

Snowpack monitoring workshop for drought planning and streamflow forecasting

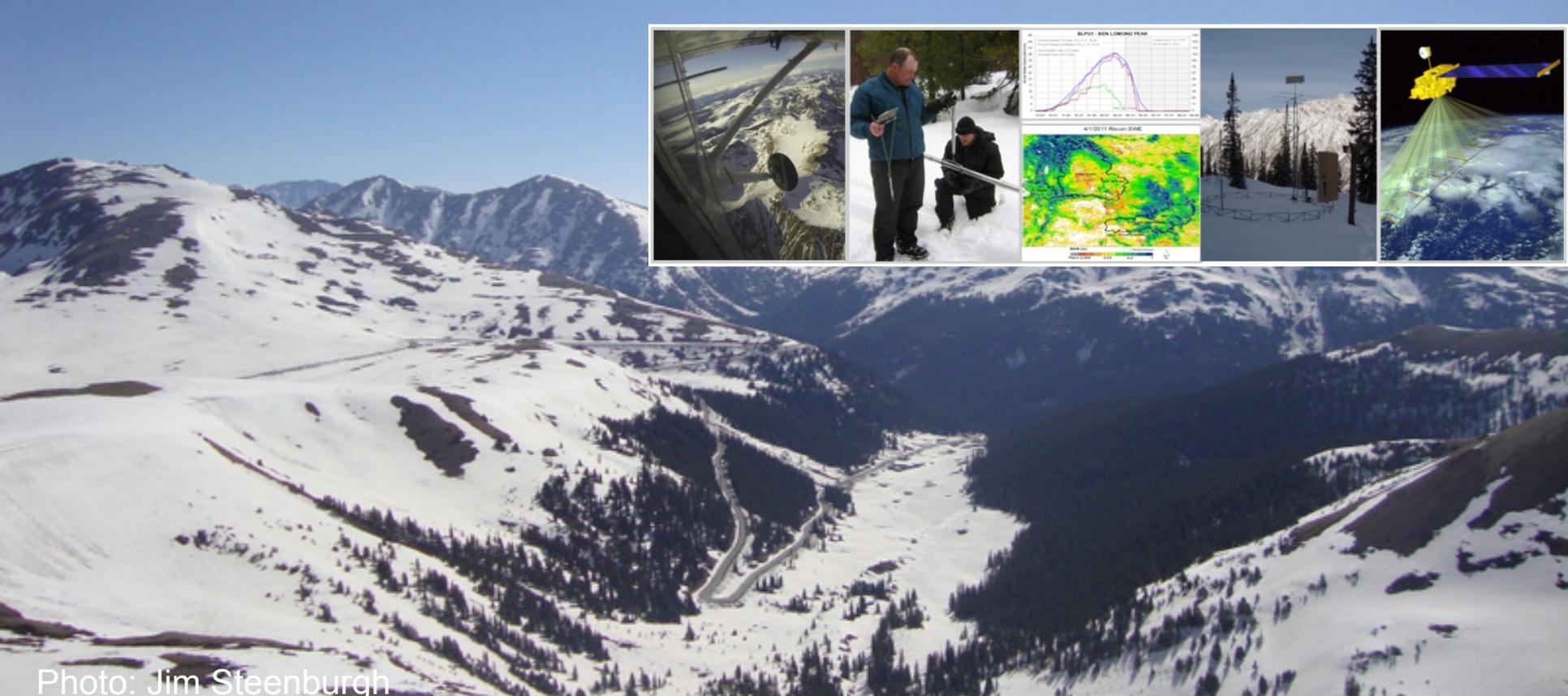
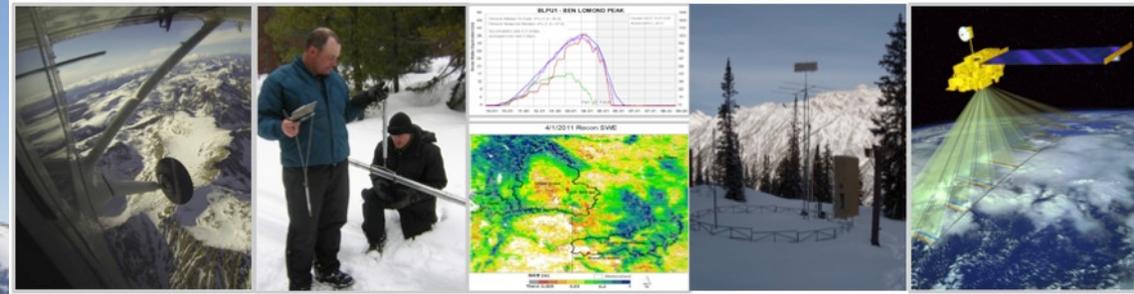


