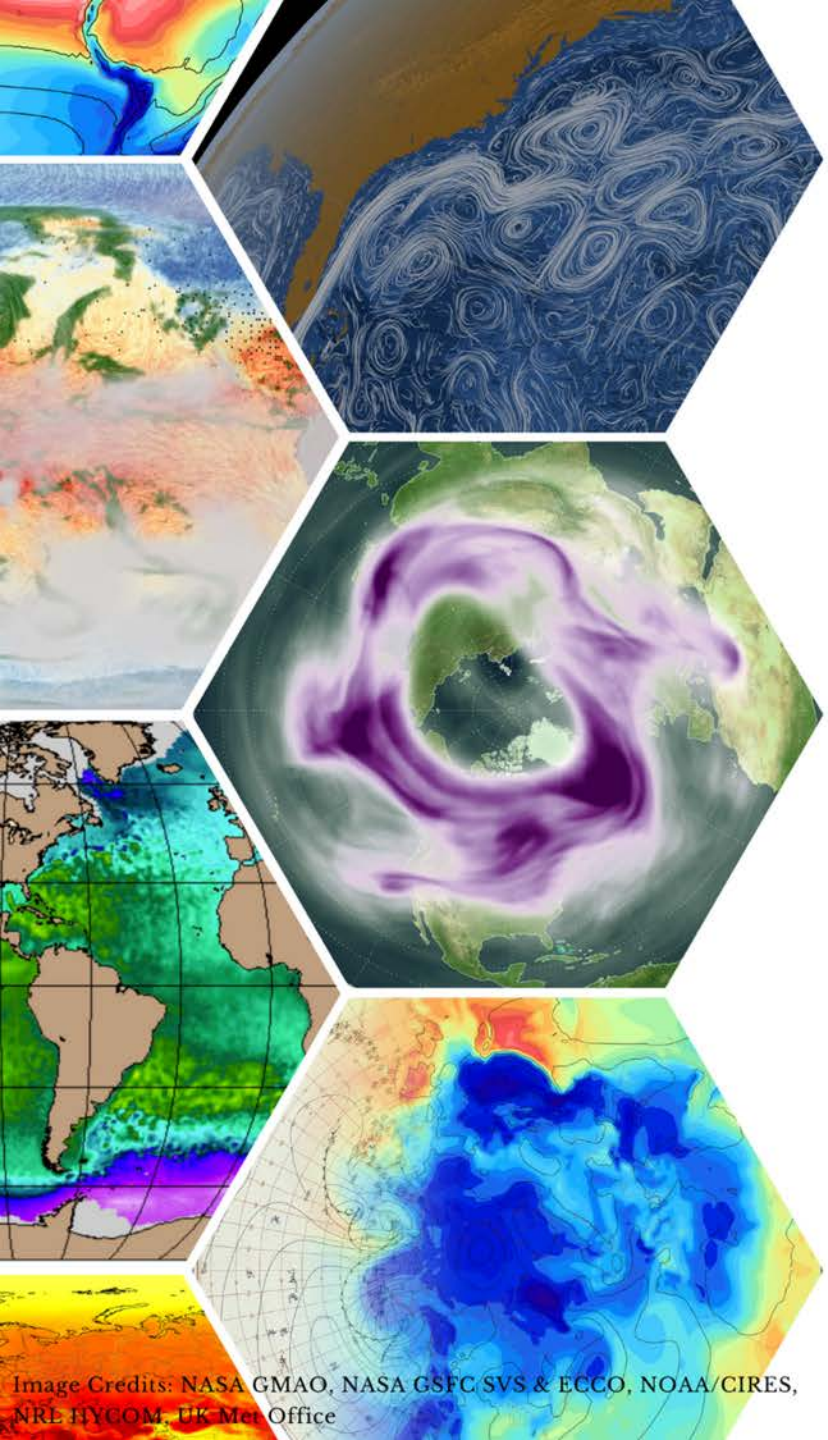

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https://usclivar.org/meetings/reanalysis-2021

