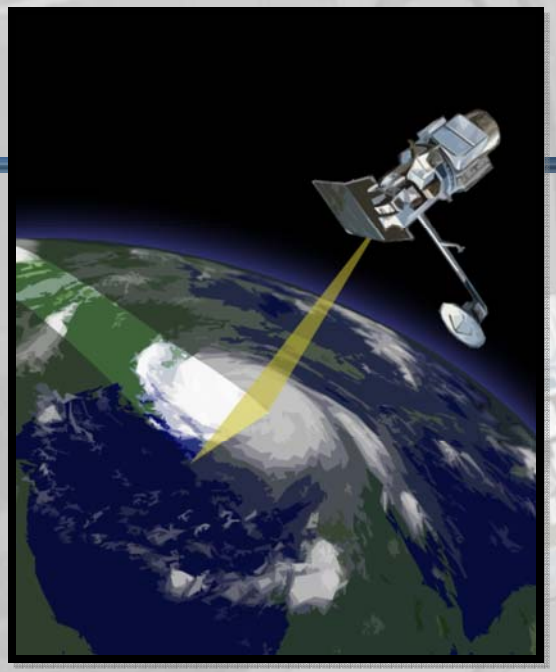
USGS Perspectives on LDCM and Landsat



presented to Landsat Science Team by

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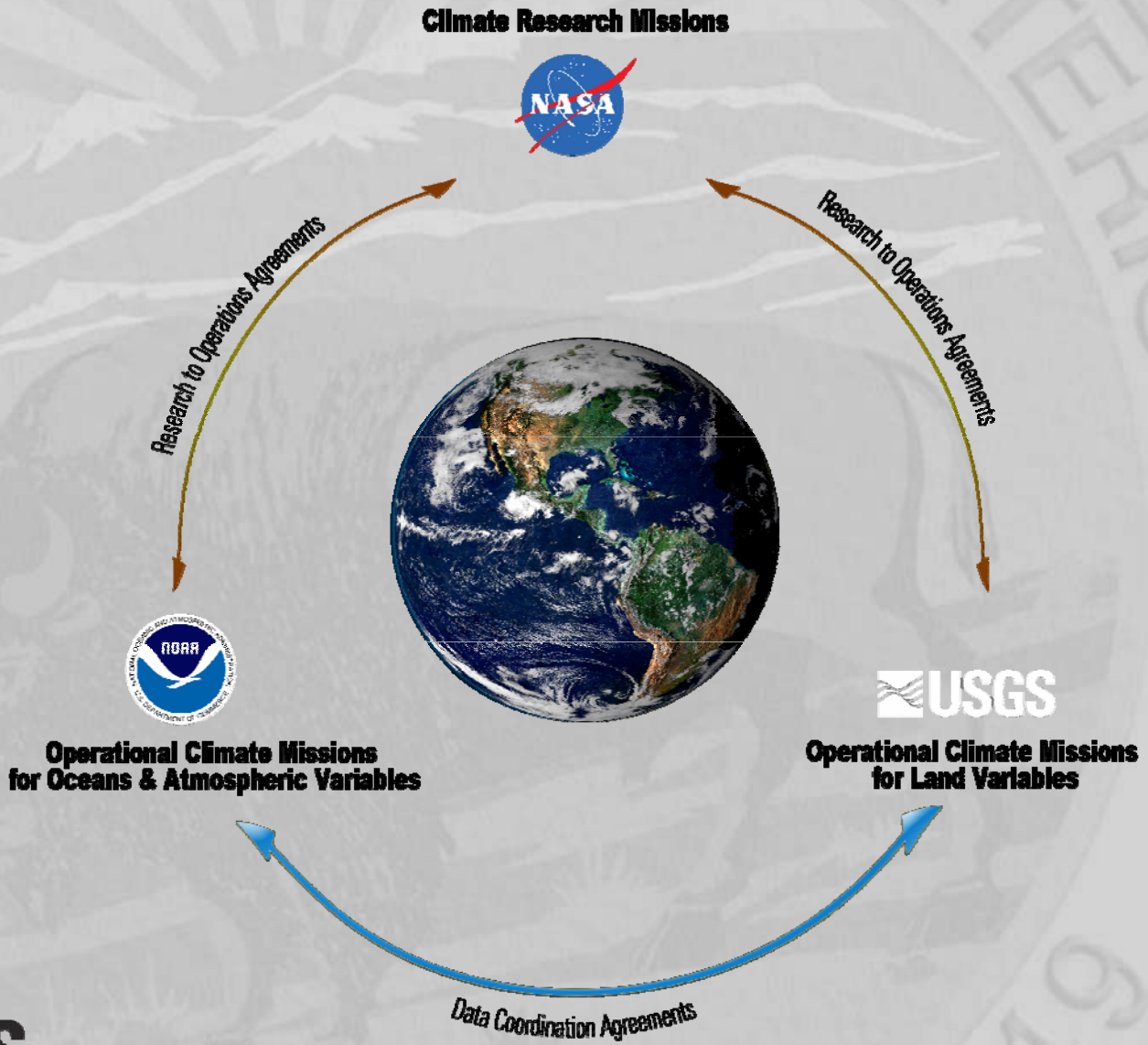
Department of the Interior
U.S. Geological Survey

