

CERES Education and Outreach Update

Lin Chambers, NASA LaRC, Hampton, VA

S'COOL Team:

Tina Rogerson (ASDC), **Sarah Crecelius**, Camelia Deller,
Preston Lewis, Susan Moore and Jay Madigan, SSAI

MY NASA DATA Team:

Preston Lewis, Susan Moore, Dan Oostra, Penny Oots, SSAI

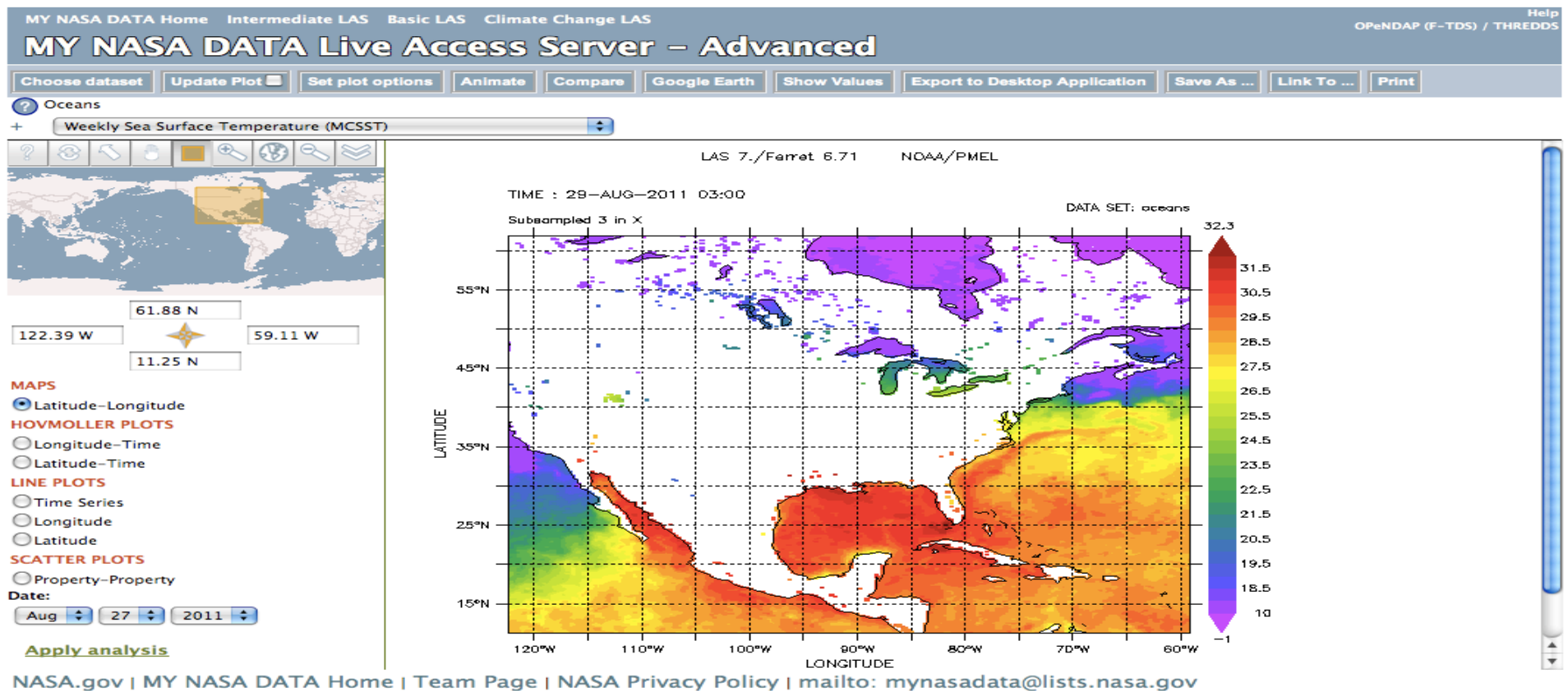
**MY
NASA
DATA⁺**

..... Mentoring and inquirY using NASA Data on Atmospheric and earth science for Teachers and Amateurs

