

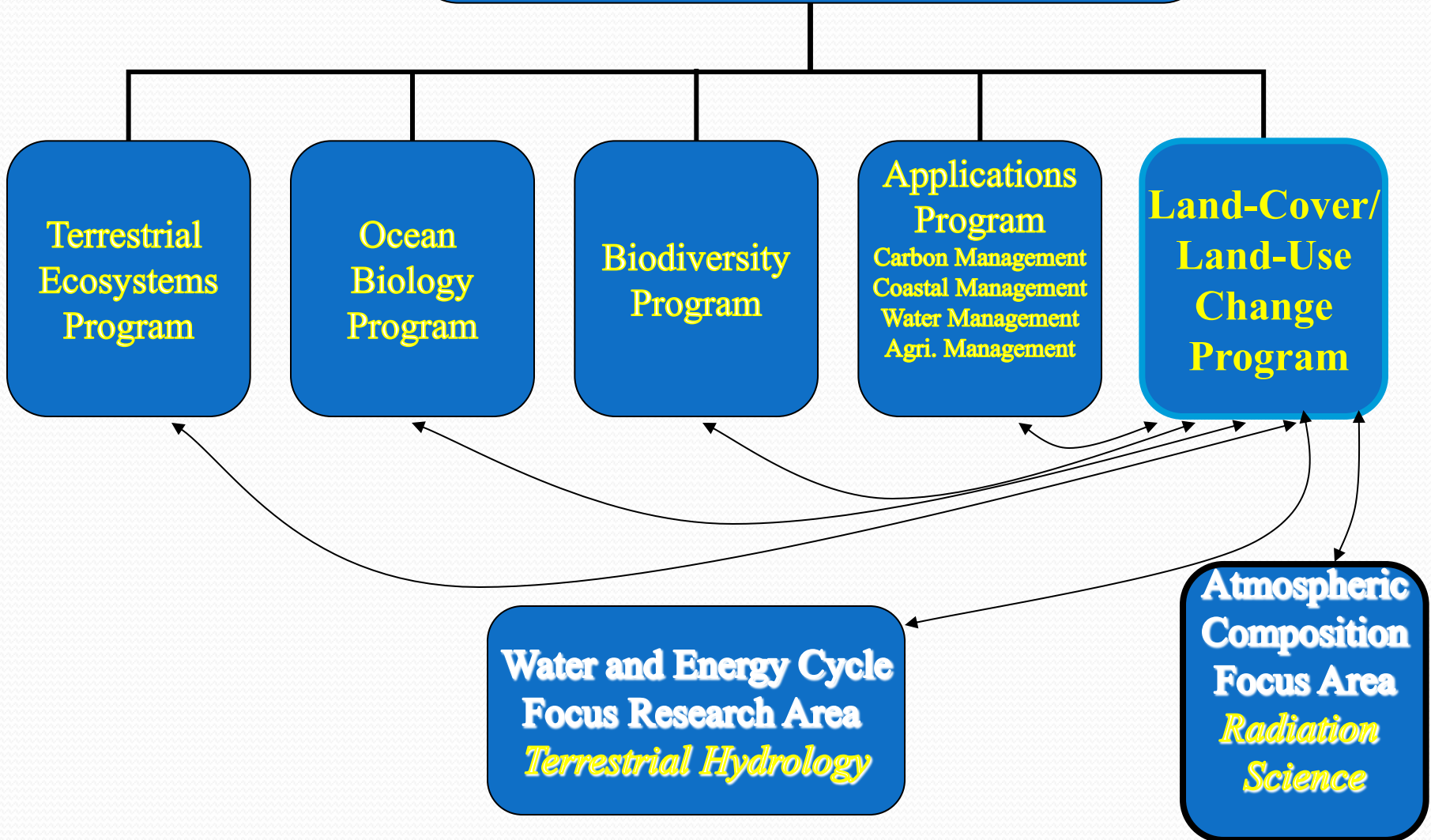
NASA's Land-Cover/Land Use Change Program: An Update

