Appendix B: Examples of NASA-Funded Research and Collaborations of Concern[1]

We also found hundreds of articles jointly published by researchers from US research institutions (including public universities and federal research facilities) and PRC institutions that credit funding from NASA. There is one long-standing but poorly enforced prohibition on conducting fundamental research with the PRC, which bans recipients of NASA funding from engaging in bilateral participation, collaboration, or coordination with the PRC or Chinese-owned companies, including informal research collaborations with Chinese universities.[2] (The Amendment does not prohibit multilateral cooperation, so one common workaround is to include additional parties to the cooperation.)

A search of open-source information appears to show more than a thousand publications that evince this type of collaboration. These publications were funded at least in part by NASA research in collaboration with the PRC. Dozens of these papers were jointly published with individuals affiliated with the PRC's Seven Sons of National Defense, and hundreds of papers with individuals affiliated with the PRC's Chinese Academy of Science. Many of these papers also list PRC government funding. Most of these publications are from the last ten years, and around 140 of them are from 2023-24 alone. Some raise national security concerns. For example:

- A collaboration with Chinese universities on land surface studies related to improving the accuracy of remote sensing technologies, which has surveillance implications.[3] The project received funding from both NASA and China's 863 Program, which is a program that is directly supported by PRC military funding.
- A collaboration on a NASA-backed fog study in the Chukchi-Beaufort Seas with China's Ocean University, which maintains a formal partnership with the PLA's Navy Submarine Academy, including agreements on "mutual employment of teachers" and "resource sharing."[4, 5] The study's focus on the Chukchi–Beaufort Seas, a strategic area for submarine operations, raises concerns about potential benefits to PLA Navy capabilities in navigation and stealth activities.[6]
- Another study focused on satellite-derived sea surface temperature measurements with researchers from the Ocean University of China, the Qingdao National Laboratory for Marine Science and Technology, and the China Academy of Space Technology—which

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[1] The Committee acknowledges the research contributions of LJ Eads, Founder of Data Abyss, and Jeff Stoff, Founder of the Center for Research Security & Integrity, to this section of the report.

[2] *See* Pub. L. No. 112-10, § 1340 and Pub. L. No. 112-55, § 539.

[3] He, T., Liang, S., Wang, D., Cao, Y., Gao, F., Yu, Y., & Feng, M. (2018). Evaluating land surface albedo estimation from Landsat MSS, TM, ETM +, and OLI data based on the unified direct estimation approach. *Remote Sensing of Environment, 204*, 181-196. https://doi.org/10.1016/j.rse.2017.10.031

[4] Wang Shufang, "The Intercollegiate Teaching Seminar and Exchange Activity between "Ocean University of China - Naval Submarine Academy" Held [中国海洋大学-海军潜艇学院"校际教学研讨交流活动举行]," Ocean University of China, Academic Affairs Office (Dec. 24, 2018), https://news.ouc.edu.cn/2018/1224/c98a91754/page.htm.

[5] "The Joint Cultivation Program for National Defense Scientific Research between the Naval Submarine Academy and Ocean University of China has been launched [中国海洋大学海军潜艇学院国防科研联合培育项目启动]," Ocean University of China, News Center (March 11, 2019), https://archive.ph/Y791z.

[6] Yi, L., Li, K.-F., Chen, X., & Tung, K.-K, "Summer marine fog distribution in the Chukchi–Beaufort Seas," *Earth and Space Science*, 10,. https://doi.org/10.1029/2021EA002049.

is part of a major PRC SOE that develops space satellites.[7, 8] Furthermore, in addition to receiving funds from NASA and NOAA, the study also received funds from the Science and Technology Commission of the Central Military Commission.

[7] Yi, L., Li, K.-F., Chen, X., & Tung, K.-K.(2023). Summer marine fog distributionin the Chukchi–Beaufort Seas. Earthand Space Science, 10, e2021EA002049, https://doi.org/10.1029/2021EA002049

[8] "China Academy of Space Technology (CAST)," NTI, https://web.archive.org/web/20130616121754/http://www.nti.org/facilities/56/.