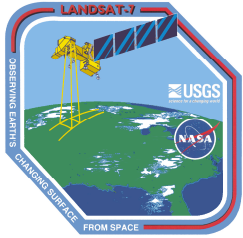


Landsat 5/7 Mission Update

B. Markham

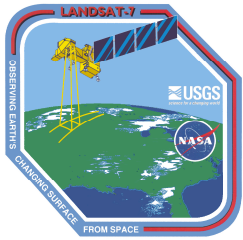
LPSO

NASA/GSFC



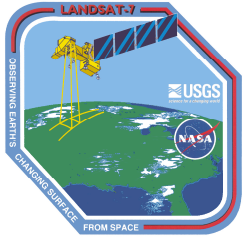
Landsat-5

- Continues operating (since 1984)
 - Surpassed 100,000 orbits
- Under USGS operational control
- TM operating under backup scan mirror control: “bumper” mode
 - Recommend waiting 1 month after acquisition before ordering data for best geometric accuracy
- Direct downlink only
 - US, Australia, Canada(2), Argentina, Brazil, Italy, China
 - Australia data in US archives



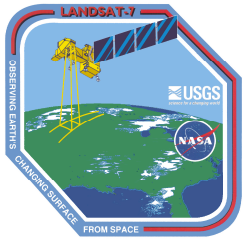
Landsat-7

- Continues operating under USGS control
- Experienced Scan Line Corrector (SLC) Failure
May 31, 2003
 - Appears to be permanent
 - Discussion below
- SLC-off data being routinely acquired
 - US(LTAP), Canada, Australia, Argentina, China, Korea, Malaysia, Indonesia, Japan, Thailand, Taiwan
 - Brazil, South Africa, ESA ceased data collection



Landsat 7 Anomaly

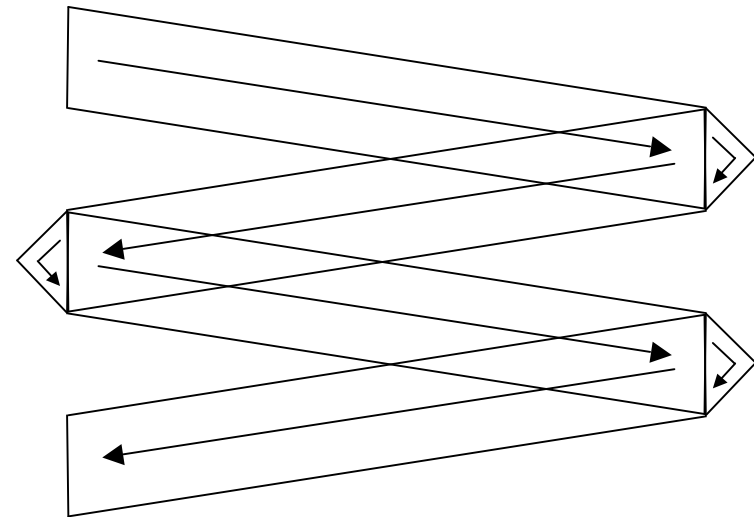
- A component of the ETM+ optical system, the Scan Line Corrector (SLC), malfunctioned on May 31, 2003
- In normal operation, the SLC oscillates in sync with the scan mirror to compensate for the forward motion of the spacecraft
 - Provides parallel forward and reverse scans for full ground coverage
- The SLC stuck in one position resulting in scan gaps and overlap
- Intensive efforts to restore SLC operations have failed; the anomaly appears permanent
- No changes to ETM+ radiometric and geometric performance otherwise, with possible exception of thermal band calibration



