

NASA SNOW ALBEDO

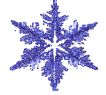
WORKSHOP SCHEDULE

SEPTEMBER 28TH – 30TH
2022

NASA Ames Research Center



NASA SNOW ALBEDO WORKSHOP



MEETING SCHEDULE

28-30 SEPTEMBER 2022

**NASA AMES CONFERENCE CENTER BUILDING 3
500 SEVERYNS AVE, MOFFETT FIELD, CA 94035**

Preamble

Snow is critically important to human welfare, affecting security, economics and has long been recognized as a key variable for climate. We have not yet had a comprehensive examination of measurements and models, especially as relates to snow albedo. What is specifically innovative about snow albedo as a science question is that never before have we had the extensive availability of ground-based, airborne, and spaceborne measurements. The community has developed to such an extent that we have early-to-senior career experts in measurement and modeling who are poised to make major headway in responding to the full range of snow albedo questions.

In 2020, NASA selected two Hydrological Test Bed Scoping Studies to explore on how to construct new or augment existing long-term data observatories that would allow for

- Multi-year observations of the land portion of the water cycle
- Sufficient ancillary data collection to allow for rigorous use of Land Surface Models
- Support (future) spatial re-scaling studies
- Occasional combination with airborne data collection to evaluate new remote sensing approaches and use existing ones to address a broad range of hydrological science challenges.

The goal of this 3-day workshop is to synthesize past snow albedo literature, identify and characterize key research/knowledge gaps and recommend an implementation plan for a snow albedo test bed. The review focused on five research topics: (i) snow albedo parameterizations for Earth system models, (ii) snow physical parameters (e.g. grain size & light absorbing particles), (iii) atmospheric correction over snow and snow/cloud discrimination, (iv) calibration & validation of snow physical properties, and (v) inventory of snow reflectance/ BRDF/ albedo data products.

Charles Gatebe, Principal Investigator

Anne Nolin and Eric Sproles, co-leads

2022 NASA SNOW ALBEDO WORKSHOP SCHEDULE

DAY 1: WEDNESDAY 28 SEPTEMBER 2022

- 7H30 ARRIVAL & REGISTRATION AT CONFERENCE LOCATION
- 8H00 CONTINENTAL BREAKFAST PROVIDED AT CONFERENCE LOCATION
- 8H30 WELCOME AND OPENING REMARKS (NASA AMES SCIENCE LEADERSHIP, NASA)

Session 1: State of Current Knowledge & Key Knowledge Gaps

- 9H00 - SNOW ALBEDO PARAMETERIZATIONS (FLANNER/NI-MEISTER)
FOR EARTH SYSTEM MODELS
- 10H00 BREAK
- 10H15 SNOW PHYSICAL PARAMETERS (E.G. GRAIN (SKILES/PAINTER)
SIZE & LIGHT ABSORBING PARTICLES)
- 11H20 ATMOSPHERIC CORRECTION OVER SNOW (NOLIN/LYAPUSTIN)
AND SNOW/CLOUD DISCRIMINATION
- 12H30-13H30 LUNCH ON SITE
- 13H30 CALIBRATION & VALIDATION OF SNOW (SPROLES/CRAWFORD/PIRAZZINI)
PHYSICAL PROPERTIES
- 14H35 INVENTORY OF SNOW REFLECTANCE/ BRDF/ (BAIR/GLEASON/GATEBE/RITTGER)
ALBEDO DATA PRODUCTS
- 15H45 BREAK
- 16H00 WRAP UP DISCUSSIONS (NOLIN/SPROLE/GATEBE)
- 17H00 ADJOURN, HAPPY HOUR

DAY 2: THURSDAY 29 SEPTEMBER 2022

8H30 CONTINENTAL BREAKFAST PROVIDED AT CONFERENCE LOCATION

9H00 - **GALLERY WALK & FACILITATED DISCUSSIONS** (ALECE BIRNBACH,
GRAPHIC RECORDER/ILLUSTRATOR & E.
SPROLES)

10H00 BREAK

Session 2: Brainstorming for filling the knowledge gaps

10H15 - **SNOW ALBEDO PARAMETERIZATIONS** (FLANNER/NI-MEISTER)
FOR EARTH SYSTEM MODELS

11H20 **SNOW PHYSICAL PARAMETERS (E.G. GRAIN** (SKILES/PAINTER)
SIZE & LIGHT ABSORBING PARTICLES)

12H30-13H30 LUNCH ON SITE

13H30 **ATMOSPHERIC CORRECTION OVER SNOW** (NOLIN/LYAPUSTIN)
AND SNOW/CLOUD DISCRIMINATION

14H35 **CALIBRATION & VALIDATION OF SNOW** (SPROLES/CRAWFORD/PIRAZZINI)
PHYSICAL PROPERTIES

15H45 BREAK

16H00 **INVENTORY OF SNOW REFLECTANCE/ BRDF/** (BAIR/GLEASON/GATEBE/RITTGER)
ALBEDO DATA PRODUCTS

17H15 ADJOURN, GROUP DINNER

DAY 3: FRIDAY 30 SEPTEMBER 2022

8H30 CONTINENTAL BREAKFAST PROVIDED AT CONFERENCE LOCATION

9H00 - **GALLERY WALK & FACILITATED DISCUSSIONS** (ALECE BIRNBACH,
GRAPHIC RECORDER/ILLUSTRATOR & A.
NOLIN)

10H00 BREAK

Session 3: Scoping Plan & Recommendations

10H15 **SNOW ALBEDO PARAMETERIZATIONS** (FLANNER/NI-MEISTER)
FOR EARTH SYSTEM MODELS

10H45 **SNOW PHYSICAL PARAMETERS (E.G. GRAIN** (SKILES/PAINTER)
SIZE & LIGHT ABSORBING PARTICLES)

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13H30 **INVENTORY OF SNOW REFLECTANCE/ BRDF/** (BAIR/GLEASON/GATEBE/RITTGER)
ALBEDO DATA PRODUCTS

14H00 CLOSING REMARKS (JARED ENTIN)

END