

National forum of planetary science for early-career scientists in China



Planetary science is a rapidly growing research field in China. In March 2025, many hundreds of early-career planetary scientists gathered in Huangshan, China, to exchange the latest findings on this topic.

The Young Scientist Forum of Planetary Science (YSFPS) is a nationwide conference of planetary sciences in China, bringing together early-career scientists as both organizers and participants. Initially launched in 2016 as seminars and summer schools with fewer than 100 participants¹, the YSFPS has evolved into one of the largest conferences in Earth and planetary sciences in the country. In 2021, early-career researchers further established the Council for the Young Scientist Forum of Planetary Science, which has since assumed responsibility for the forum's organization and management¹.

From 25–30 March 2025, the 6th YSFPS hosted by the University of Science and Technology of China was successfully held in Huangshan, China, attracting more than 900 attendees from approximately 190 institutions both within China and internationally. As in previous forums¹, nearly 45% of the attendees were students, reflecting the young and rapidly expanding nature of Chinese planetary science research. Notably, this year's forum featured participants from a more diverse array of institutions in China (180 institutions) compared to 126 in 2023 (ref. 1), along with increased representation from industry (20 companies) and international scholars (6 nations). Among these, the Chinese Academy of Science (CAS) systems contributed 44% of the total submissions – comparable to the 41% observed at the last forum¹. Specifically, the University of Science and Technology of China, CAS Institute of Geology and Geophysics, CAS National Space Science Center, Shandong University, and Sun Yet-Sen University were the top contributing institutions.

This year, the YSFPS provided more comprehensive coverage of all planetary science disciplines by organizing 11 themes (Fig. 1)

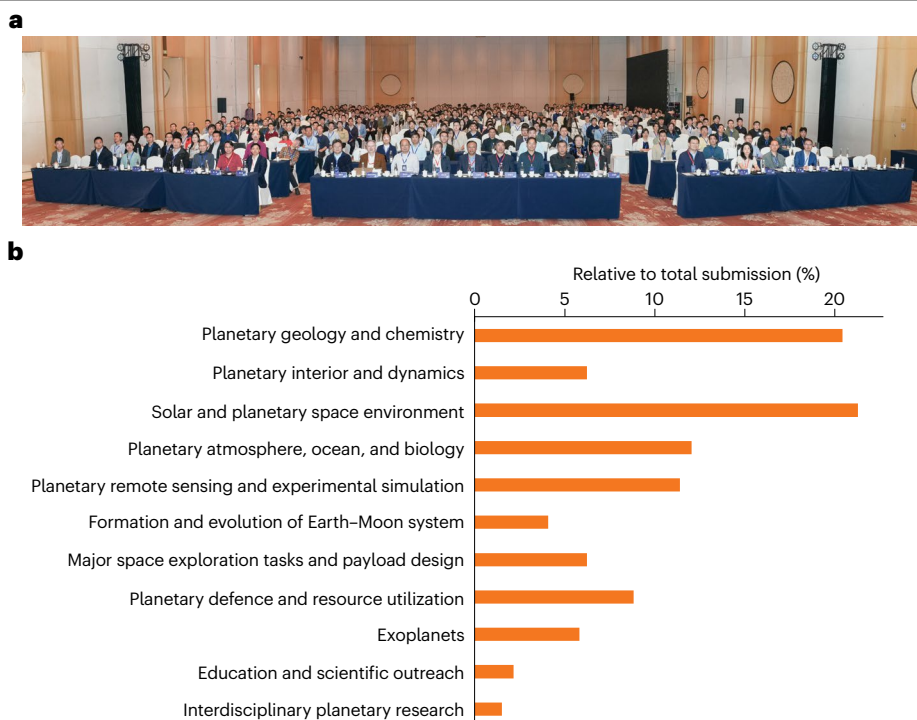


Fig. 1 | Overview of the 2025 Young Scientist Forum of Planetary Science, China. a, A photograph of in-person participants. **b**, Themes of the meeting and their popularity amongst abstract submissions.

and 42 sessions (compared with 15 sessions in 2023 (ref. 1) and fewer in previous meetings). The opening ceremony primarily featured several keynote speeches delivered by principal investigators of Chinese planetary missions and renowned planetary scientists. These talks spanned a wide range of research topics, including "Why is Earth the only terrestrial planet with tectonics?" (by Guochun Zhao from the University of Hong Kong), "Research and prospects on Chang'e-6 lunar samples" (by Fuyuan Wu from CAS Institute of Geology and Geophysics), and "Science goals and the search for biosignatures in China's Tianwen-III mission" (by Zengqian Hou from the Chinese Academy of Geological Sciences). In addition, the 2025 YSFPS also hosted two plenary sessions: "Astrobiology" by David Catling from the University of Washington and "Scientific discoveries from China's first landing mission on Mars" by Yongxin Pan from CAS Institute

of Geology and Geophysics, highlighting emerging fields and significant breakthroughs in Chinese planetary science research. This year, the forum received 567 abstract submissions, of which 494 were selected for oral presentation.

