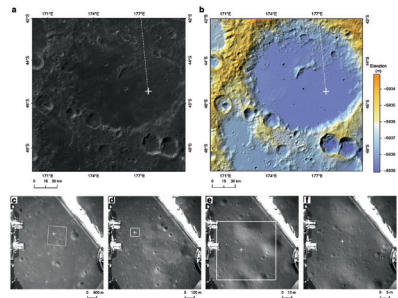
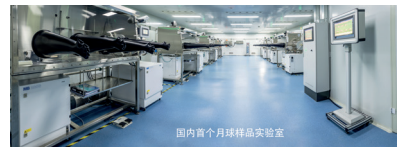


Research Group of Ground Research and Application System for Lunar and Deep Space Exploration Project National Astronomical Observatories, Chinese Academy of Sciences



嫦娥四号月球背面下降轨迹重构和着陆点定位,建立了国际上首个月球背面的高精度位置基准
Descent trajectory reconstruction and landing site positioning of Chang'E-4 on the lunar farside. The result provided high precision position datum of the far side of the moon.



我国月球与深空探测地面应用系统运行平台
The operation platform of GRAS for China lunar and Deep Space Exploration

This research group has built a national-level Ground Research and Application System (GRAS) for Lunar and deep space exploration, making important contributions to China's five successful lunar exploration projects and the first Mars exploration. GRAS has built the most powerful deep space exploration data receiving network in Asia, and the first comprehensive laboratory for deep space exploration payload development, data processing, extraterrestrial sample management and planetary science research in China. Breakthroughs and major scientific discoveries have been made in researches such as lunar surface geomorphology, material composition, subsurface structure and lunar sample, and relevant achievements have been listed as Top Ten Scientific Advances of China in 2019. GRAS has founded China's lunar and planetary science standard system, which filled the gap in the field of lunar and deep space exploration in China. This group has established China's lunar and planetary data processing and mapping technical system, laying the important foundation for lunar and planetary scientific research and application in China.

Outstanding contributors of this research group

Li Chunlai

Chief designer/commander of Ground Research and Application System for Lunar and Deep Space Exploration Program. Lead the team, solve major problems in engineering and scientific research, and ensure the smooth completion of the project.

Zhang Hongbo

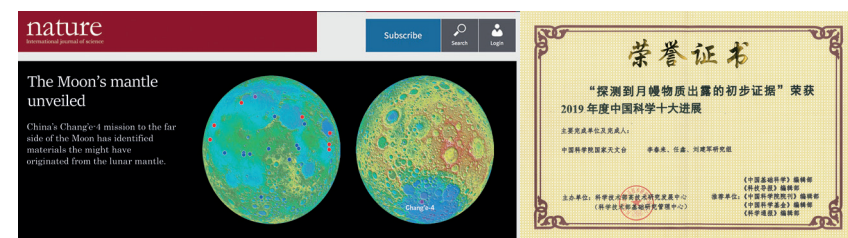
Deputy chief designer/commander of Ground Research and Application System for Lunar and Deep Space Exploration Program (Chief designer of GRAS for CE4 mission). He is responsible for planning and key nodes, to ensure the project to be completed on schedule.

Liu Jianjun

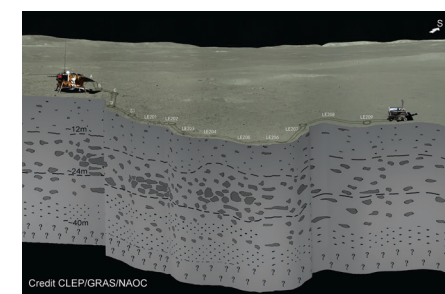
Deputy Chief designer of Ground Research and Application System for Lunar and Deep Space Exploration Program (Chief designer of GRAS for HX1 mission). He is responsible for exploration planning, payload operations, data processing and scientific research.

Major contributors

- Zuo Wei
- Su Yan
- Wen Weibin
- Kong Deqing
- Ren Xin
- Zhang Guangliang
- Wang Fang
- Fu Qiang
- Zhu Xinying
- Li Junduo
- Tan Xu
- Yan Wei
- Geng Liang
- Zhang Zhoubin
- Zeng Xingguo
- Liu Bin
- Liu Dawei



“探测到月幔物质出露的初步证据”,《自然》发布新闻与评述,并入选 2019 年度中国科学十大进展
Preliminary in-situ investigation evidence of Lunar mantle material. NATURE published news and reviews. It was selected as the Top Ten Scientific Advances of China in 2019.