Photo: Jim Steenburgh

Broomfield, Colorado
September 9, 2015



Partners/Sponsors

- CIRES Western Water Assessment
- National Integrated Drought Information System
- Colorado Water Conservation Board
- NRCS Snow Survey - Wyoming and Colorado
- NOAA Colorado Basin River Forecast Center
- *Colorado Department of Agriculture*

About the Western Water Assessment



Climate information and research

Resource management & decision-making

Today's objectives

- **Help improve the *usability* and *use* of snowpack monitoring information for runoff forecasting, drought early warning and planning, and other applications.**
- Provide background information on snow hydrology and snow measurement to get us on the same page
- Describe operational snow-monitoring products and how they are used in runoff forecasts
- Provide guidance for accessing and interpreting these data
- Introduce and demonstrate new snow-monitoring products using satellite and airborne sensors
- Hear your ideas on how to better meet the needs for snowpack monitoring in Colorado and the West

Agenda

About NIDIS and the DEWS; Results of workshop pre-survey

Fundamentals of snow hydrology and measurement

Current operational snowpack measurements and their use

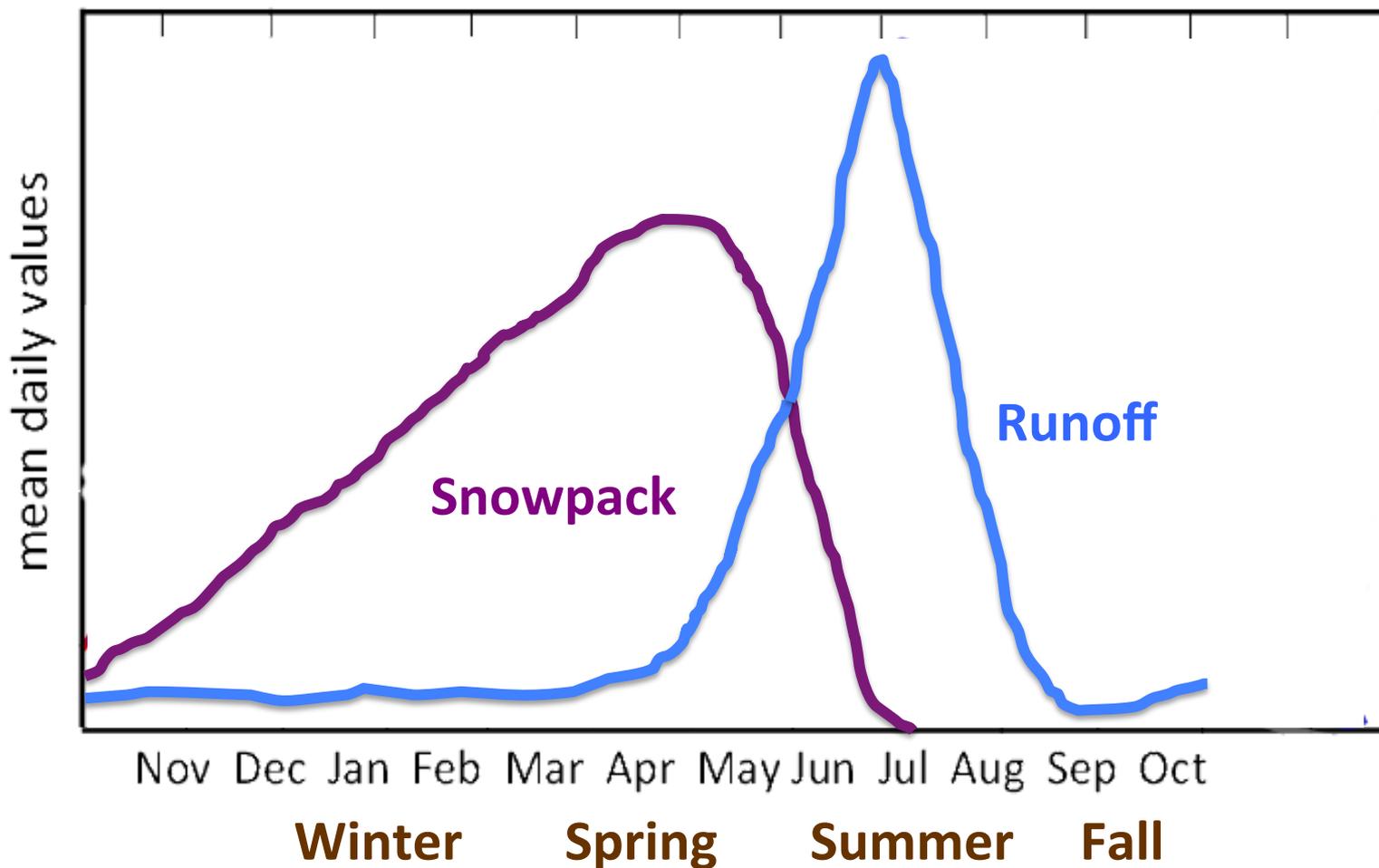
- NRCS SNOTEL/snowcourse and runoff forecasts
- CBRFC runoff forecasts
- User perspectives on operational snow data and needs
- MODIS-modeled snowpack estimates