# Workshop on Future US Earth System Reanalysis

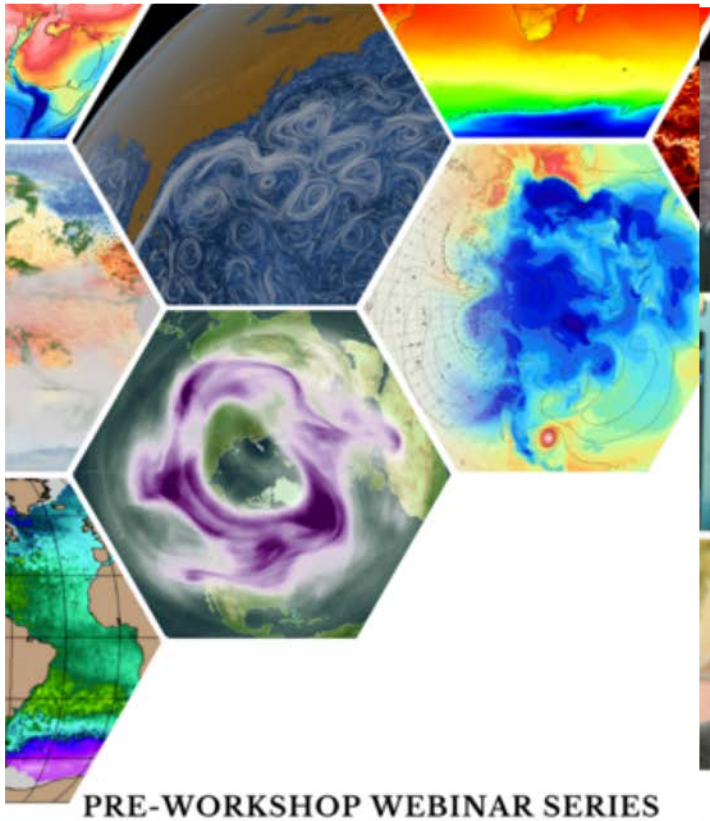
MAY 16-18, 2022
BOULDER, CO & VIRTUAL

A workshop aimed at developing a shared scientific, technological, and application vision for the future of US reanalysis efforts.

Scientific Organizing Committee
Sergey Frolov, NOAA PSL (co-chair)
Cécile Rousseaux, NASA (co-chair)
Tom Auligne, JCSDA
Dick Dee, Planet A
Ron Gelaro, NASA GMAO
Patrick Heimbach, U. Texas
Isla Simpson, NCAR
Laura Slivinski, CIRES/NOAA PSL

Sponsored by

US CLIVAR NASA NOAA NSF



PRE-WORKSHOP WEBINAR SERIES

# Future US Earth System Reanalysis

A series of community webinars to elucidate scientific and technological drivers for the next generation of Earth system reanalysis.

**January 11, 2022 | 11am ET**

**Laura Slivinski**
NOAA PSL

Introduction to the workshop

**Tom Hamill**
NOAA PSL

Reanalysis for reforecast

**Gil Lizcano**
Climate Scale

Emerging commercial applications based on public data

**February 8, 2022 | 11am ET**

**Karina von Schuckmann**
Mercator Ocean

Heat sequestration in the ocean

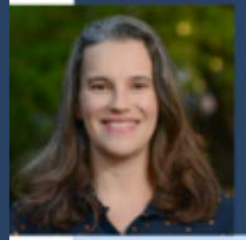
**Clara Orbe**
NASA Goddard

Stratospheric transport and stratosphere-troposphere interaction

**March 8, 2022 | 4pm ET**

**Arlindo da Silva**
NASA Goddard

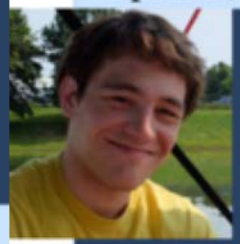
Planning for future observing systems focused on coupled processes



**Linden Ashcroft**
University of Melbourne

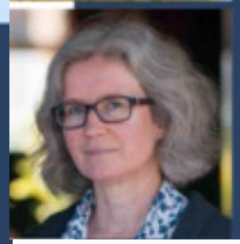
Sparse data rescue

**April 19, 2022 | 11am ET**



**Tom Augspurger**
Microsoft

Cloud as a game changer: Planetary computer



**Elizabeth Kent**
National Oceanography Centre

Role of SST forcing in reanalysis and ability to reconstruct climate records

Pre-workshop webinars will help inform further outcomes of the May 2022 workshop.