- <http://mynasadata.larc.nasa.gov>

MY NASA DATA LAS – new version in FY11

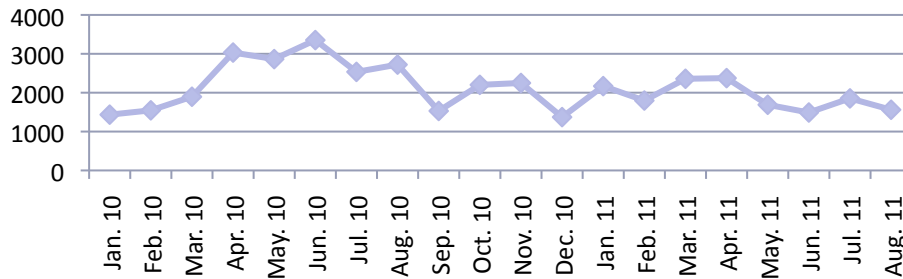
- 60 new parameters added (+40%)
 - CALIPSO, SSE, TRMM, GPCP, AIRS



MY NASA DATA

MY NASA DATA Metrics

Lessons Downloaded



Metrics Summary: Jan. 2010 – Aug. 2011

Hits: **13,851,846**

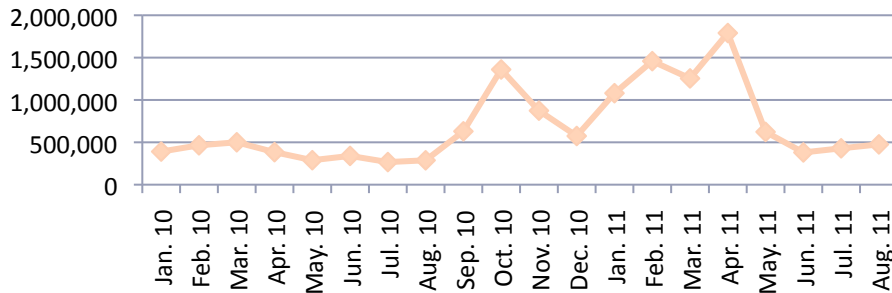
Lessons: **42,029**

Data (GBs): **464**

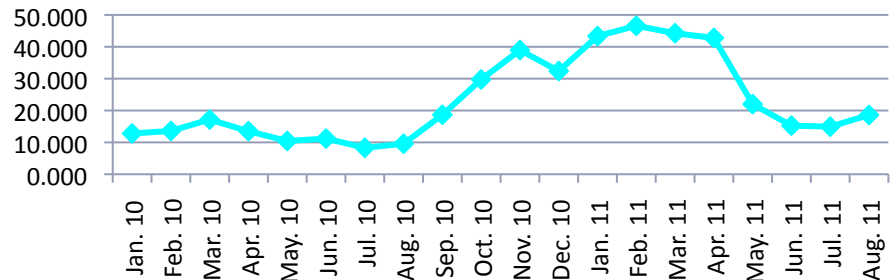
Unique Users: **368,776**

Foreign Domains: **69,714**

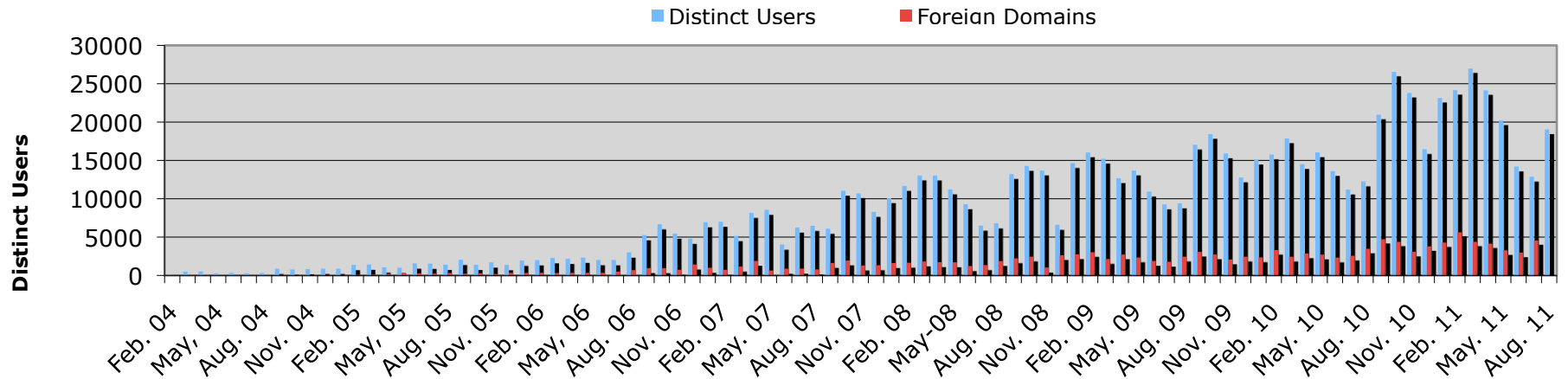
Hits



Data Shared (GBs)

