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China's Space Programme: Political and Military Significance

Marcin Przychodniak

China's space programme serves the purpose of developing the economy, for example, new communications technologies. Space is also an area of strategic importance for the country. The Chinese authorities seek to extend the armed forces' operational capabilities in space and simultaneously exploit politically the militarisation of space. Under its programme, China wants to cooperate with partners to benefit from their experience or co-finance the projects. This cooperation can be beneficial for the EU, including Poland, because it enhances the effectiveness of their space programmes, but additional pressure on transparency of the Chinese actions is needed, such as its plans for militarisation of space.

The December 2018 Chang'e 4 mission is a prime example of how advanced the Chinese space programme is. China became the first country to land a probe on the far side ("dark" side) of the Moon. Space exploration by China had been until recently in the shadows of the U.S. and USSR (later Russia) programmes. Only in the 1990s, with the development of satellite technology and the Chinese military's increased interests in space, did the attitude of the Chinese authorities towards space also change. That resulted, among others, in China's first independent human space flight in 2003, with Chinese national Yang Liwei aboard. The end of the U.S. space shuttle programme, decreases in NASA's budget, and Russia's financial problems have meant that the Chinese space programme is currently the most ambitious one, reflected in a white paper on China's space activities published in 2016.

State Model and Plans for Space Activities. China's space programme is managed by the China National Space Administration (CNSA). It is responsible for coordination among institutions and companies engaged in research, as well as international cooperation. It is part of the Ministry of Industry and Information Technology and headed by a director of vice-ministerial rank. The essential elements of its space programme are the involvement of state-owned companies that design and implement related technology, such as China Aerospace Science and Technology Corporation (CASTC). Research is conducted by the China Academy of Sciences, an institution directly subordinated to the State Council. A portion of the space programme includes private companies (e.g., OneSpace, iSpace). China does not publish data on its space programme budget. It is estimated that during 2005–2011, it allocated more than $35 billion to the development of capabilities of sending humans to space and that the sum constituted 33% of its whole budget (which is about $16 billion annually). For comparison, NASA's budget in 2017 was more than $19 billion.

Further space exploration plans include a manned flight to the Moon (2019), an unmanned mission to Mars (2020), and even exploration around Jupiter (2029). By 2022, work on a new space station—Tiangong-2—is expected to be completed. The dates in the Chinese declarations should be evaluated with caution because delays are common: a planned 2018 launch of a space station module was rescheduled to 2020.

In the Chinese programme, the wide range of goals is combined with potential economic development, with the satellite navigation system, Beidou-2, a good example. Another recent achievement was the launch of the Queqiao satellite, used for communications between ground operators on Earth and the Chang'e 4 lander on the dark side of the Moon. The Chinese are also conducting research involving observations of deep space in the X-ray band and the search for dark matter. They have managed to use a satellite to send and receive photons—light particles—at a distance of more than 1,000 km. This may allow building "quantum" communications networks for use over larger distances (now, such systems are quite limited). This network is theoretically impossible to hack because the interception of the photons changes their state, which informs the recipient of attempts to access the information.

Military Context. Within the space programme, the Chinese armed forces play an important part in controlling infrastructure, such as launch platforms: the Strategic Support Forces are responsible for assisting land forces from space. Chinese imagery and communications satellites allow the military to control the battlefield or disrupt the enemy's flow of information. The space programme would not have been possible without research on carrier rockets (*Long March*), which also have the capability of carrying nuclear warheads. Anti-satellite weapons are also in development, including kinetic-kill types (effectively tested in 2007).

For China, space is a strategic territory perceived similarly to the South China Sea, an area that China wants to control to secure its own interests. Because of this status, space was included in the Chinese National Security Law in 2015. The strategic importance of space also means that China is trying to shape the debate on space militarisation. In 2014, it presented in the UN, together with Russia, a draft Treaty on the Prevention of the Placement of Weapons in Outer Space (PPWT). China accuses the U.S. of space militarisation and suggests more supervision by the international community of state actions. As an example, they point to the China-controlled Asia-Pacific Space Cooperation Organisation (established in 2008, its members include Iran or Turkey). China also suggests the integration of an EU initiative—a draft code on space militarisation—with the PPWT. The Chinese-Russian initiative lacks, however, restrictions on anti-satellite weapons (stationed on Earth), as well as suggestions for how to verify state actions.

International Context. Although the success of China's mission to the Moon confirmed the potential of its space programme, it still is not equal to the U.S. The American advantage emerges mostly from good organisation of public-private partnerships, through which NASA supports the work of companies like SpaceX. In China, the creativity of private companies and ability to acquire funds is limited by bureaucracy and Communist Party control. In 2011, the U.S. Congress, citing security reasons, reduced NASA's cooperation with China. The Chinese were also excluded from work on the International Space Station (a joint project of the U.S, EU, and Russia). China, aware of potential future benefits, did not abandon cooperation with the U.S., using the fact that in 2013 the American space agency reduced the restrictions on China's activity. In October 2018, there was even a meeting between the heads of NASA and CNSA.

China emphasizes its capability to engage in international cooperation because it wants to use the experience and possible co-financing of partners. It has advanced cooperation with Russia—in 2018, the countries signed an agreement on mutual space exploration. Also important is China's cooperation with the European Space Agency (ESA), under which EU astronauts train with the Chinese to fly together to the China-built space station in 2020. The ESA co-finances some projects, such as SMILE (a $53 million programme to research the Sun-Earth connection) and China is one of the partners in the Galileo navigation system project, providing €200 million. The Polish Space Agency also announced its involvement in the EU-China projects (e.g., manned flights). In 2016, it signed an MoU with CNSA on mutual research and telecommunications solutions, and the Centre for Space Research of the Polish Academy of Sciences (CBK PAN) designed equipment for probes used in the Chang'e 4 mission.

Conclusions. China's advantages in its rivalry with the U.S. may be its space programme's importance, politically and in terms of prestige, for the Communist Party of China, and its long-term planning and financing. Threats to it stem from China's worsening economy, although the value of the programme and its innovation potential mean it will remain a priority in the Chinese budget.

The civilian aspect of space exploration is an important part of China's engagement with the world. The EU should continue its cooperation with China, using the advanced Chinese space programmes to access research results and information and exchange experience. EU-China cooperation allows more dialogue and creates the chance to convince the partners of better cooperation in international regulations of space militarisation. EU co-financing of selected Chinese projects beneficial to European interests and the coordination of Member State cooperation with China through the ESA will also help in that regard.

Cooperation with China is also an opportunity for Poland. It is worth considering strengthening collaboration between CBK PAN and the China Academy of Sciences, possibly through a return to the idea of the establishment of a PAN research station in Beijing. Part of Poland's potential cooperation with China could be the use of Polish subassemblies and systems in the satellite production process, such as in Chinese Moon projects. These products are technologically advanced and commercially beneficial. The participation of these companies in common EU-China projects could also be helpful.