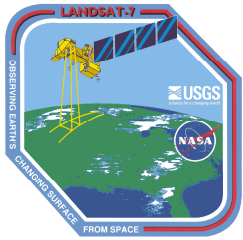
Impact of Stopped SLC



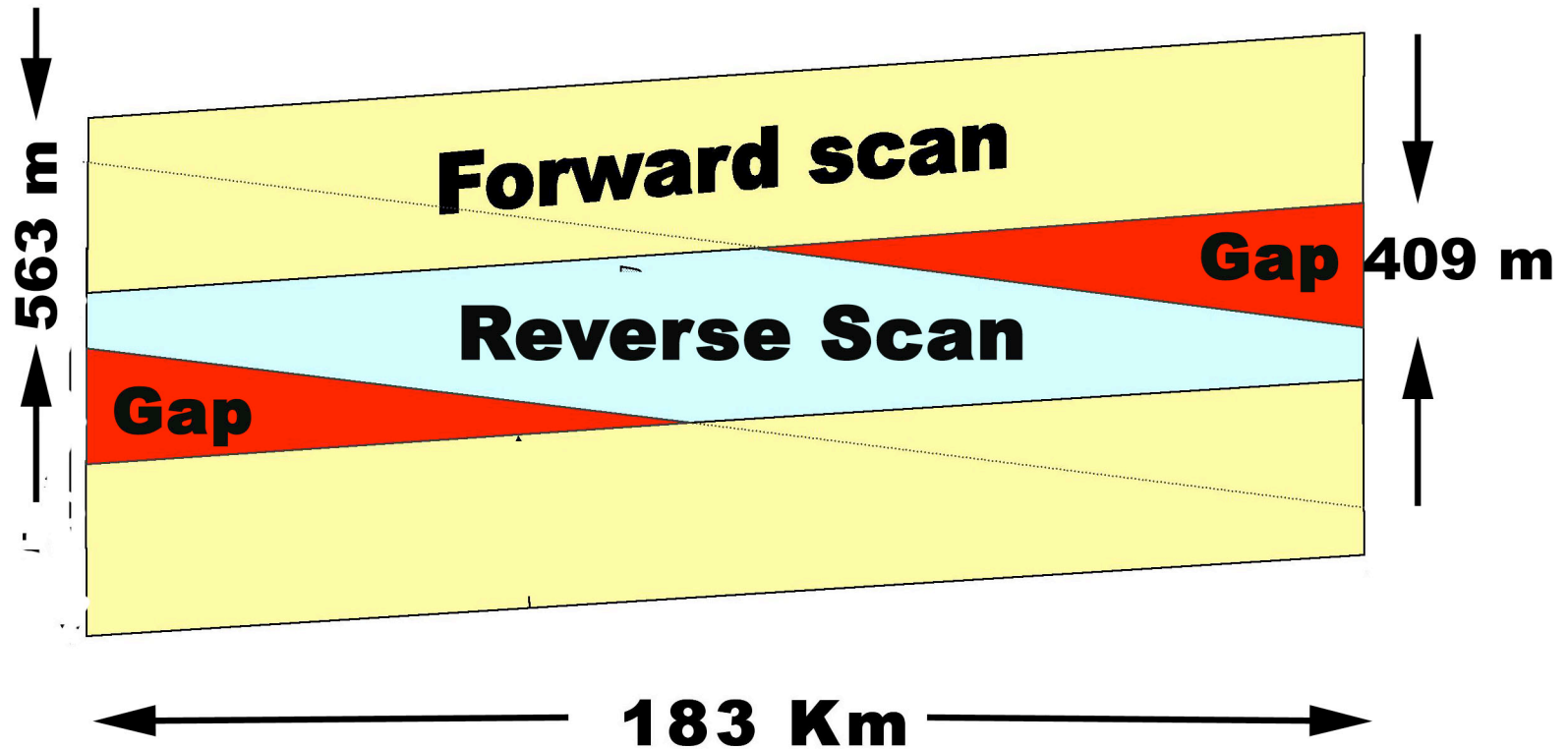
With SLC

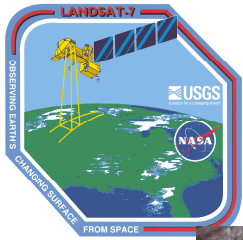


