COLLABORATIVE TRAINING EFFORTS AT THE NESDIS COOPERATIVE INSTITUTES

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January 13, 2009
AMS Joint Session 11
Satellite Forecaster Training

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Challenges for operational environmental satellite services

- Growing ***number and complexity*** of sensors -- > community must be constantly learning

- Growing ***expense*** of sensors --> understanding how to obtain benefits is more critical now than ever before

Our objective is a community of learners across NESDIS and its academic partners (professors, researchers and students) improving operational environmental satellite services

TABLE II.1 Launch, Orbit, and Instrument Specifications for Missions Recommended to NOAA

2010–2013

CLARREO (instrument reflight components)
Solar and Earth radiation characteristics for understanding climate forcing
LEO, SSO
Broadband radiometer
65

GPSRO
High-accuracy, all-weather temperature, water vapor, and electron density profiles for weather, climate,and space weather
LEO
GPS receiver
150

2013–2016

XOVWM
Sea-surface wind vectors for weather and ocean ecosystems
LEO, SSO
Backscatter radar
350

LEO, low Earth orbit; SSO, Sun-synchronous orbit.

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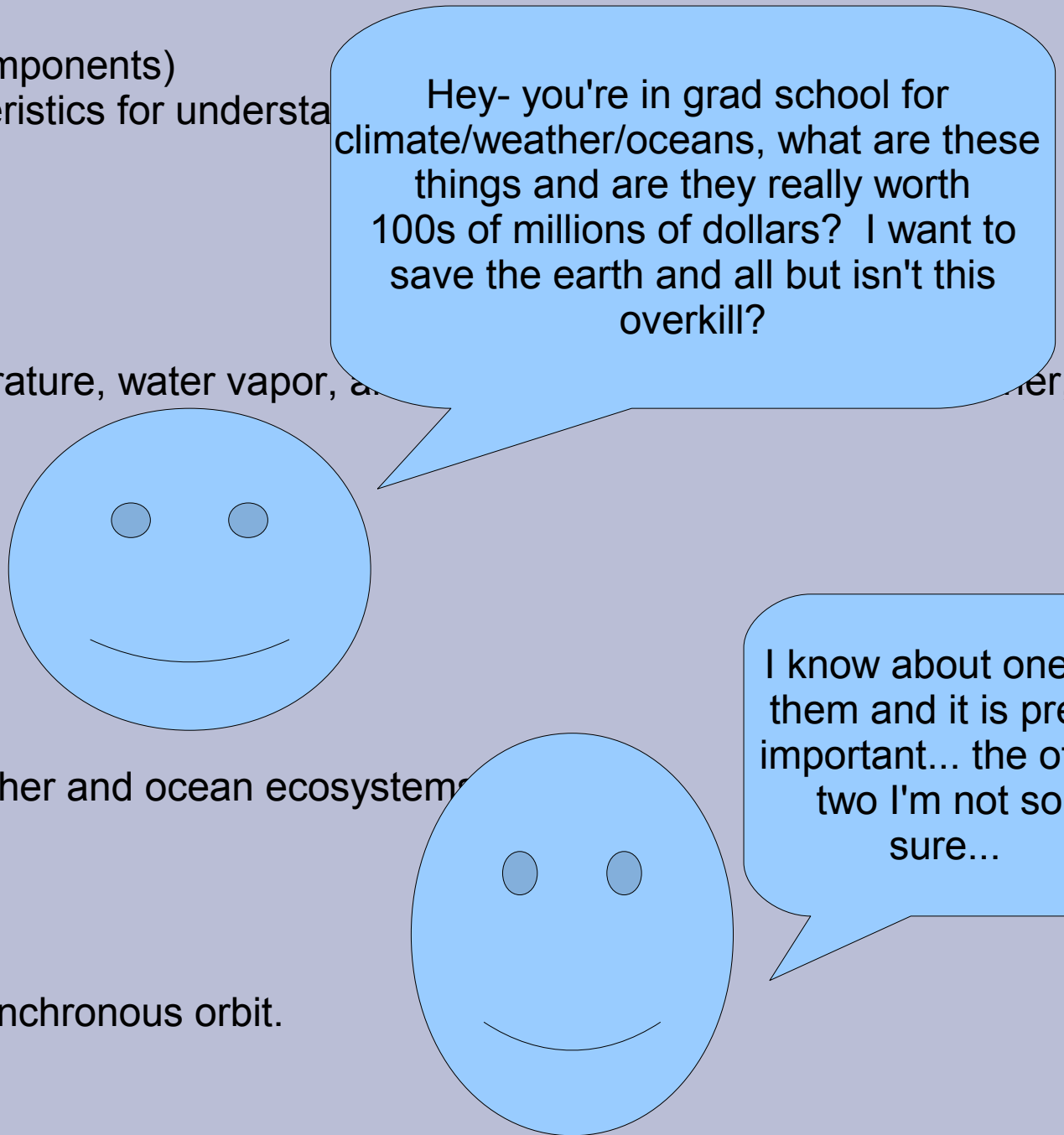
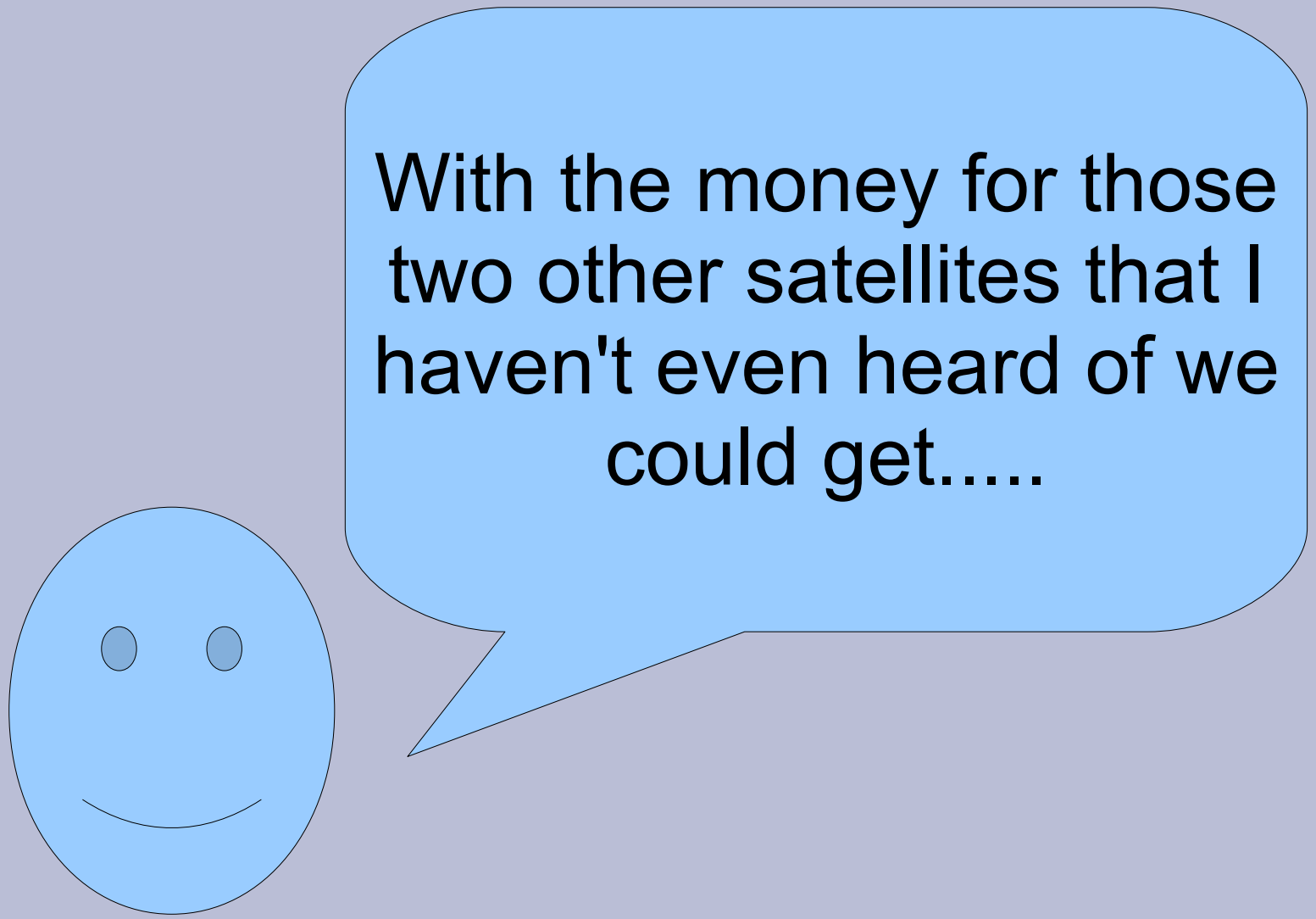



