

NASA's Cryospheric Sciences Program Newsletter

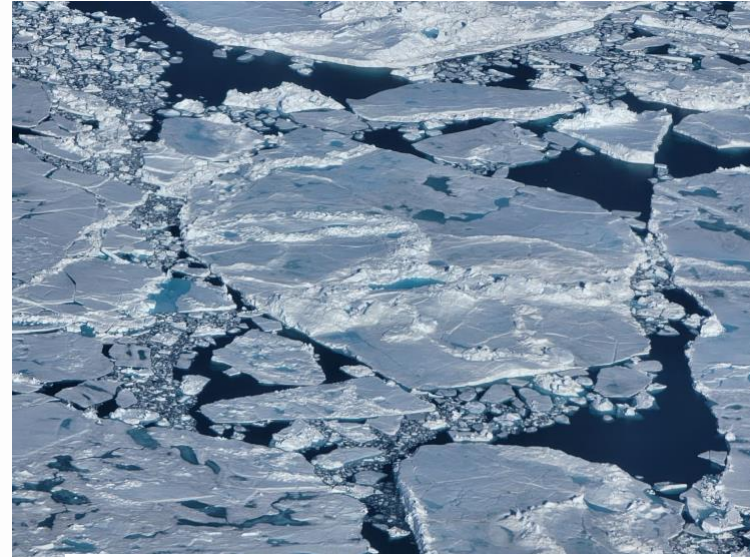
Fall 2022

What's New in NASA Cryosphere?

ICESat-2 Summer Sea Ice Campaign. ICESat-2 wrapped up its summer sea ice calibration/validation campaign with six science flights on NASA's JSC's G-V aircraft conducted between July 11-26 from Thule, Greenland. The campaign carried two laser altimeter and visual imagery systems, these included NASA's LVIS instrument and a commercial Chiroptera lidar/imager operated by the University of Texas at Austin. The main goal of the campaign was to evaluate and improve retrievals of Arctic sea ice freeboard and melt pond characteristics from ICESat-2 data during the summer melt season. Coincident underflights of ICESat-2 were carried out at high altitude to provide broad coverage of the sea ice and ensure overlap with the ICESat-2 beams, and at low altitude to capture fine-scale resolution measurements of sea ice and melt pond structure. The last flight of the campaign was conducted in conjunction with a coincident orbit of both ICESat-2 and ESA's CryoSat-2 satellite as part of the Cryo2Ice campaign.



Nathan Kurtz, Michelle Hofton, Marco Bagnardi and Rachel Tilling prepare for an upcoming science flight.



Sea ice floes, pressure ridges, melt ponds and leads – all of observational interest during the campaign!

Glaciology Summer School 🧊 at the University of Alaska Fairbanks. After a four-year COVID-induced hiatus, the sixth International Summer School in Glaciology was successfully hosted at the Wrangell Mountain Center in McCarthy, Alaska. Among the spectacular scenery of the Wrangell Mountains 28 early-career graduate students from 13 countries gathered with six instructors from UAF and two outside lecturers from Dartmouth and UC Boulder for ten days of intense learning about most aspects of glaciology. The summer school included lectures, exercises, computer projects, an outdoor poster session, a short and a longer glacier excursion, and a public lecture. The remoteness and isolation of McCarthy provided an ideal learning environment, which, once again, resulted in a great and inspiring group of students. The organizers remarked that it is always amazing to witness the project presentation and to see what a dedicated group of intelligent young people can produce in just a few short days. With some amount of luck and a regimen of regular testing, the team managed to carry out the program without interruption by COVID-19.



Students and instructors are dwarfed by a large supraglacial lake on Kennicott Glacier in the Wrangell Mountains, Alaska.

NISAR Science Workshop 📡 in Pasadena, CA. The 2022 NISAR Science Community Workshop, organized by NASA and UNAVCO, was held from August 30-September 1, 2022 and brought together the science community in solid earth, ecosystems, cryosphere, hydro-geodesy and other areas of science that will benefit from the NISAR mission. NISAR is a particularly important mission for cryospheric sciences. More than 300 people joined this 2.5-day workshop; it informed the community about the upcoming mission, its planned science data products and upcoming funding opportunities to work on NISAR related science. Breakout sessions, poster sessions and plenary science talks provided a forum for building collaborations and discussing future directions for SAR data analysis, science and applications. Its current launch date is set for early 2024 – stay tuned!

UPCOMING EVENTS:

West Antarctic Ice Sheet (WAIS) Initiative Meeting ❄️ in Estes Park, Colorado. The 2022 WAIS Workshop will be held in Estes Park, Colorado, at the YMCA of the Rockies, right next to Rocky Mountain National Park. This NSF- and NASA-sponsored meeting hosts transdisciplinary and societally critical science focused on marine ice-sheet and adjacent earth systems, with particular emphasis on the West Antarctic Ice Sheet. The meeting will take place from 27-29 September 2022. Registration and abstract registration are now closed, but if you would like to live stream the meeting, sign up for their email distribution list [here!](#) NASA and NSF program management will be present and are looking forward to the talks, posters and discussions.