# Workshop objectives

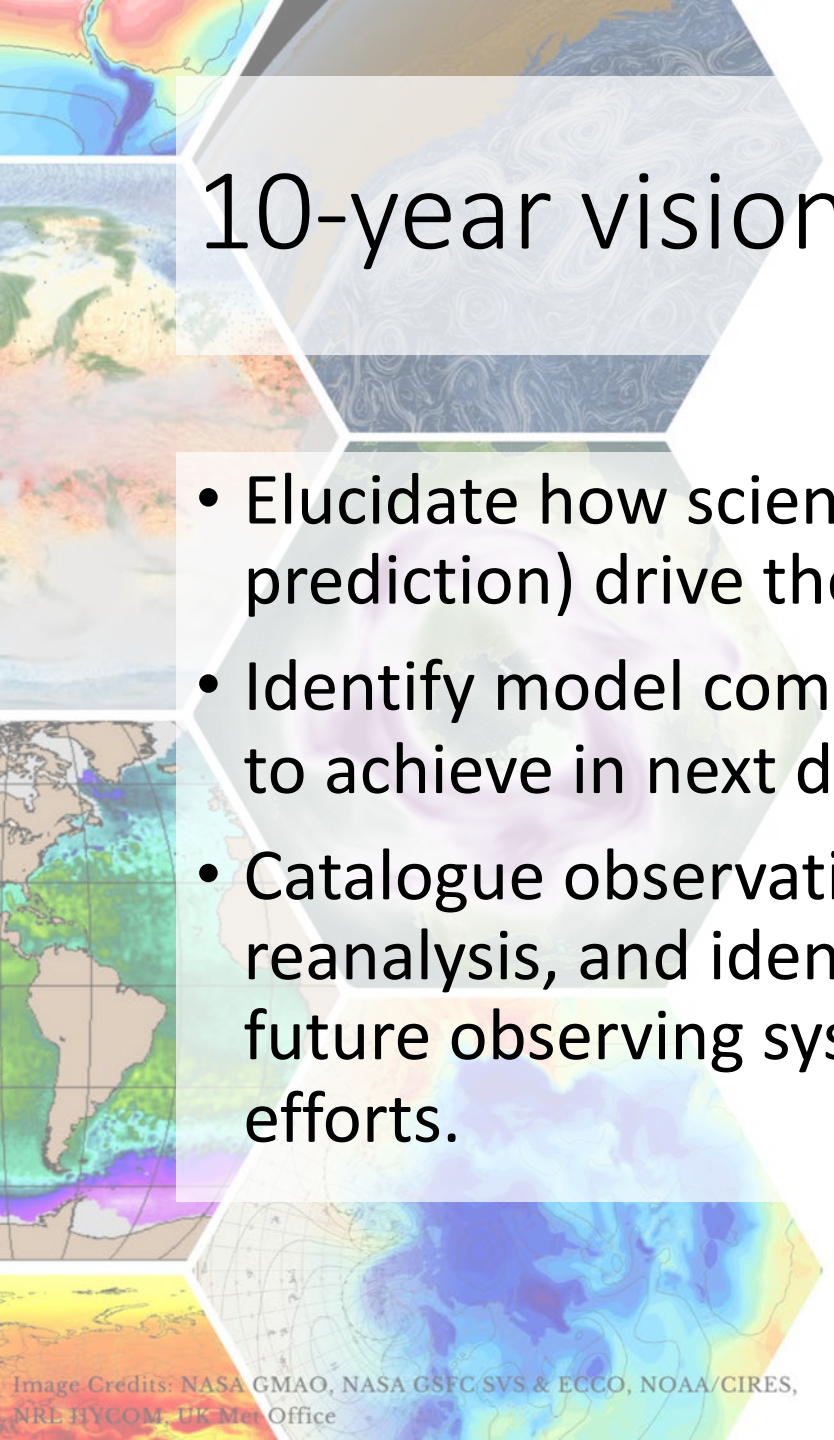
This community workshop aims at developing a shared scientific, technological, and application-driven vision for the future of US reanalysis efforts. The desired outcome is a *BAMS*-type article with a **10-year vision** for a reanalysis that is consistent across Earth system components, identifying:

- **scientific goals** for the next generation of reanalysis from the atmospheric, oceanographic, and cryospheric perspectives.
- opportunities for exploiting **technological advancements** in Earth system models, data assimilation systems, observations, and computational infrastructure.
- priorities and opportunities for **tighter collaboration** across US institutions, within the US and the international reanalysis communities, and between reanalysis and observational communities.

Image Credits: NASA GMAO, NASA GSFC SVS & ECCO, NOAA/CIRES, NRL HYCOM, UK Met Office

# 10-year vision: Science

- Elucidate how science and applications (including numerical weather prediction) drive the need for consistent reanalysis.
- Identify model components and the level of coupling that is feasible to achieve in next decade.
- Catalogue observational data available to support a consistent climate reanalysis, and identify needs for observational data rescue and future observing systems required to support future reanalysis efforts.