Lunar and Martian research are two major topics with several dedicated sessions in both the 2025 YSFPS and other prominent international conferences in planetary sciences, such as the Lunar and Planetary Science Conference (LPSC, 2024) and the Europlanet Science Congress (EPSC, 2024). Keyword analyses of the abstract titles further suggest that 'lunar', 'Mars', and 'impact' were among the hottest topics at both the 2025 YSFPS and the 2024 LPSC. However, the 2025 YSFPS had fewer dedicated sessions on planetary bodies beyond meteorites, the Moon, and Mars, than those featured at the 2024 LPSC and EPSC. Moreover, 2025 YSFPS had a higher proportion of

submissions incorporating keywords such as ‘simulation’, ‘atmosphere’, ‘space’, and ‘Earth’, whereas the 2024 LPSC showcased more submissions emphasizing ‘analysis’, ‘Venus’, ‘formation’, and ‘mission’. Given that planetary research largely depends on the availability of critical samples and data, this difference in session and abstract diversity primarily reflects the current lack of Chinese exploration missions on planetary bodies other than the Moon and Mars.

In addition to the scientific sessions, the 2025 YSFPS organized several roundtable events that addressed a broad spectrum of topics, emphasizing emergent research fields in China, planetary science education, and career development. Topics ranged from “Planetary science dialogue: from our Solar System to exoplanets” and “Planetary simulation in the lab” to “Curriculum and fieldtrip course designs for planetary science students”, “Women in science”, “Planetary science discipline development and funding policies”, and “Scientific writing and publication”. These events proved highly popular, particularly among early-career students and researchers.

Stimulated by several remarkable space exploration missions, planetary science in China is now developing at an unprecedented rate². As highlighted in the keynote speeches at the 2025 YSFPS, China is implementing several flagship planetary missions over the next 6 years (ref. 3). These include sample return missions from the 2016 HO3 asteroid (the Tianwen-II mission; scheduled for launch in 2025) and Mars (Tianwen-III; scheduled for launch in 2028), as well as an orbital insertion of the Jupiter system with a possible landing on Callisto (Tianwen-IV; scheduled for launch in 2029–2030). In the past 5 years, more than 10 Chinese universities have established undergraduate and/or graduate programmes in

planetary science, enrolling over 300 students annually. During the roundtable discussions at the 2025 YSFPS, panel members also shared experiences and challenges related to planetary science education in China, including the selection of appropriate textbooks.

In 2025, the National Natural Science Foundation of China – the country’s largest funding agency – established a new level-1 application code D08 “Lunar and planetary science” in the Department of Earth Sciences⁴. This new application code D08 marks the first dedicated funding programme for basic research in planetary science in China. The 2025 YSFPS organized a dedicated session to explain the discipline code. Briefly, it covers 11 second-level application codes, organized into three sections:

Basic research

- D0801: Planetary geology
- D0802: Planetary chemistry
- D0803: Planetary interiors and dynamics
- D0804: Planetary space physics
- D0805: Planetary atmosphere and oceans
- D0806: Astrobiology
- D0807: Planetary remote sensing and geodesy

Supporting technology

- D0808: Observation and simulation techniques for the Solar System

Emerging fields

- D0809: Planetary formation and evolution
- D0810: Earth–Moon system
- D0811: Planetary resources

The 2025 YSFPS concluded with several keynote speeches that underscored advanced techniques in planetary science and space

exploration, including the application of AI in the search for habitable exoplanets, the development of life support systems, progress in Chinese lunar navigation and communications test satellites, and innovations in advanced electric propulsion technologies. With significant advancements in space exploration technologies, the rapid growth of early-career scientists, and dedicated funding support, it is anticipated that the young Chinese planetary science community will continue to expand and diversify its research fields as more extraterrestrial samples and data become available.

Jihua Hao^{1,2}✉, Yu Liu¹✉, Jinting Kang¹, Tong Dang¹, Bingkun Yu^{1,2}, Huihong Cheng³✉ & Yuming Wang^{1,2}✉

¹National Key Laboratory of Deep Space Exploration, School of Earth and Space Sciences, University of Science and Technology of China, Hefei, China. ²Institute of Deep Space Sciences, Deep Space Exploration Laboratory, Hefei, China.

³National Natural Science Foundation of China, Beijing, China.

✉e-mail: hao@ustc.edu.cn; yliu001@ustc.edu.cn; chenghh@nsfc.gov.cn; ymwang@ustc.edu.cn

Published online: 2 May 2025

References

1. Le, H., Rong, Z. & Wei, Y. *The Innovation* **4**, 100466 (2023).
2. Rong, Z., Cui, J. & Wei, Y. *Nat. Astron.* **5**, 991–992 (2021).
3. “National Space Science Medium- and Long-Term Development Plan (2024–2050)” released. *Chinese Academy of Sciences* <https://www.cas.cn/zt/kjzt/kjxgh/> (2024).
4. Cheng, H. et al. *Chin. Sci. Bull.* <https://doi.org/10.1360/TB-2024-1348> (2025).

Competing interests

The authors declare no competing interests.