USGS Perspectives on LDCM and Landsat

- Landsat a high priority for the new Administration (Secretary Salazar and Director McNutt)
- Landsat web-enabled data a smash hit!
- Landsats 5 and 7 still soldiering on
- LDCM Confirmed in Dec; TIRS on board; still on track for Dec 2012 launch
  - LDCM Ground System passed its PDR in Sept with no RFAs
  - Ground System funding appears to be in good shape
- Landsat 9 planning underway
  - USGS working with NASA to develop detailed plan called for by Congress
  - USGS planning new Landsat 9 budget initiative for FY12
  - Planning to host Requirements Workshops this summer
- Landsat/LDCM will be part of the USGS Briefing Series for 2010 starting in March
- Beginning early discussions on LDCM-Sentinel-2 collaboration
- Congress wants Decadal Survey architecture review to better prioritize climate-predictive capabilities and clearly define NASA development and NOAA-USGS operational responsibilities

USGS

Practical Framework for Space-based Global Change Research



USGS

BACKUP SLIDES

Status on the Hill

FY09 Appropriations Language:

- NASA to work with OSTP and USGS to develop a plan for a LDCM follow-on mission due by August 31, 2009
- Draft NASA response is in Legislative Affairs at NASA HQ
- NASA and USGS have agreed to start in January 2010

FY10 Appropriations Language:

- NASA to work with NOAA, USGS, and other agencies to review Decadal Survey to measure and understand those climate forcings that most improve climate prediction over the next 10-12 years
- Plan to include time for NOAA and USGS to assume operational responsibilities
- NASA to provide a second copy of instruments of operational potential
- Due by May 3, 2010