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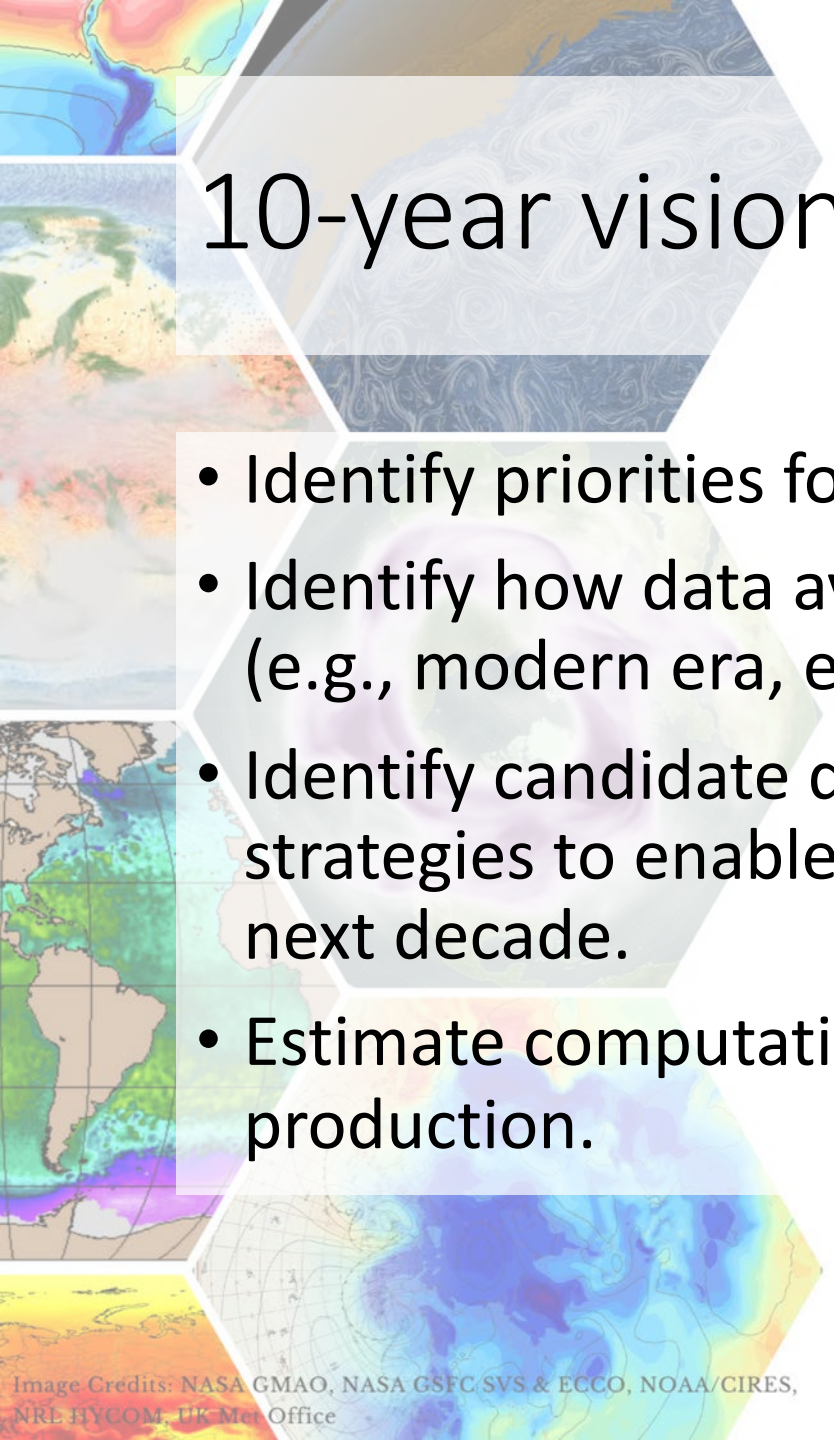
# 10-year vision: Technology

- Identify priorities for data rescue and reprocessing.
- Identify how data availability maps on different modes for reanalysis (e.g., modern era, early satellite era, in-situ, sparse).
- Identify candidate data assimilation configurations and production strategies to enable scientific objectives of consistent reanalysis in next decade.
- Estimate computational cost of reanalysis development and production.



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# 10-year vision: Collaboration

- Requirements for joint infrastructure (JEDI, observation sharing, diagnostic sharing).
- Opportunities for shared experimentation.
- Collaboration between climate modeling/data products communities and reanalysis producers.
- Collaboration between reanalysis producers.

Image Credits: NASA GMAO, NASA GSFC SVS & ECCO, NOAA/CIRES, NRL HYCOM, UK Met Office

# Goals for webinars

- Provide context for the workshop
- Allow for wider range of speakers
- Provide opportunity for broader discussions before and during the workshop

➢To facilitate discussions in the webinar series and in the workshop, each speaker will explicitly address a common set of questions.