Without SLC

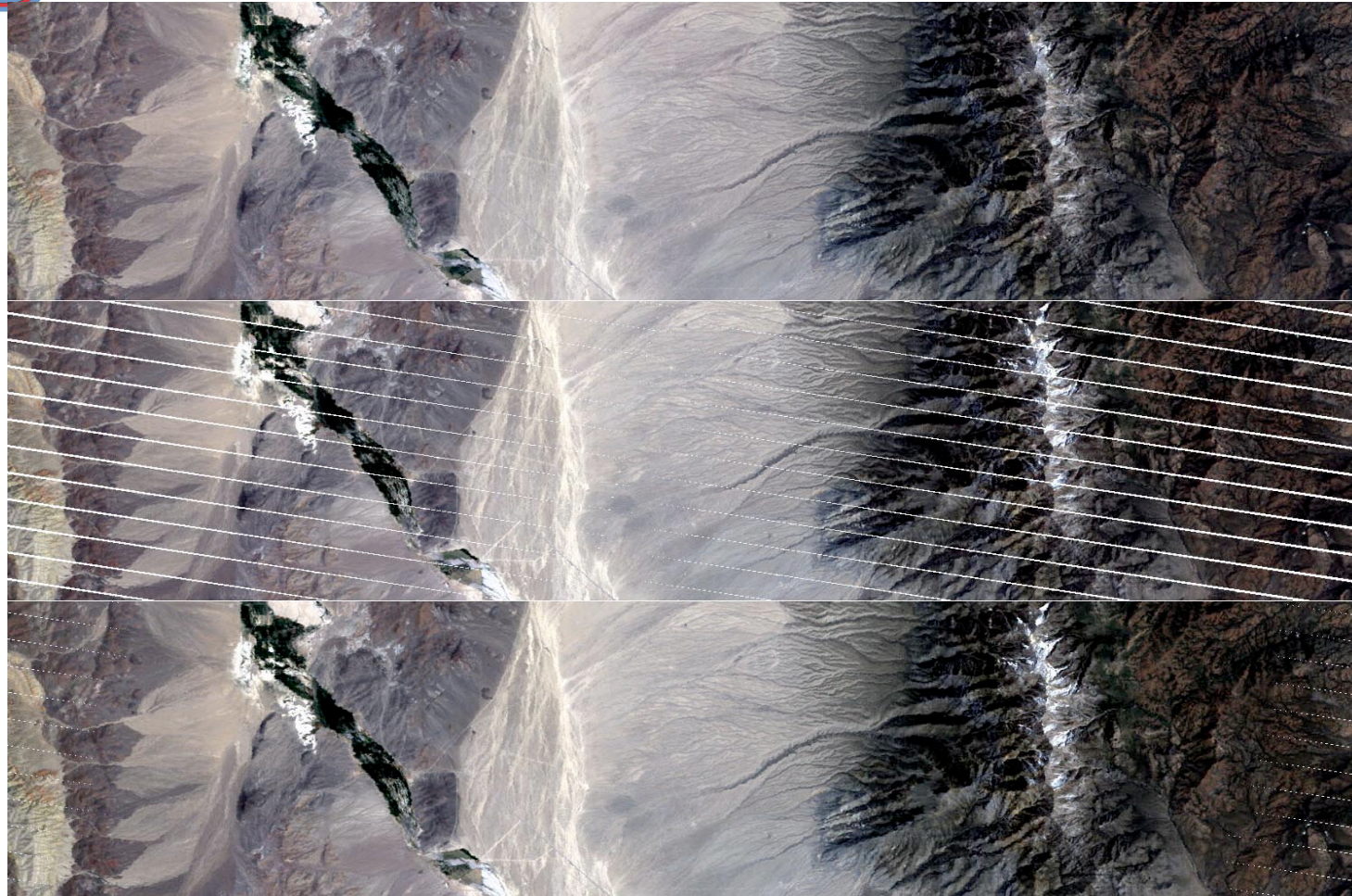


Scan Gap Dimensions





Impact of Stopped SLC (near center of image)