LUNCH

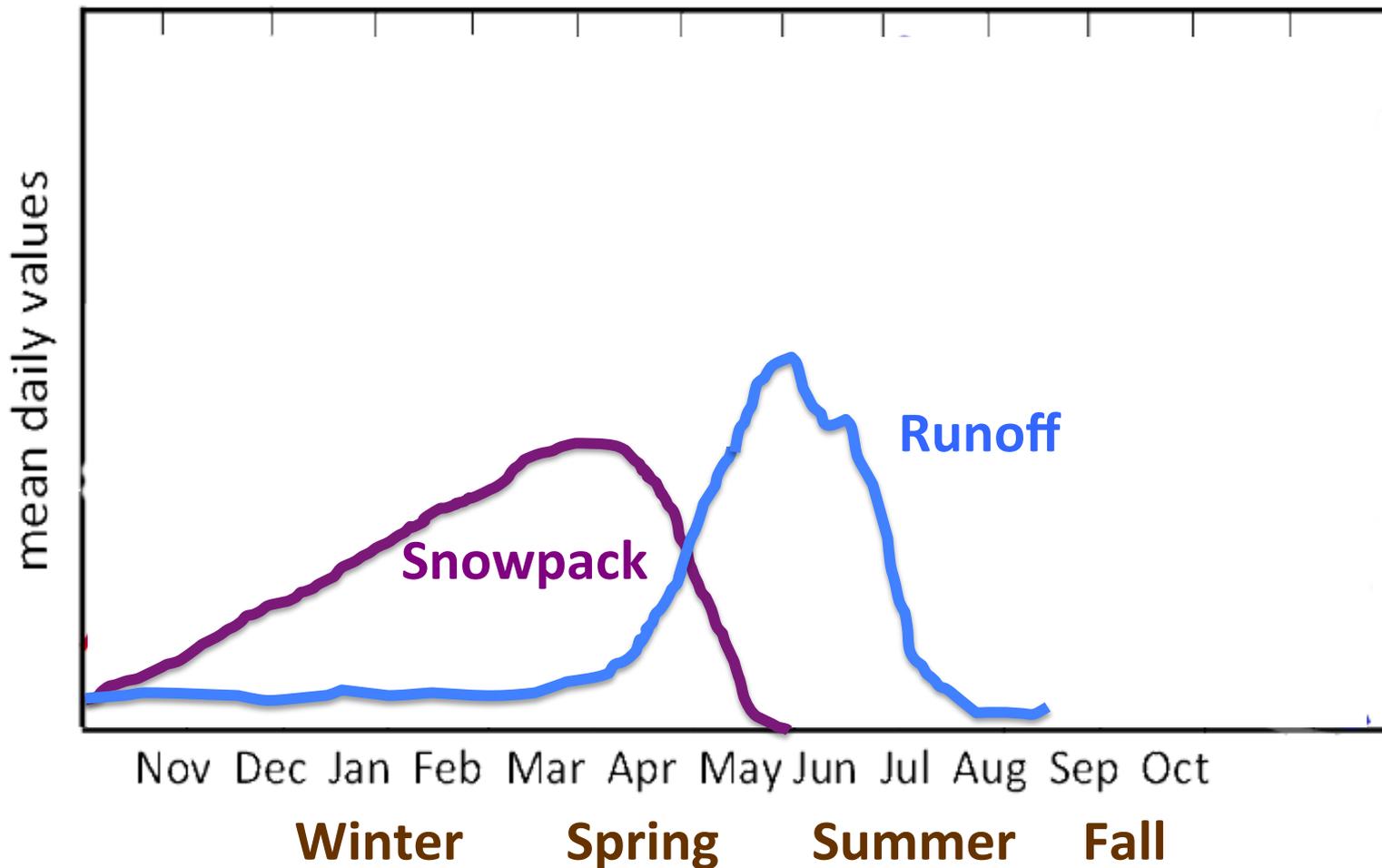
New spatially-distributed snowpack estimates

- LIDAR- and hyperspectral-based SWE and albedo estimates from the Airborne Snow Observatory
- Rio Grande project
- Group discussion