# Questions for speakers

1. What do you see are the most significant advances for the field of reanalysis in 5-10 years?
2. What do you see are the most significant barriers to progress in the field of reanalysis?
3. Which collaborations are currently working and which collaborations need to be fostered?
4. What are the critical requirements for consistent Earth system reanalysis?
5. What observational datasets are needed to support these requirements?
6. What modeling components are mature enough to enable reanalysis for your specific science question or application?
7. How is uncertainty quantified for your application? Are there significant barriers for quantifying uncertainty in your field?

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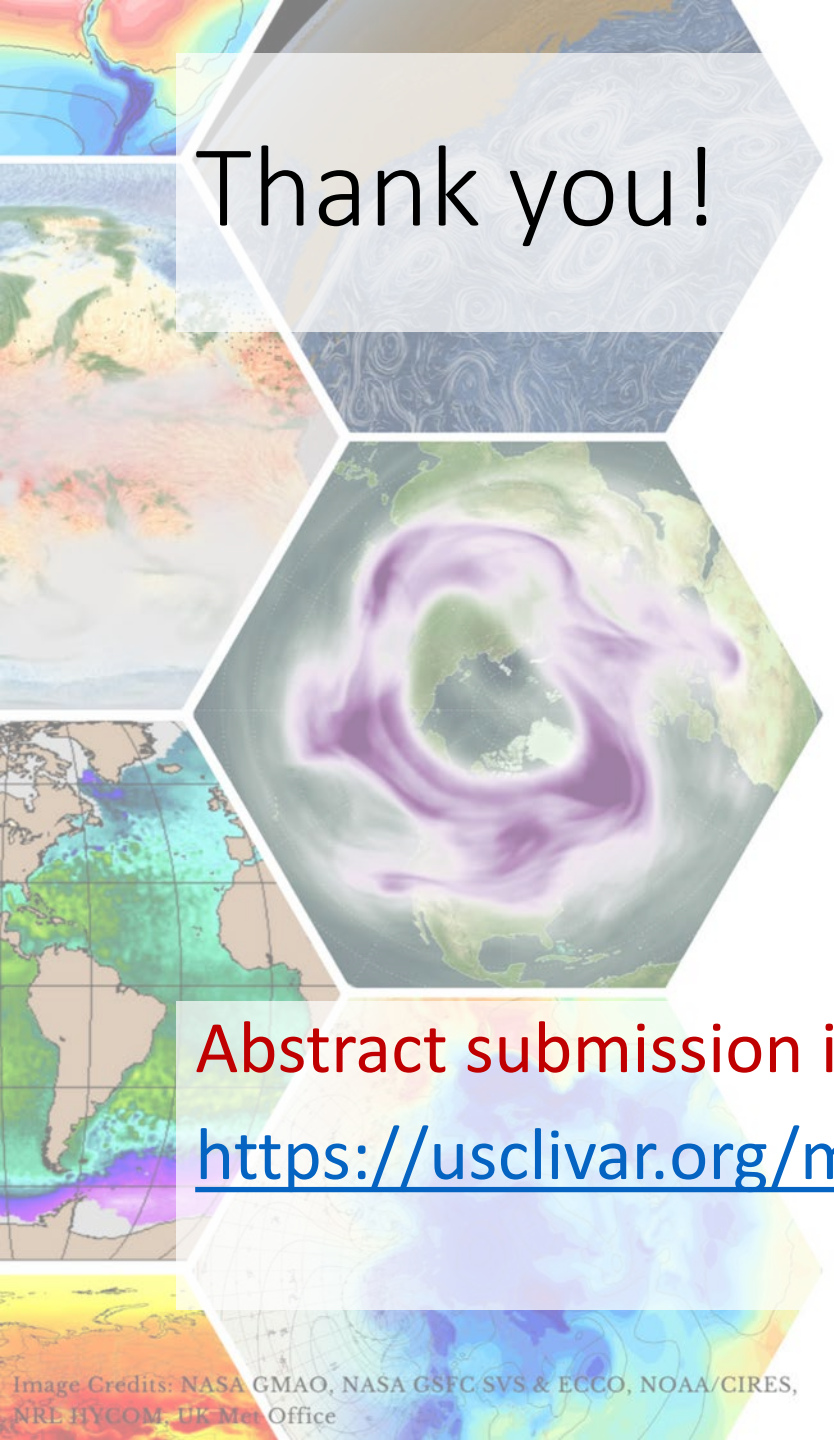

Thank you!

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Abstract submission is now open! Submission deadline is **Feb 4, 2022**.

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