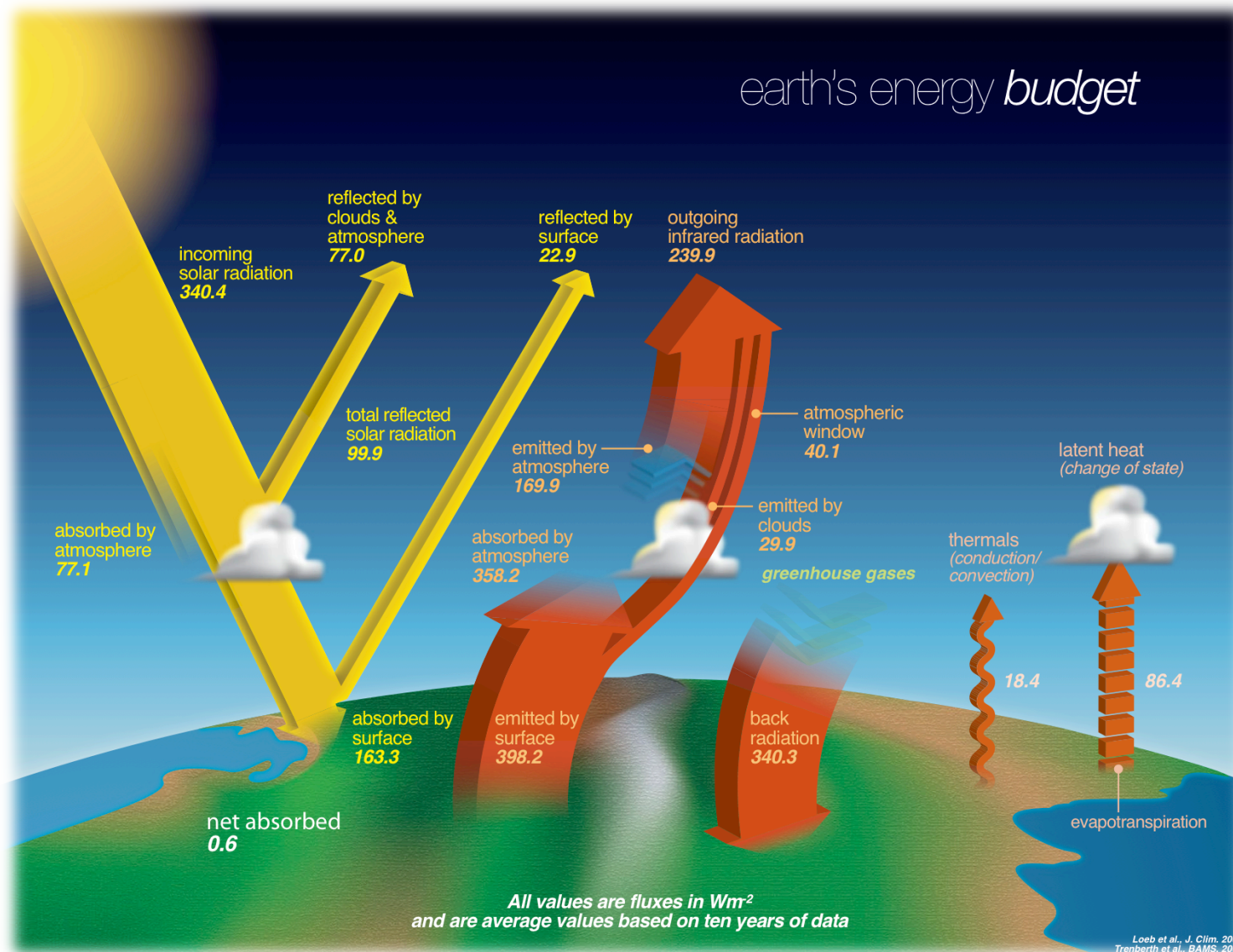


Distinct Users and Foreign Domains



Radiation Budget Resource

http://science-edu.larc.nasa.gov/energy_budget/



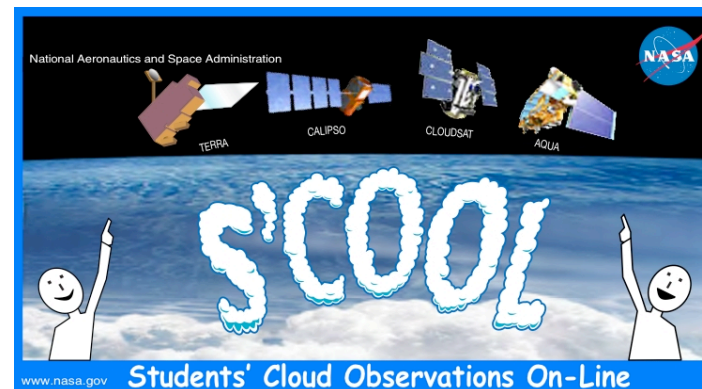
What is



?

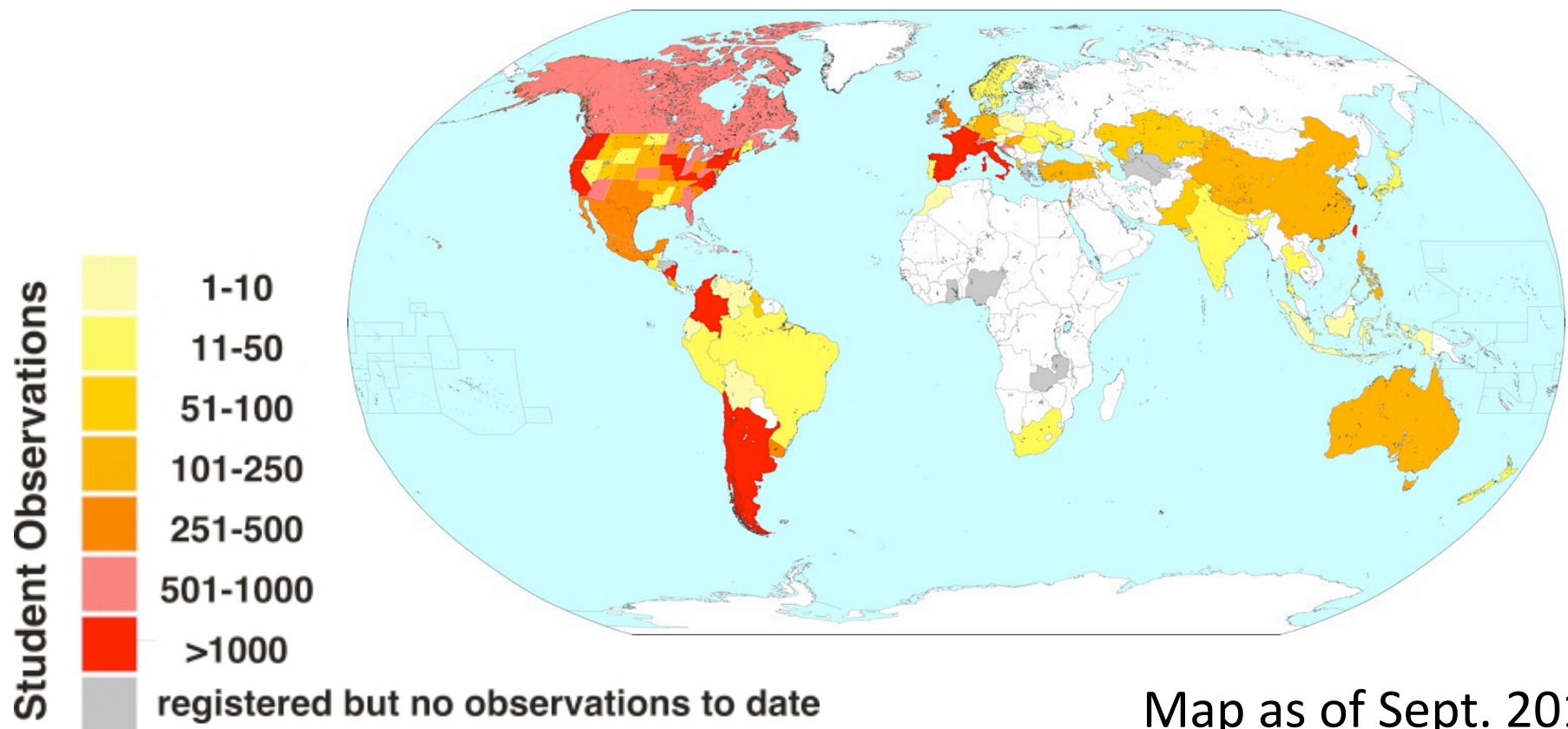
- Education and Public Outreach arm of CERES
- Backbone of Terra/Aqua formal education effort
- A simple way to involve K-12 students in authentic science (through cloud observations)
- A source of validation data for the CERES cloud retrievals
- Classroom Based and ROVER options
- Since 1997

