

LANDSAT LEGACY PROJECT

INTERVIEW

“Landsat inspires passion in the people who work on it. We want to get the story out about this program which we care so much about.”

Conducted with members of the Landsat Legacy Project Team; Darrel Williams, Global Science & Technology; Terry Arvidson, Lockheed Martin; Jim Irons, NASA GSFC; Laura Rocchio and Carol Russell, Science Systems and Applications, Inc.; and Sam Goward, University of Maryland.

What exactly is the Landsat Legacy Project?

The Project is an effort to capture the technical history of the Landsat mission and to preserve the documentation associated with the program. We’ve collected information from a wide variety of sources, including oral histories of people involved with Landsat from the very beginning. Our goal is to publish a book containing the 42+ year history of the Landsat mission.

What inspired the team to do it?

NASA Landsat Project Science Office (LPSO) members Darrel Williams and Sam Goward were serving on the USGS EROS National Satellite Land Remote Sensing Data Archive (NSLRSDA) Federal Advisory Committee (FACA) to guide USGS development of the US Landsat archive, the only one of its kind. USGS Archivist John Faundeen showed tables of how many Landsat scenes were in the archive. Sam and Darrel asked to see annual and seasonal maps. When we saw the maps, we discovered that the coverage varied over time. Why? No one knew the answer.

We were driven by curiosity and professional commitment. Landsat is an important step in human history and a unique asset to the world. Documents and memories fade away quickly once people move on to other projects or retire.

“It gave my mom bragging rights.”

How did the team get together in the first place?

It started as a grass roots LPSO effort. Terry Arvidson, Sam Goward, Darrel Williams and others were working on a journal article about the data archive. We realized that the documentation could be better, and that the history of mission configuration and operations had never been captured in writing. Many of the individuals involved, particularly in the 1960s and 1970s, were retired and some had died. Darrel, as head of LPSO, decided to find a way to rectify this and recruited members of the staff, Laura Rocchio and Terry Arvidson, to develop the Landsat Legacy project with Darrel’s and Sam’s contributions.

These initial efforts fell under “other duties as assigned” but we soon realized we needed to do so much more than what we could accomplish doing on the side. Then the NASA

History Office put out a call for proposals to write history books of unspecified NASA missions. We pulled together a team to respond to the proposal and fortunately, were selected.

What did you discover while doing the project that surprised you?

As you can imagine, we had trouble finding documents. No one thought documents from the early 80’s would be useful or that anyone would care about them. Boxes of documents were tucked away every place you could imagine, in garages after someone retired; in file cabinets marked for destruction. Those that did make it to the archive, usually from a project reaching its completion date, were hard to get. We had to convince the powers that be to transfer the information to us. We were an anomaly and people questioned our legitimacy.

Once we were able to obtain documentation and from our interviews with Landsat veterans, we discovered other surprises:

- The range/complexity of technical and political factors that explained the variation of observatory coverage
- The details of the critical role that the long-lived Landsat 5 played in maintaining coverage from 1984-2013
- The Landsat 1, then called the Earth Resources Technology Satellite, Spacecraft Structural Model was completely destroyed in the high-capacity centrifuge at Goddard Space Flight Center
- The common perception is that technology flows from the military/intelligence community to the civilians; however, some of the Landsat technology was first developed by civilians and was later used by the military/intelligence community, such as multispectral imaging, sensor configurations, detector materials.
- In 1972, Russia purchased our excess wheat inventory for pennies on the dollar after their wheat crop failed and before the US was aware of the failure. This made people in Congress very nervous and Landsat’s driving mission of agriculture monitoring was reinforced with dedication to the LACIE, Large Area Crop Inventory Experiment, and AgRISTARS, Agriculture