Update on NASA’s Cooperation with Non-Traditional Partners

Michael O’Brien
Assistant Administrator for External Relations

NASA Advisory Committee
Washington, DC
February 18, 2010
Agenda

- Overview of International Cooperation at NASA
- Guidelines for International Cooperation
- Non-Traditional Partner Approach
- Cooperation with Muslim Majority Countries
- Examples: Potential Cooperation with Non-Traditional Partners
- Challenges and Issues
- Next Steps and Summary
International Cooperation: Overview

- **International cooperation at NASA:**
  - Is directed by the National Aeronautics and Space Act that created NASA in 1958 and continues to be part of national space policy
  - Has been a cornerstone of NASA’s activities throughout its history
  - Includes over 3,000 agreements with over 100 nations
  - Brings multiple benefits to NASA and its partners
  - Is developed through a combination of choice and necessity

- **Current international cooperation:**
  - 458 active international agreements with 118 countries
  - By mission area: 2/3 of all agreements are in the NASA science missions
  - By region: 1/2 of all agreements are with partners in Europe
  - 8 partners account for 50% of the agreements (France, Germany, ESA, Japan, UK, Italy, Canada, Russia)
  - The other 50% are spread among 108 other countries, many of which we are calling “Non-Traditional Partners”
Current International Cooperation

Total International Agreements = 458, Countries = 118

Central and South America (31)
- Chile (5)
- Argentina (3)
- Brazil (3)
- Peru (3)
- Bolivia (2)
- Columbia (2)
- 13 Other Countries (13)

Europe (247)
- France (48)
- Germany (46)
- ESA (27)
- UK (25)
- Italy (17)
- 34 Other Countries and Organizations (84)

Africa and the Middle East (47)
- United Arab Emirates (2)
- Kenya (4)
- South Africa (4)
- Israel (3)
- 32 Other Countries (36)

Russia (13)

Un (1)

Canada (17)

Multilateral (3)

34 Other Countries and Organizations (84)

Europe
- France (48)
- Germany (46)
- ESA (27)
- UK (25)
- Italy (17)

East Asia (12)
- South Korea (5)
- China (2)
- Mongolia (2)
- Taiwan (2)
- APCC (1)

South and South East Asia (26)
- India (7)
- Philippines (3)
- Thailand (3)
- Kazakhstan (2)
- Pakistan (2)
- 9 other countries (9)

Japan (43)

Pacific (18)
- Australia (10)
- New Zealand (3)
- 5 other countries (5)

South and South East Asia

as of 2010-01-17
Current International Cooperation
(non-traditional partners highlighted)

Total International Agreements = 458, Countries = 118

Canada (17)
UN (1)

Central and South America (31)
- Chile (5)
- Argentina (3)
- Brazil (3)
- Peru (3)
- Bolivia (2)
- Columbia (2)
- 13 Other Countries (13)

Europe (247)
- France (48)
- Germany (46)
- ESA (27)
- UK (25)
- Italy (17)
- 34 Other Countries

and Organizations (84)

Multilateral (3)

Russia (13)

East Asia (12)
- South Korea (5)
- China (2)
- Mongolia (2)
- Taiwan (2)
- APCC (1)

South and South East Asia (26)
- India (7)
- Philippines (3)
- Thailand (3)
- Kazakhstan (2)
- Pakistan (2)
- 9 other countries (9)

Pacific (18)
- Australia (10)
- New Zealand (3)
- 5 other countries (5)

Africa and the Middle East (47)
- United Arab Emirates (2)
- Kenya (4)
- South Africa (4)
- Israel (3)
- 32 Other Countries (36)

Japan (43)

Multilateral (3)

Multilateral Organizations (84)

RED = Agreements with Non-traditional Partner Countries

as of 2010-01-17
“Traditional” Partners
“Non-Traditional” Partners
Guidelines for International Cooperation

- NASA international partners are generally government agencies

- Each Partner funds its respective contributions, but contributions need not be equivalent. “No exchange of funds”

- Cooperation must be consistent with U.S. foreign policy objectives

- Projects/Partnerships:
  - Must have scientific and technical merit
  - Must demonstrate a specific benefit to NASA
  - Are structured to protect against unwarranted technology transfer
  - Are structured to establish clearly defined managerial and technical interfaces to minimize complexity
  - Are documented in a written, binding agreement, closely coordinated with the Department of State and other USG agencies
NASA Non-Traditional Partner Approach

- Although broad international participation in NASA programs has been welcomed, partnerships with many nations have been limited by their interests, technical capacity and funding

- Efforts to engage non-traditional partners have been ongoing through NASA’s Science Mission Directorate, primarily in Earth science applications, including education

- A focused effort is now underway to engage and increase NASA’s cooperation with “non-traditional” partners
  - Building on existing relationships
  - Establishing new relationships
  - Almost all countries and regions are of interest
NASA’s efforts are consistent with Administration interest to:
- Foster new S&T cooperation globally
- Enhance S&T cooperation in Muslim majority nations
- Emphasize STEM education initiatives