USGS

Status on the Hill—FY10 Appropriations Language

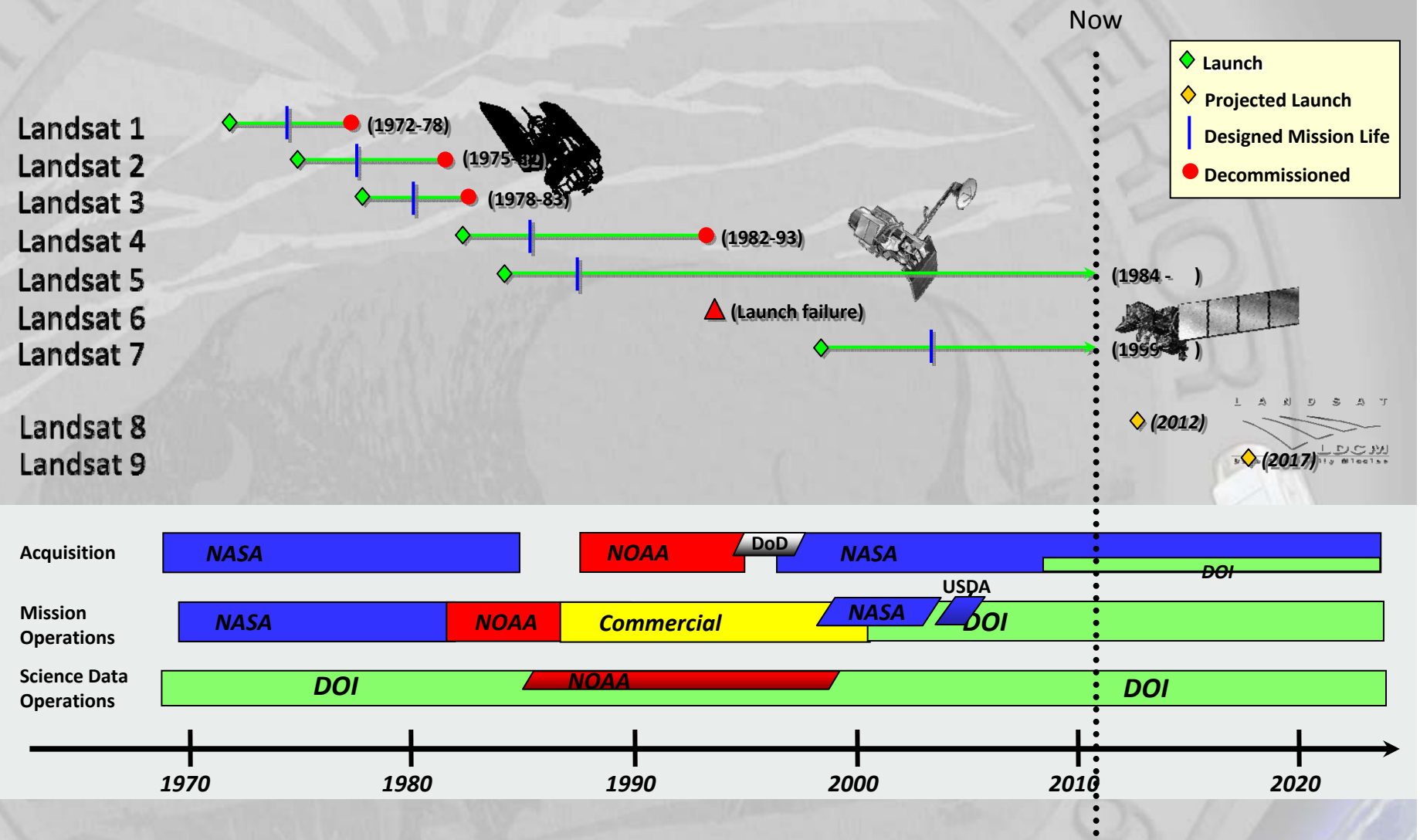
"Climate variables and climate science.—Long-term measurement of selected climate variables is of critical importance for climate science. NASA should provide leadership in demonstrating satellite-based global change measurements that can then be implemented on an operational basis by NOAA and USGS. Given the likely demise in coming years of a number of Earth observing satellites and the NASA cancellation of the second and third copies of the EOS satellites and instruments, NASA, working with NOAA, USGS, and the other agencies of the US Global Change Research Program, is directed to conduct a systematic review of the recommended Decadal Survey implementation architecture, with the focus being to first measure and understand specifically those climate forcings that have the greatest leverage for improving the Nation's climate predictive capabilities significantly over the next 10–12 years. The resulting architecture should include emphasis on NASA's responsibility to develop measurements using new technologies to demonstrate an innovative, affordable climate observing system and improvements to the predictive models resulting from the ensemble of measurements obtained. The resulting Architecture must also take into account the time required for NOAA and USGS to obtain appropriations to assume operational responsibility for the measurement once their utility has been demonstrated including consideration of NASA including two copies of each instrument with operational potential. A report outlining this climate-centric architecture shall be delivered to the Committees no later than May 3, 2010."

How Did We Get Here?

- **USGS has served as the Landsat data steward since program's inception in 1966**
  - experienced several changes in program leadership, including two unsuccessful attempts to commercialize the satellites
- **USGS Joined NASA in 2000 as full partner in program management**
  - Presidential Decision Directive NSTC-3 (5/94, revised 10/00)
- **NASA and USGS are funded for Landsat 8 development; funding projected for USGS operations through 2017**
- **No agency yet has responsibility or funding for Landsat 9 or beyond**
  - NASA is not responsible for "operational" satellites
  - NASA has developed and launched NOAA operational satellites with NOAA funds
  - NOAA environmental satellites observe oceans & atmosphere
  - 8 Federal agencies recommend that Department of the Interior/USGS manage the Landsat program and NASA build and launch Landsat 9 and beyond (see *A Plan for a U.S. National Land Imaging Program*, National Science and Technology Council, 2007)

USGS

Shifting Federal Responsibilities



USGS

Transitioning to an Operational Landsat Program

Transfer the programmatic responsibility for Landsat missions from NASA to DOI/USGS consistent with OSTP Recommendations

Function	Now (LDCM)	Landsat 9
Programmatic Lead	NASA	USGS
Requirements	Joint/NASA Lead	Joint/USGS Lead
Budget	NASA	USGS
Flight Systems Development	NASA	NASA
Ground System Development	USGS	USGS
Operations	USGS	USGS
Processing/Distribution Archiving	USGS	USGS

USGS

Current Concept for Landsat's Future

- Launch a mission every 5 years
- Each mission has a 5-year design life with 10 years of fuel
- New prototype instruments are flown on mission clones
- Advanced technology is used to drive down operational costs

USGS