<http://scool.larc.nasa.gov>



S'COOL Project

- > 98,000 observations from 70 countries and all 50 states
(approaching 100,000 milestone with contest)
- 76% of S'COOL participants are from USA, 49% of our collected observations are from the US
- > 3,300 registered participants from 83 countries



Map as of Sept. 2011

Impact Measures

- ~60 requests for S'COOL materials since April 2011

(2x average rate)

States "Top Five"

■ PA	23%	
■ VA	8%	↓
■ CA	6%	↑
■ PR	5%	
■ NH	4%	↓

Countries "Top Five"

■ US	49%	↓
■ Colombia	22%	↑
■ Argentina	6%	
■ France	5%	
■ Taiwan	4%	

States "Bottom Five"

■ North Dakota	14
■ DC	12
■ Virgin Islands	9
■ Guam	6
■ Northern Marianas	0

Bottom five
no change

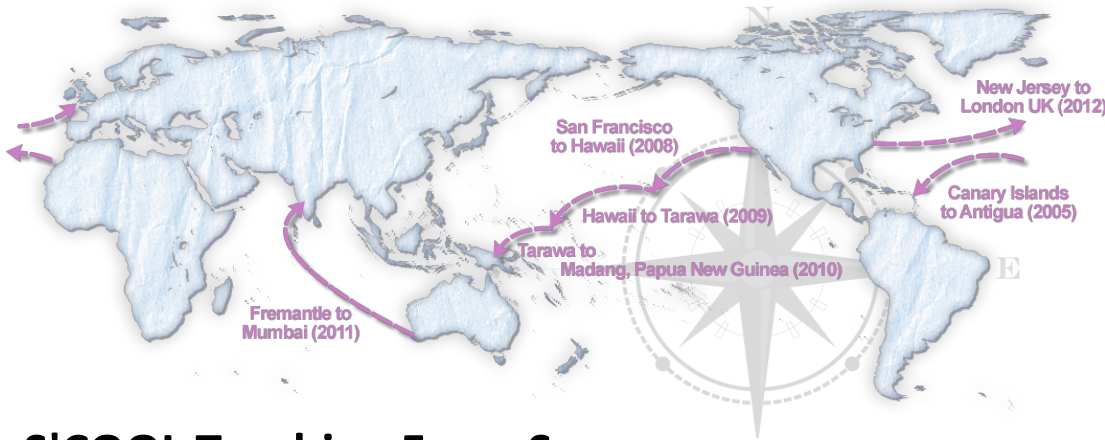
Impact Measures (cont'd)

Database of observations - as of Sept. 22, 2011

- > 54,600 satellite correspondences (840 match both)
 - For 56% of ground observations
- >3,300 registered participants
 - 36% submitted data
- 83 countries
 - data from 70 countries (72%)

Now Using SSF Only

S'COOL Rovers!



New S'COOL Rover: Roz Savage, Ocean Rower

- Roz Savage, Ocean Rower is currently rowing across the Indian Ocean.
- Roz is making daily cloud observations for both the Terra and Aqua overpasses. Most will be reported after she arrives back on land.