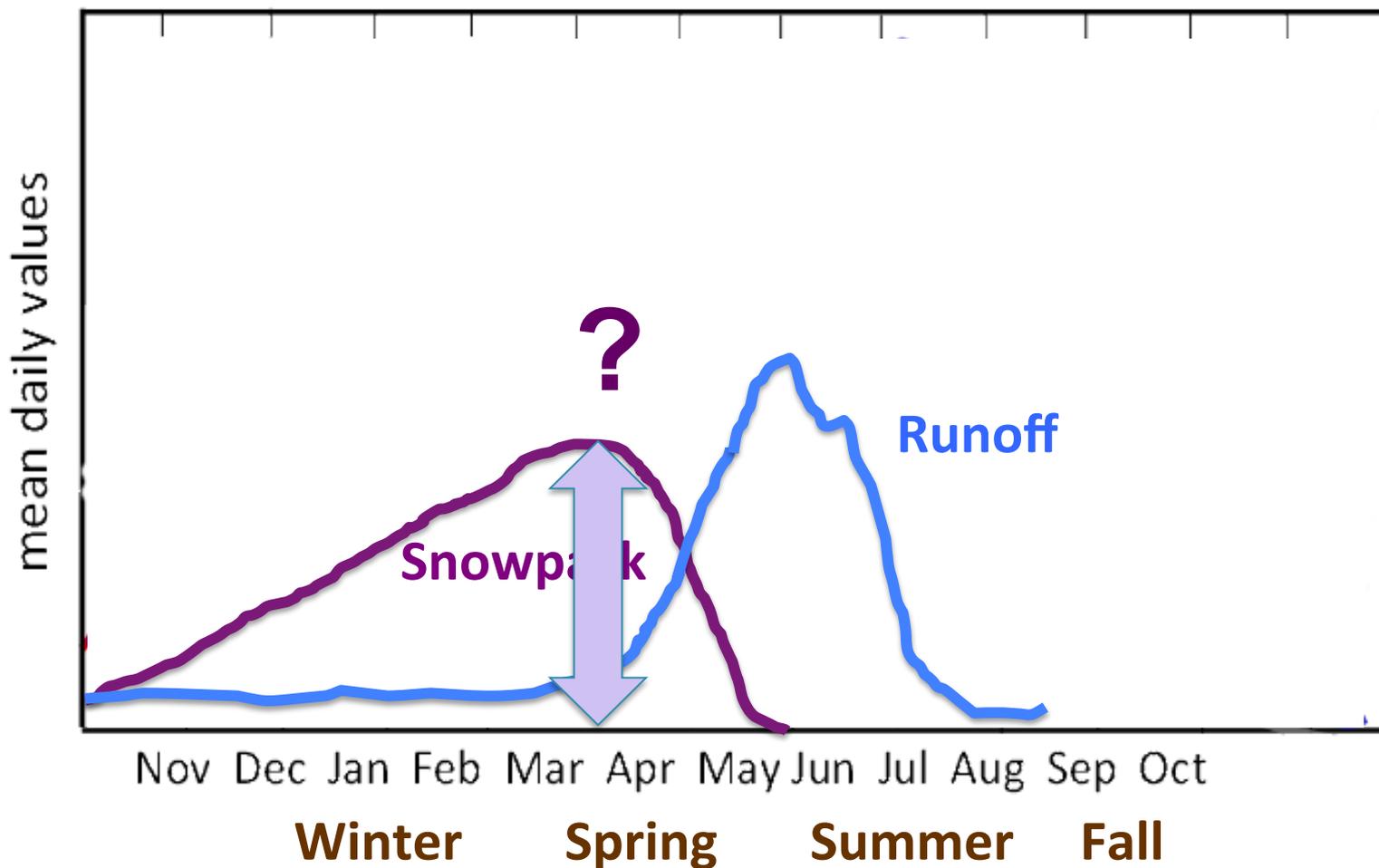
Typical snowpack and runoff seasons



Typical snowpack and runoff seasons – *drought year*



Typical snowpack and runoff seasons – *drought year*



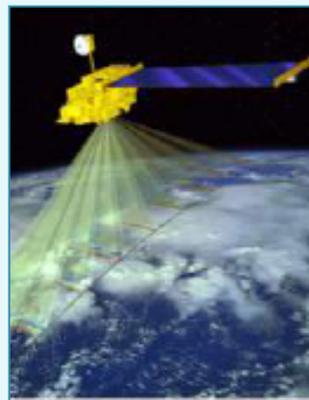
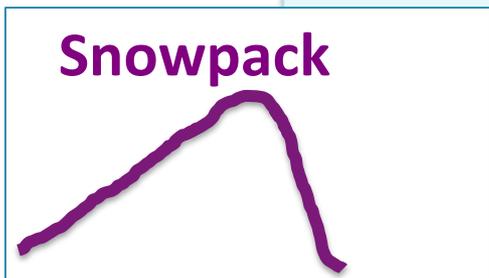


Snowpack monitoring

SNOTEL

Satellite

Airborne



Grid Size

10-50 km

1 km

1 m

Snowpack monitoring, runoff forecasting, decision-making