Initial NASA engagements have resulted in significant interest at the highest government levels
- Recent conference presentations and meetings in Abu Dhabi and Bangkok
- Visits to UAE, Saudi Arabia, Oman, Thailand, Malaysia, Indonesia

All of NASA’s engagements are conducted in close coordination with other USG agencies including State, USAID, OSTP and NSC

Initial NASA focus is on opportunities that are:
- Mutually beneficial
- Easy to implement at low cost
- High impact in terms of results/societal benefits
Cooperation with Muslim Majority Nations

- The Administration is seeking to enhance S&T cooperation with Muslim majority nations (Cairo speech, June 2009)
  - Science Envoy program
  - Centers of scientific excellence

- NASA’s ongoing and planned activities support this initiative

- NASA currently has limited cooperation with about half of the Muslim majority nations

- In effort to identify potential new cooperation in the last 4 months NASA has engaged senior officials from:
  - Saudi Arabia
  - Indonesia
  - Malaysia
  - Oman
  - UAE
  - Egypt
Muslim Majority Countries
Muslim Majority Countries with NASA Agreements
Examples of Potential Cooperation

- Examples include scientific research, Earth science applications and education initiatives, but cooperation in all programmatic areas is welcome.

- Existing cooperation includes:
  - Global Learning and Observations to Benefit the Environment (111 countries)
  - AERONET, Aerosol Robotic Network (35 countries)
  - SERVIR (Central America, East Africa)

- Other potential areas of cooperation include:
  - Space Geodetic Network
  - ISS research
  - NASA Lunar Science Institute
  - Astrobiology and Terrestrial Analog Sites
  - Calibration and Validation Campaigns
  - Ground, Balloon and Sounding Rocket-Based “In-situ” Data
A global community of students, teachers, and scientists. Students actively take measurements that can then be shared with others around the world, using the internet to record the data. Through classroom activities, fieldwork and international collaboration, students develop a better understanding of the Earth’s environment on a local, regional, and global basis.

- Internet based
- 1 million students in 20,000 schools
- 111 countries
GLOBE Program

Near East and North Africa
Regional Projects

• **Ocean for Life 2009** - Educational and cultural experience in U.S. national marine sanctuaries focusing on marine biology, oceanography, and the foundations of GLOBE student research.

• **Student seawater quality comparison study** of the Arabian Gulf, the Red Sea and the Mediterranean Sea to determine the effects of sewage and industry on water quality (Bahrain, Jordan, Lebanon)

• **Student comparison study** on soil characteristics and land cover (Bahrain, Lebanon, Jordan, Qatar, Egypt)
GLOBE agreements
Countries with only a GLOBE agreement
Earth observation/predictive models:

- Integrates satellite observations, ground-based data and forecast models to monitor environmental changes and to improve response to natural disasters (floods, earthquakes, landslides, etc).
- Facilities currently in Central America and Africa, there are plans to expand to other regions.

Flood Forecasting in Africa

• Data and Models
• Online Maps
• Visualizations
• Decision Support
• Training

Training and Capacity Building
SERVIR Applications

Provides information to decision makers related to:

- Disaster Analysis
- Environmental Monitoring
- Air Quality Assessment
- Climate Change and Biodiversity
- Short Term Weather Prediction

Mapping Landslide in Guatemala
January 2009

Fires in Guatemala and Mexico
April 2009

Flooding in Kenya
November 2008
Aerosol Robotic Network (AERONET)

These images, in true color and showing sea surface temperature, were taken as part of a joint project between NASA and the United Arab Emirates Department of Water Resources Studies.
Aeronet Agreements
Challenges and Issues

- Lack of NASA counterparts in many nations that under consideration

- “Learning curve” associated with initial cooperation with NASA
  - Assess potential partner interest, capacity and funding
  - Raising unrealistic expectations

- Traditional guidelines for international cooperation may need modification
  - NGO involvement
  - Capacity building

- Commitment of NASA human resources
  - Development of new partnerships (international and within USG) is labor intensive
Next Steps

- Continued interagency consultations

- Refinement of NASA priorities for potential cooperation
  - NASA interests and resources
  - Potential partner expressions of interest

- Continued engagement with non-traditional partners
  - Participation in regional conferences, workshops and meetings

- Seek to identify specific opportunities for cooperation
  - In some cases, agree on a Joint Statement of Intent
  - Establish necessary agreements for specific projects

- Periodic assessment of progress
Summary

- International cooperation contributes significantly to NASA’s mission and to national goals, and to national objectives of partner countries

- Strong Administration interest in enhanced international involvement in NASA’s activities
  - Cooperation with non-traditional partners is encouraged across the board
  - Additional emphasis on Muslim majority nations

- Modest cooperation by NASA standards may have very positive implications for smaller nations and foreign policy benefits for the USG

- Potential non-traditional partners that NASA has engaged to date have expressed significant interest in an opportunity to work with NASA