<http://www.rozsavage.com/>

S'COOL Teaching From Space

- Astronaut Tracy Caldwell Dyson took cloud observations from the ISS
- S'COOL team made clips of space observations to help students with ground observations

<http://science-edu.larc.nasa.gov/SCOOL/TFS/>



S'COOL article featured in NSTA's Science Scope magazine

“CLOUD STUDY INVESTIGATORS: Using NASA’s CERES S’COOL in Problem-Based Learning”

Science Scope, July 2011

- Co-authors: Susan Moore (SSAI/NASA LaRC) and Gary Popiolkowski (science teacher, Chartiers-Houston Jr./Sr. High School in Houston, PA.)
- Science Scope is NSTA's peer-reviewed journal for middle- and intermediate-level educators
- Circulation of 17,000 subscriptions, with estimated total readership of 51,000.










The NASA CERES S'COOL project is supported by the Science Mission Directorate at NASA Langley Research Center, Hampton, VA.

<http://scool.larc.nasa.gov>



S'COOL Ground Observation & Satellite Footprint Data

Latitude	Longitude	City	State	Country
40.233333	-80.215989	Houston	PA	USA

Ground Observation - 98827				Aqua Satellite				
Date: 2011-06-17		Local Time: 14:44:00	Universal Time: 18:44:00	Date: 2011-06-17		Universal Time: 18:44:00		
Opacity	Cloud Cover	Type	Visualization		Altitude (km)	Opacity	Cloud Cover	Phase Temp(K)
								
					3.27	Opaque 22.63	Mostly Cloudy (50% to 95%) 66.22	water 275.37
Translucent	Mostly Cloudy (50% to 95%)	Cumulus			1.52	Translucent 8.54	Partly Cloudy (5% to 50%) 13.33	water 285.83
								
Persistent Contrails: 00		Short-Lived Contrails: 00		<div>View Corresponding Aqua</div>  <div>MODIS Satellite Image</div>		<div>Vertical Profiles</div> <div>Along the MODIS Centerline</div> <div>Cloudsat Quick Look</div> <div>Cloudsat Tutorial</div> <div>CALIPSO Expedited Browse Image</div> <div>CALIPSO Tutorial</div>		
Surface Observations:								
Snowflake: No Standing Water: No Muddy: No Dry Ground: Yes Leaves on Trees: Yes Raining or Snowing: No								
Temperature: C								
Barometric Pressure: hPa								
Relative Humidity:								
Comments: No comments provided by participant.								

S'COOL Ambassadors/Outreach

Hartford Connecticut Regional NSTA conference:

Ambassadors Eileen Poling (WV), Diana Soehl (NY), and Missy Holzer (NJ) presented S'COOL and MND



NASA CORE (Oberlin, OH):

S'COOL/MND Team member Susan Moore (Langley)
S'COOL/MND Team member Preston Lewis (Langley)
Presented MND (DLN)

UC Berkeley:

S'COOL/MND Team member Preston Lewis (Langley)
Presented MND (webcast on new LAS)

VAST (Roanoke, VA):

S'COOL/MND Team member Susan Moore (Langley)
presenting S'COOL (Observing)



AGU (San Francisco, CA) :

S'COOL/MND Team member Preston Lewis (Langley)
presenting S'COOL (ROVER) and MND (New LAS)
S'COOL/MND Team member Dan Oostra (Langley)
presenting S'COOL and MND (New LAS)



S'COOL 100,000th Observation

S'COOL Observation Count = 98,478

S'COOL@100,000 Event:

- Celebrate our 100, 000th cloud observation
- We expect to reach that milestone early this fall
- Counter on Home page
- School that submits the 100,000th observation will receive a package of NASA materials

Involve a Local Celebrity:

- Invite your local celebrity to make and report a cloud observation through the S'COOL Rover Website.

