.

According to Yang, “Currently, the Beidou project is progressing smoothly. Between five and seven Beidou satellites will be launched this year, and another two to four Beidou satellites will be launched next year. By then, the Beidou global system will be complete. Beidou will serve as China's navigation, positioning and timing system. As the core, in the integration of new technologies, Beidou will be deeply integrated with the Internet, Internet of Things, 5G, big data, etc.”

Yu Xiancheng [于贤成], president of the China Satellite Navigation and Positioning Association [中国卫星导航定位协会], explained that with the Beidou Base Augmentation System, the navigation system can provide meter-, sub-meter, decimeter-, and even centimeter-level positioning. This will put the positioning accuracy of the Beidou navigation system on par with the United States' GPS system.

Beidou is Widely Used in Countries and Regions Along the “Belt and Road”

The construction of the Beidou No. 3 basic system and the provision of global services have marked Beidou's two-year advance into the global era and its role in serving the world, especially in the countries and regions along the “Belt and Road”.

“The demand for satellite navigation in the countries along the “Belt and Road” is relatively large. We will use various measures to tap the potential of using Beidou satellite navigation in the countries along the route. On the one hand, we will empower these industries or products to promote local economic development. Expanding the global market of Beidou.” According to Yu Xiancheng, the Beidou system has covered nearly 30 “Belt and Road” countries including Pakistan, Saudi Arabia, and Myanmar. The agricultural, industrial and service industries in these countries are gradually adopting Beidou high-precision products....

At the conference, the reporter learned that Beidou is now not only a business card of China, but applications for Beidou have also become a strategic emerging industry with a global market. In 2018, the total output value of China's satellite navigation and location service industry reached 301.6 billion yuan (42.6 billion USD), of which Beidou contributed 80 percent to the core output value of the industry. The value created by satellite navigation has reached 194.7 billion yuan (27.5 billion USD). There are roughly 10,000 companies and institutions related to satellite navigation and location services in China and they employ about 500,000 people.

Yu Xiancheng noted that the application of Beidou system has become a driver of economic growth for strategic emerging industries. Beidou beginning global service and the Beidou 3's becoming fully operational n opportunity, represents an opportunity for China to continue promotion of the integration and innovation of Beidou satellite navigation system. Beidou will also usher in a golden period of expanding applications. According to the current growth rate, it is estimated that by 2020, the scale of China's satellite navigation industry will exceed 400 billion yuan (56.6 billion USD).