首次揭示了月球背面地下 40 米深度内的分层结构
The first direct measurement of 40 m subsurface structure at the lunar farside



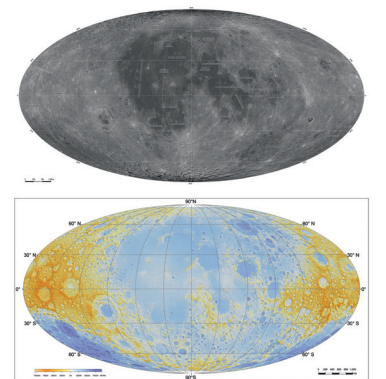
我国月球与行星科学数据发布系统
China's lunar and planetary data release system

月球与深空探测地面应用系统研究集体

推荐单位: 中国科学院国家天文台

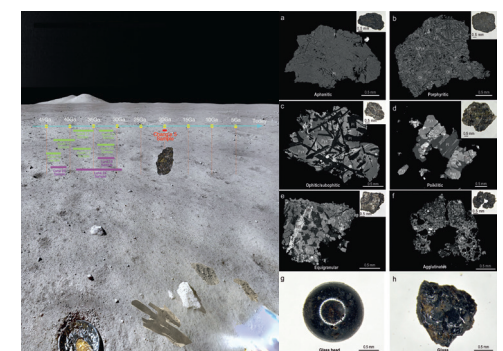
研究集体主要科技贡献:

该研究集体建成了国家级月球与深空探测地面应用系统运行平台,为我国成功实施五次探月工程和首次火星探测做出重要贡献。建成了目前亚洲数据接收能力最强的深空探测数据接收网,及我国首个集深空探测载荷研制、数据处理、地外样品管理与行星科学研究的综合实验室。在对月表形貌特征、物质成分、浅层结构探测、月球样品等研究中取得突破性进展和重大科学发现,相关成果入选“2019 年度中国科学十大进展”。创建了我国月球与行星科学标准体系,填补了我国月球与深空探测领域的空白。建立了我国月球与行星数据处理和制图方法的技术体系,奠定了我国月球和行星科学研究与应用的重要基础。



嫦娥二号全月球地形图数据产品(7m 分辨率数字正射影像图和 20m 分辨率数字高程模型),是迄今空间分辨率最高的全月球基础地图

The Chang'E-2 lunar global terrain data product (the Digital Orthophoto Map (DOM) and the Digital Elevation Model (DEM) with a resolution of 7m and 20m, respectively). It is the lunar global basemap with the highest resolution.



嫦娥五号着陆点,月球样品的背散射电子图像和体视显微镜照片
The CE-5 landing site, backscattered electron images and stereomicrographs of lunar sample



李春来 Li Chunlai

研究集体突出贡献者

李春来 中国科学院国家天文台

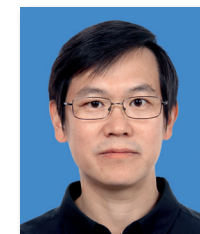
主要科技贡献: 月球与深空探测地面应用系统总师/总指挥,全面负责工程任务,解决工程和科学研究重大问题,保障任务实施。



张洪波 Zhang Hongbo

张洪波 中国科学院国家天文台

主要科技贡献: 月球与深空探测地面应用系统副总师(CE4地面应用系统总师)/副总指挥, 主抓计划和关键节点, 协调保障。



刘建军 Liu Jianjun

刘建军 中国科学院国家天文台

主要科技贡献: 月球与深空探测地面应用系统副总师(HX1地面应用系统总师), 主抓探测规划、载荷运行、数据处理和科学研究。

研究集体主要完成者

- 左维 苏彦 温卫斌 孔德庆 任鑫 张广良
- 王芳 付强 朱新颖 李俊铨 谭旭 严韦
- 耿良 张舟斌 曾兴国 刘斌 刘大卫