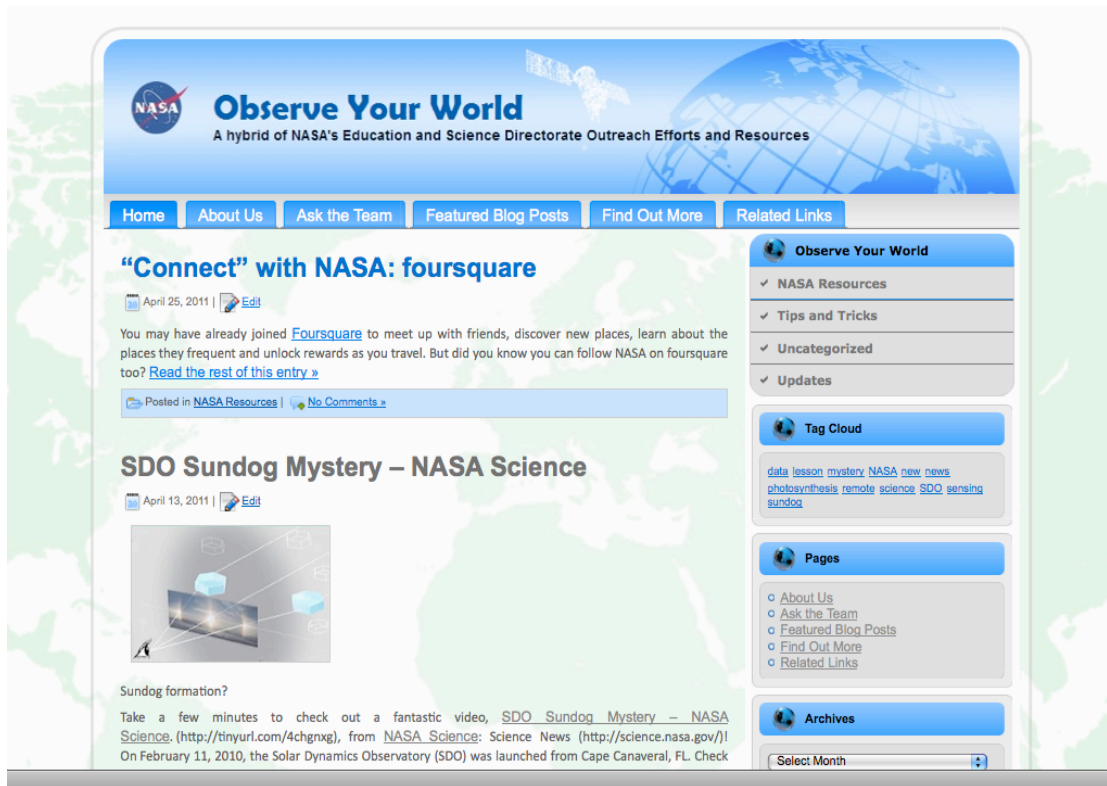
S'COOL@100,000 Banner Contest:

- Create a new S'COOL banner, and submit your design for judging
- we will feature the winning banner designs over the next school year





Education, Communication, and Outreach Combined



- Hybrid of the **NASA CERES S'COOL** Project, the **MY NASA DATA** Project, and the **Science Directorate Outreach** Efforts.

- Innovative and creative way to appeal to the S'COOL, MND and SD existing communities, and attract a new audience.

- Efficiently provides users with information and resources from 8 main categories; Enotes, Updates, SD Highlights, Tips and Tricks, Top 5..., Events, and NASA Resources.

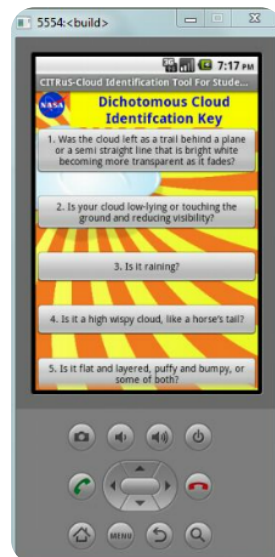
- Designed and maintained by a team of educators, communicators, and scientists at NASA Langley Research Center.

<http://mynasadata.larc.nasa.gov/oyw/>

Reaching Users with Mobile Applications

- Empowerment, innovation and outreach
- The MY NASA DATA (MND) project has begun work on mobile application to suite individual classroom needs.
- Extension: Supply teachers and students with compatible MND data, free web 2.0 tools, guided tutorials, and Mobile Application team workshops to gain the knowledge needed to create apps specific to their needs.

Science Glossary



Dichotomous Cloud Key/Cloud Chart

S'COOL Visits

Next School visit:

- Local Contest Winners of 100,000th S'COOL Observation Banner Design
- Highest Observers for S'COOL NPP Observation Campaign



S'COOL Needs YOU!

- **Make S'COOL Rover observations!**
- **Participants in every state and >80 countries**
 - Offer to serve as a **resource to a local teacher**
 - Arrange a **S'COOL visit when traveling**
 - Provide **S'COOL info to teachers you know**
- **Presentation materials available, with script suggestions**
- **Help with translation of materials**
- **Serve as resource for scientific content questions sent in by participants**
- **Analyze some data!**