Garik Gutman,
NASA Headquarters
Manager, LCLUC Program



**INTERNAL
LINKAGES
@NASA**

**Carbon Cycle and
Ecosystems Focus
Research Area**



**Terrestrial
Ecosystems
Program**

**Ocean
Biology
Program**

**Biodiversity
Program**

**Applications
Program**
Carbon Management
Coastal Management
Water Management
Agri. Management

**Land-Cover/
Land-Use
Change
Program**

**Water and Energy Cycle
Focus Research Area**
Terrestrial Hydrology

**Atmospheric
Composition
Focus Area**
*Radiation
Science*

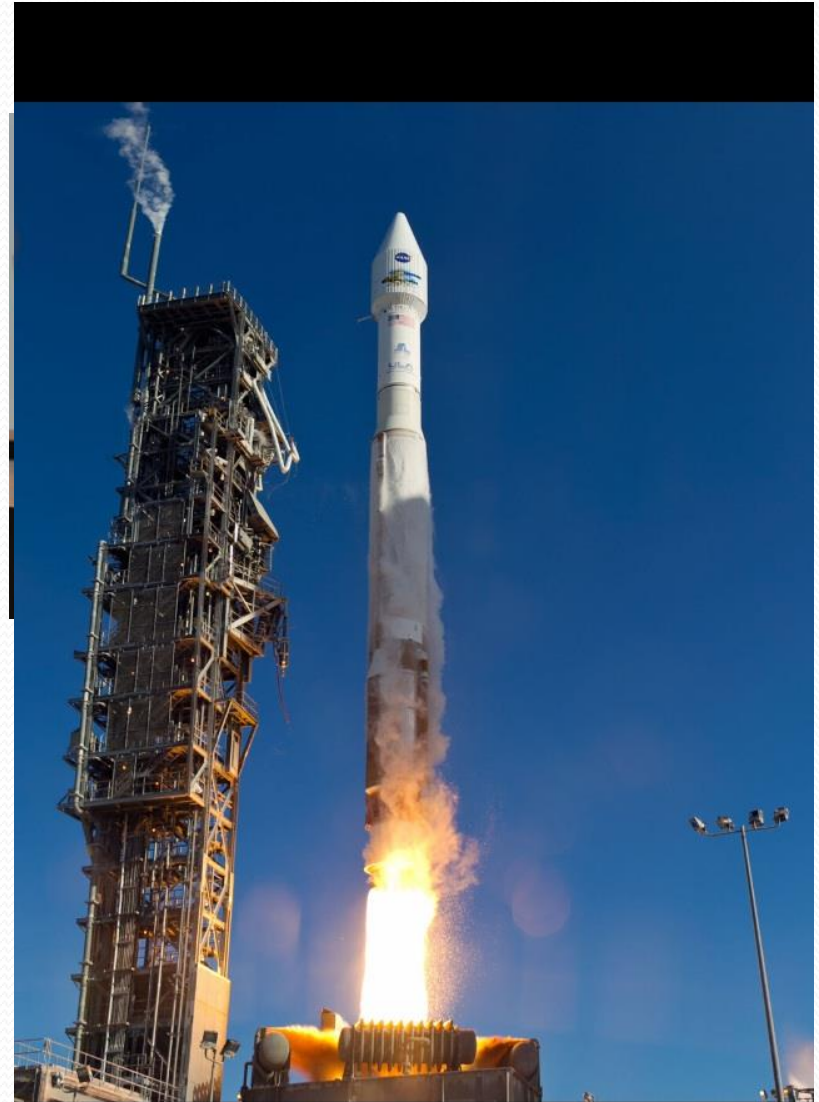
External Linkages: National

- U.S. Global Climate Research Program

- The LULCC Interagency Working Group (LUIWG) is no longer in the USGCRP structure
- NRC review of Land-Use Models, co-sponsored by NASA LCLUC and USGS is



You don't need to be a rocket scientist to sit in the Mission Control room



LDCM launch on Feb 11, 2013

External Linkages: International



• GTOS/GOFC-GOLD

- Fire Implementation Team office at UMD
- South Asia Network (SARIN) is being formed as a result of the LCLUC meeting in Coimbatore (India), January 2013
- South-Central Europe Regional Information Network (SCERIN) will enhance its activities in Prague (Czech Republic), June 2013
- Central Asia Network (CARIN) will get a boost at the international regional LCLUC ST meeting in Uzbekistan, November 2013



Krishna Vadrevu
(UMD)



Petya Campbell
(NASA)



Jianguo Qi (MSU)

• CEOS/GEO

- Contribute to CEOS International Working Group on Calibration and Validation
- Contribute to Land Surface Imaging (LSI) Constellation Working Group
- Co-lead GEOGLC (Global Land Cover)
- Co-lead GEOGLAM (Global Ag Monitoring)
- Contribute to GFOI (Global Forest Obs)



Joanne Nightingale, Sigma Space

International Partnerships

- IGBP/IHDP
 - Global Land Project (GLP) office at INPE, Brazil
 - Joint planning of the next GLP 2nd Open Science Meeting in Berlin, Germany, March 19-21, 2104
 - Northern Eurasia Earth Science Partnership Initiative (NEESPI) - support of Project Scientist, meetings and research projects
 - Monsoon Asia Integrated Regional Study (MAIRS) - support of Project Scientist, meetings and research projects
- ScanEx – Satellite Data Center in Moscow
<http://scanex.ru/en/>
- ESA Sentinel-2 Program
- ISRO (India) ResourceSat Program