With the money for those two other satellites that I haven't even heard of we could get.....

Opportunities for learning

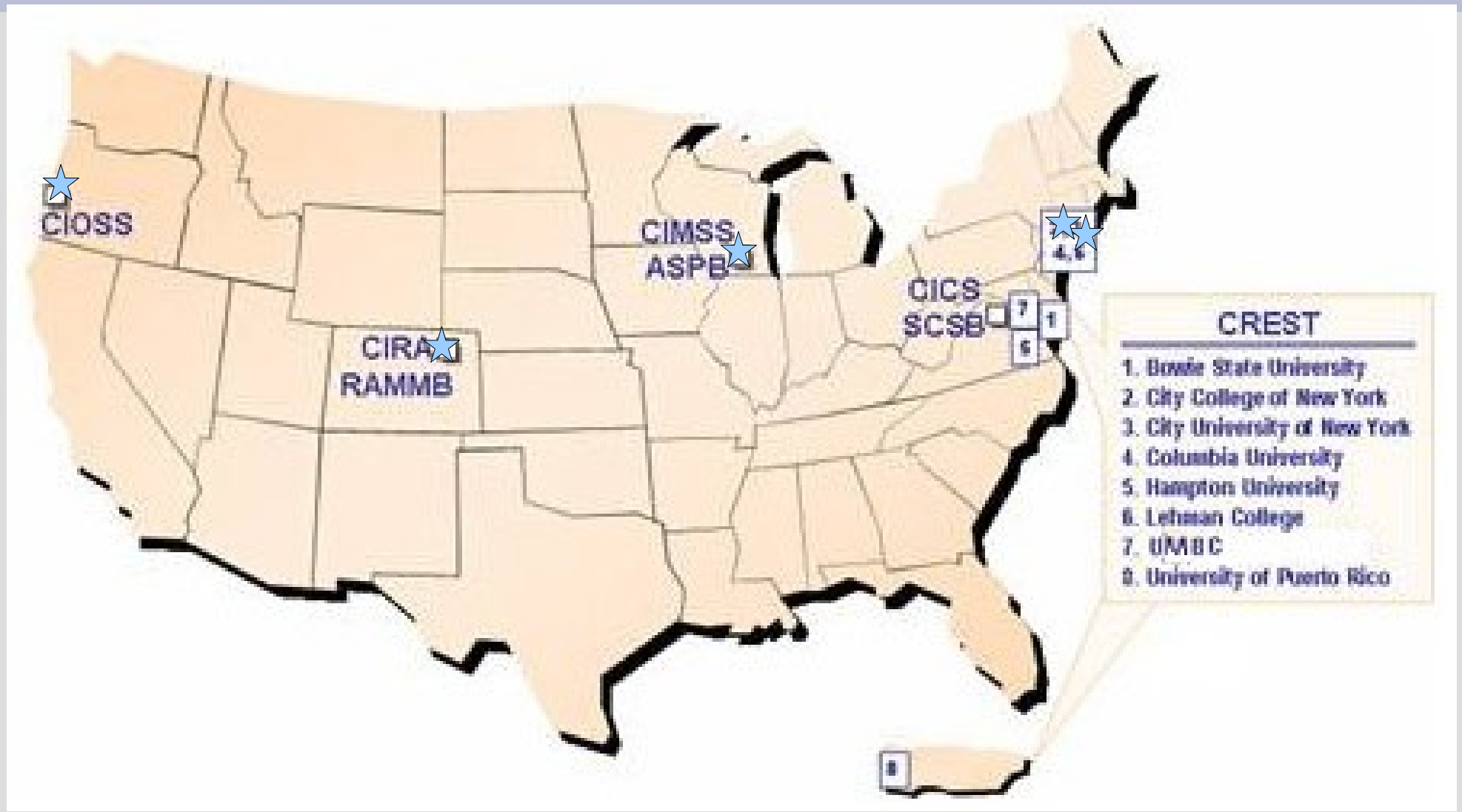
- Many future oceanographers, climatologists and meteorologists take satellite remote sensing courses at NESDIS Cooperative Institutes (Cis) and Science Center (CSC).
- Satellite remote sensing courses at NESDIS CIs and CSC cover sensors unevenly.