ICESat-2 Science Symposium 🌈 at the University of Texas at Austin. The ICESat-2 project science office and program office cordially invite all who are interested in ICESat-2 science to attend our first ICESat-2 science symposium, taking place from 24-26 October 2022 at the J.J. Pickle Research Campus of the University of Texas at Austin. This symposium will be hybrid format, with a poster session on the evening of October 24 (in-person only), followed by science presentations and discussions on October 25-26 (in-person and online). The symposium is an opportunity for the science community to come together and present their research and development centered around ICESat-2 data, technologies and discoveries. The event is open to anyone and hopes to cover a broad reach of science disciplines. Registration for both in-person and online participation closes on October 1 and can be completed [here](#).

Of Ongoing Interest . . .

Where's My Grant?? As a PI, you have access to the NSSC Grants Database to check on the status of your award/next increment of funding after you send us a progress report. Simply go to [this link](#) and enter either your name or grant number (it will start with NNX for older grants and 80NSSC for newer grants) and click on "Submit". If it shows "Work in Progress", know that it's on the way!

NASA's Transform to Open Science (TOPS) Initiative. Within the TOPS mission, NASA is designating 2023 as the Year of Open Science, a global community initiative to spark change and inspire open science engagement through events/activities that will shift the current paradigm. It's important to recognize that TOPS is only a starting point; NASA is committed to longer-term support for building an inclusive open science community over the next decade. [Sign up for TOPS community email updates here!](#)

Do you and your team have an awesome idea for sharing code or accessing data, and want to share your ideas with the world and teach others how to work towards better open science practices? As part of NASA's Transform to Open Science (TOPS) initiative, there is currently an [open solicitation for TOPS Training](#) looking for open science training and education proposals. This Transform to Open Science Training (TOPST) element of ROSES solicits proposals to advance open science literacy for all who do research relevant to NASA's SMD through training and workshops targeting audiences from undergraduate students to established scientists and managers.

This program element solicits proposals for (1) the development of science discipline-specific curriculum (ScienceCore) to advance open science adoption, and institutional capacity building through (2) summer schools and (3) virtual cohorts. The training materials, as well as the design of the learning activities, must be targeted to audiences from undergraduate students to established scientists and managers from all science disciplines supported by SMD. Proposals must address one of the topics in the solicitation (ScienceCore curriculum; Summer Schools; and Virtual Cohorts) and follow all requirements described in that section. Each proposal is limited to a single topic, but any given organization or PI may submit multiple proposals.

Proposals submitted to this program will be evaluated using the dual-anonymous peer review process. **To get more information on this process and the solicitation in general, there will be an informational session during the regularly scheduled TOPS Community Forum meeting on Thursday, October 13 at 1pm Eastern (see the solicitation document for more details about registration and signing up for the TOPS email list if you're interested).**

NASA's open science initiatives and framework development are a work-in-progress. Guidance for PIs will continuously be evolving and improving! **Do you have a great idea about how best to implement these changes, or do you have an open science/open-source science success story? Let us know!**

Planning on proposing to an upcoming Cryospheric Sciences/ICESat-2 solicitation? Proposers are required to include open science in their work plans to achieve the following goals:

- Progress is accelerated to the maximum extent possible by sharing advances during the conduct of investigations, not just at the publication stage. This sharing:
 - o Includes scientific results and analytic approaches,
 - o Occurs within and across science disciplines, and
 - o Happens openly and frequently via team meetings, contributions to open repositories, and other communications with colleagues.
- Workflows are documented to facilitate sharing of advances and validating results by using open-source digital notebooks, regular updates to appropriate open code repositories, and ensuring critical ancillary data sets are available.
- Crediting individuals making similar pre-publication contributions wherever possible.

Earth System Observatory (ESO) Missions Update

Atmosphere Observing System (AOS), Mass Change (MC) and Surface Biology and Geology (SBG) are wrapping up Pre-Phase A development. The purpose of Pre-Phase A is to produce a broad spectrum of ideas and alternatives for missions from which new programs/projects can be selected. During Pre-Phase A, a study or proposal team analyses a broad range of mission concepts that can fall within technical, cost, and schedule constraints and that contribute to program and SMD goals and objectives. Pre-Phase A effort could include focused examinations on high-risk or high technology development areas.

Key Decision Point-A (KDP-A) milestones are occurring this fall for SBG (Oct 11), MC (Oct 25) and AOS (Nov 8). Key decision points are the events at which the decision authority determines the readiness of a program/project to progress to the next phase of the life cycle (or to the next KDP). The purpose of Phase A is to develop a proposed mission/system architecture that is credible and responsive to program expectations, requirements, and constraints on the project, including resources. During Phase A, activities are performed to fully develop a baseline mission concept, begin, or assume responsibility for the development of needed technologies, and clarify expected reliance on human elements to achieve full system functionality or autonomous system development.

Funding Opportunities of Interest

- A.28 Interdisciplinary Research in Earth Sciences (due 16 November 2022)
- A.32 Studies with ICESat-2 (due 14 October 2022)**
- A.44 Commercial Smallsat Data Scientific Analysis (due date TBD)
- F.5 Future Investigators in NASA Earth and Space Science and Technology (FINESST) (due date 14 February 2023)
- F.14 Transition to Open Science Training (TOPST) (due 08 December 2022)

Upcoming Events

- West Antarctic Ice Sheet (WAIS) Workshop (online and in-person) – 26-29 September 2022, Estes Park, CO
- ICESat-2 Science Symposium (online and in-person) – 24-26 October 2022, Austin, TX
- American Geophysical Union Annual Meeting (online and in-person) – 12-17 December 2022, Chicago, IL