Project Officer
Camille Nolasco



Executive Officer
Giovana Espindola



Project Scientist
NASA-NEESPI
Pasha Groisman



Project Scientist
NASA-MAIRS
Jiaguo Qi, MSU

Program Components

Total ~40 projects : Forests, Ag,
Urban, Wetlands

- Detection/Monitoring/Observations
- LCLUC Predictive Modeling
- LCLUC impacts on
 - Carbon and Water Cycles
 - Climate and Environment
- Drivers of Change
- Climate impact on LCLUC
- Vulnerability, Impacts and Adaptation
- Synthesis studies



LCLUC ST Meeting Apr 2012
Rockville, MD

LCLUC Wetlands Component

- Remote sensing from satellites is a critical tool providing synoptic information on the types of wetland vegetation, water dynamics, and land-management impacts
- The 1971 International Ramsar Convention on Wetlands
 - Targeted assessment and monitoring information is vital for ensuring effective management planning for wetlands
 - "Wise use" - conservation and sustainable use of wetlands and their resources for the benefit of humankind

Wetlands Issues: Mangroves example

- Mangroves in Kerala, India



LCLUC Wetlands Projects

- **Laura Hess, U. CA Santa Barbara (with Woods Hole Research Center & Virginia Tech)**
 - Land and resource use on the Amazon floodplain under evolving management systems and environmental change: Fish, forests, cattle, and settlements
- **Marc Simard, JPL (with Louisiana State U., Indiana U., & GSFC)**
 - Vulnerability assessment of mangrove forests in the Americas
- **Charles Vorosmarty, City College (with U. New York & U. Colorado)**
 - Global-scale assessment of threatened river delta systems: Evaluation of connections between the continental land mass and ocean through integrated remote sensing and process modeling.
- **In-Young Yeo, U. Maryland (with USFS)**
 - Mapping and Monitoring of Wetland Dynamics for Improved Resilience and Delivery of Ecosystem Services in the Mid-Atlantic Region
- **Mei Yu, U. Puerto Rico**
 - Vulnerability and adaptive management of tropical coastal wetlands in the context of land use and climate changes
- **Chandra Giri, USGS**
 - Global mangroves mapping

Reporting and Communication



- The Web site: <http://lcluc.hq.nasa.gov>
 - Abstracts, progress reports, presentations
 - Lists of publications and references
 - Project metadata and data set links
 - Announcements, events, job ops, news
 - Outreach (journal covers, media coverage, books)
- To our website support team
 - all of the above on an ongoing basis
- To me: sensitive info, project updates
 - 1 slide in bullets + visual
- PI's are encouraged to host their own websites to showcase their results in more detail and to make their data sets available - provide links (and faces!)



Catherine Nakalembe



Jon Nordling

Data Aspects



Rama Nemani,
NASA Ames

- NASA promotes the free and open sharing of data
- NASA Earth Exchange (NEX) portal
 - state-of-the-art supercomputing
 - Earth system modeling
 - All LCLUC projects are listed on the NEX site -- PI's are encouraged to register
- USGS - Landsat data for free distribution including GLS
 - Landsat-8 data will be available the second half of May
- International cooperation on Landsat-like data
 - Joint pilot project on using Landsat-8 and ESA Sentinel-2 data
 - Joint pilot project on using Landsat-8 and ISRO IRS-2 data
- NASA LCLUC program expects its PI's to make their data and products available to the broader community
- High resolution data for NASA-affiliated scientists
- PI's datasets will be reflected on the LCLUC metadata page

Current Year Solicitation

◎ ROSES-2012

- ◎ *LCLUC (15 invited to submit full proposals)*
 - ◎ *Global mapping of industrial forests from Landsat-class observations*
 - ◎ *Synthesis of LCLUC studies in Eurasia (social science is a requirement)*

◎ Carbon Cycle Science

◎ Interdisciplinary Science

◎ ROSES-2013 LCLUC (step-1 due Dec 3)

- ◎ *LCLUC in mountainous regions*
- ◎ *Synthesis of LCLUC studies*

Education and Outreach

- Bringing early career scientists (ECS) into the program
 - Continue with ECS sessions at LCLUC ST meetings
 - Continue with ECS solicitations
 - Keep training as an integral part of each international LCLUC ST meeting
 - New Trans-Atlantic Training Initiative (US-EU)
- PR and interactions with a wider community
 - New brochure
 - Continuous improvements of the LCLUC site and Facebook page



Enjoy Washington in Bloom

**Thanks to everyone.
Special thanks to our international partners!**