	CI for Meteorological Satellite Studies (CIMSS-WI)	CI for Oceanographic Satellite Studies (CIOSS-OR)	CI for Climate Studies (CICS-MD)	CI for Research in the Atmosphere (CIRA-CO)	Cooperative Remote Sensing Science and Technology Center (CREST-NY)
Satellite studies related to weather analysis*	P	s	s	S	s
Satellite oceanography	s	P	s	s	s
Satellite climatology	s	s	P	s	s
Satellite studies related to weather forecasting*	s	s	s	P	s
Succession planning, outreach and education	s	s	s	s	P

Broadening satellite courses

- Professors from NESDIS CIs and CSC teamed together by offering guest lectures to each other in their areas of expertise.
  - VISITview software with speakerphones

5 courses so far at 4 locations



Lessons learned

- VISITview worked well
- Speakerphones surprisingly troublesome
  - Skype worked better
- Lecturers new to distance learning had difficulty
  - Very limited interaction with classroom
  - Skype allows for video of each other which may help
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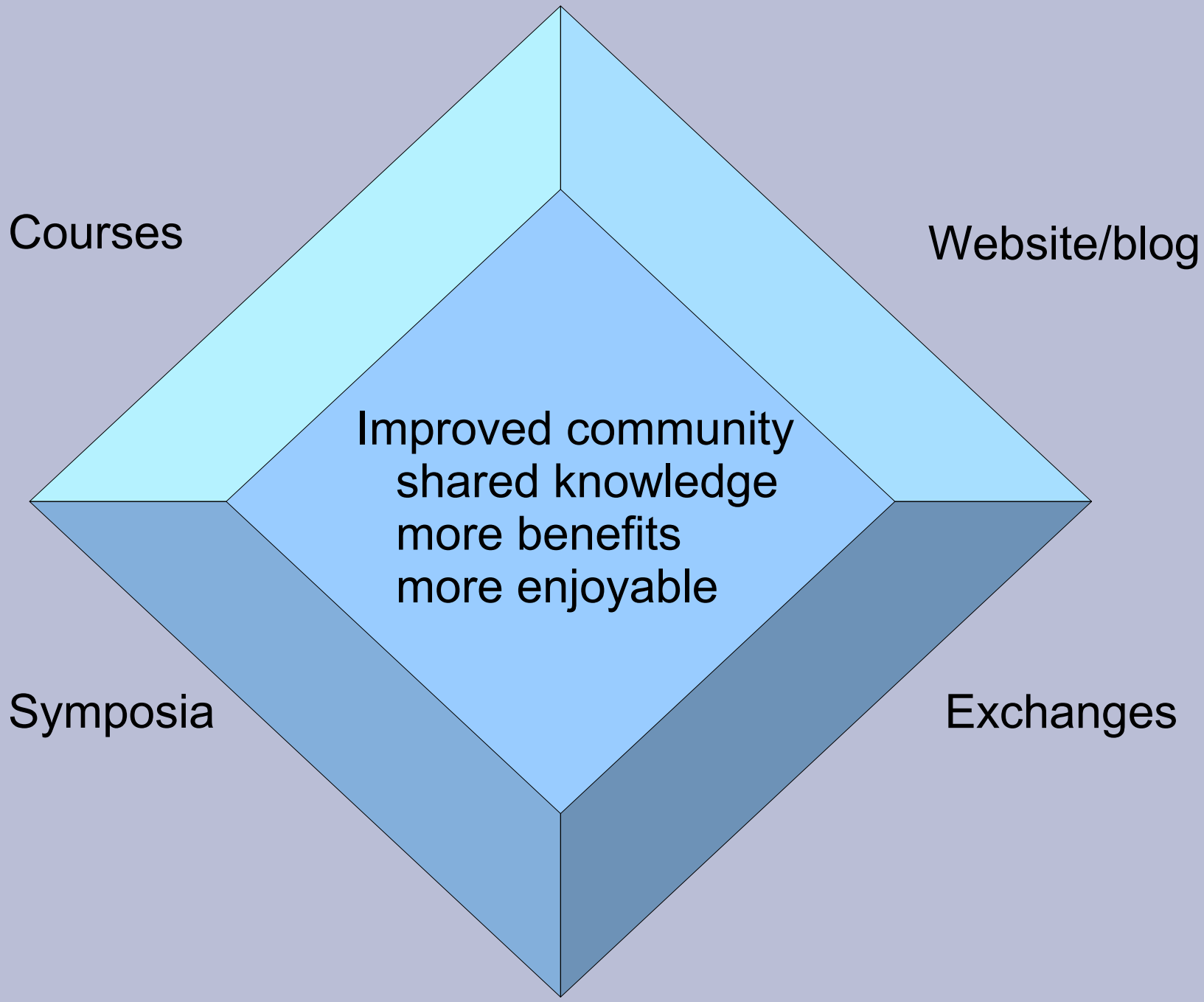
- More cohesive community desired
  - Satellite remote sensing community focusing on civilian operational benefits is small enough that students and faculty and researchers should be able to know each other and work together.


Courses
Website/blog
Improved community
shared knowledge
more benefits
more enjoyable
Symposia
Exchanges

Community building - NESDIS Cooperative Research Program Symposium

- 2008 – *Satellite Data and Model Infusion* hosted by CIOSS at Oregon State University
- 2007 – *The Role of Satellite Measurements in Observing and Predicting Climate Variability and Change* hosted by CICS at University of Maryland College Park
- 2006 – *NPOESS, GOES-R and Beyond: New Observations to Benefit Society* hosted by CIRA at Colorado State University

Community building - Student/Early career scientist exchanges

- Funds for student and early career scientist travel to and from NESDIS, the Cis and Center provided for 10-20 students each year.
  - One-on-one discussions
  - Seminars
  - Short courses
  - Proposal planning
  - Conference attendance

Community building - Directors Meeting

- Attendees from Cis, Center and NESDIS
- Strategic planning and adjustments
- Location alternates through Cis, Center and NESDIS

Building a community online

- NESDIS Center for Satellite Applications and Research (StAR) webpage
  http://www.star.nesdis.noaa.gov

- Cooperative Research Programs Blog
  http://www.corpblogspot.org/

Benefits anticipated

- More communication between satellite sensor application experts and next generation of meteorologists, oceanographers and climatologists
- Improved use of current satellite constellation for benefits
- Improved design of future satellite constellation for benefits