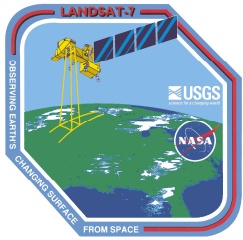


SLC

No
SLC

No
SLC
With
interp

EROS Data Center/Image Assessment System Analyses

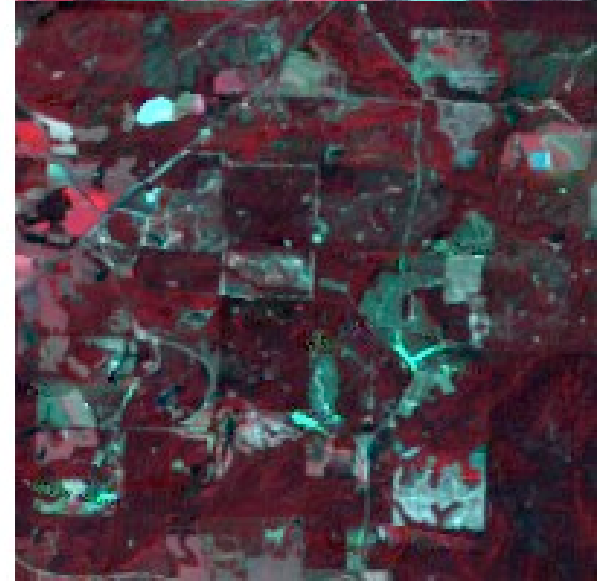
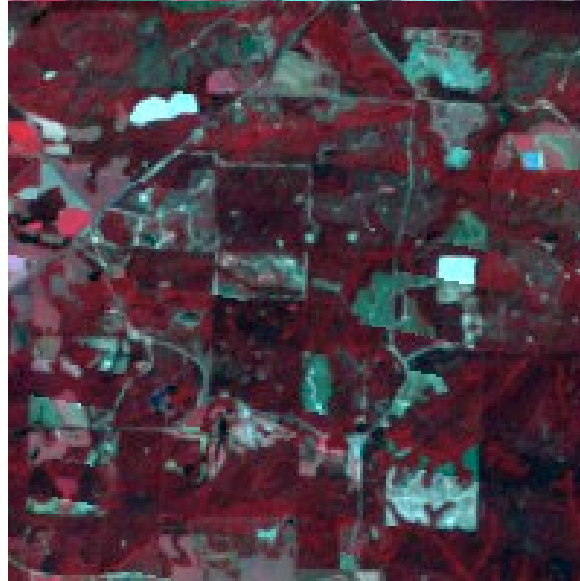
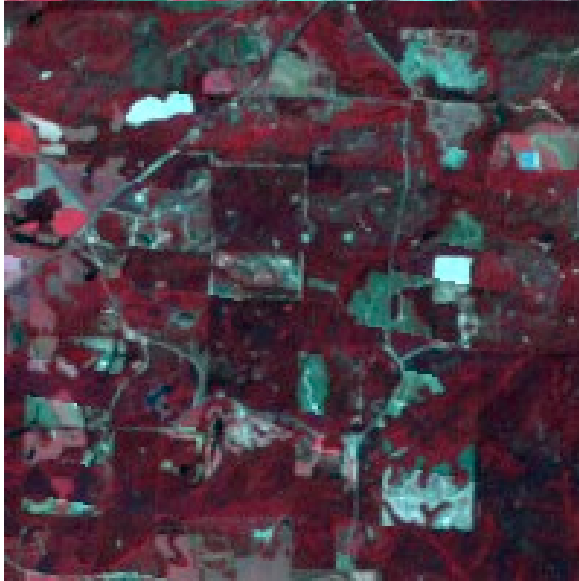
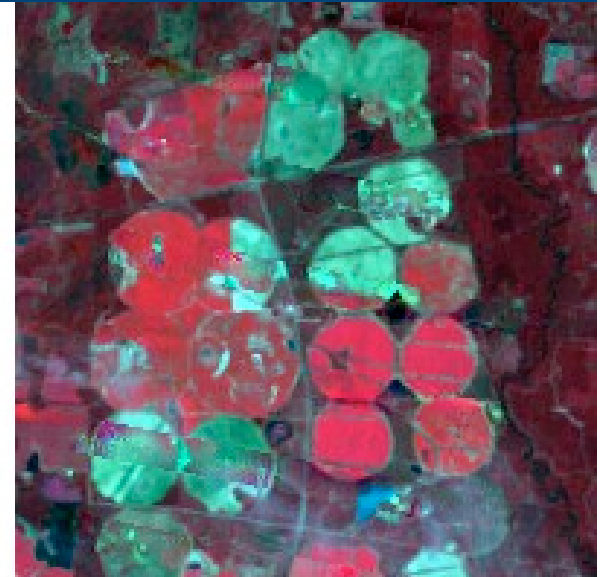
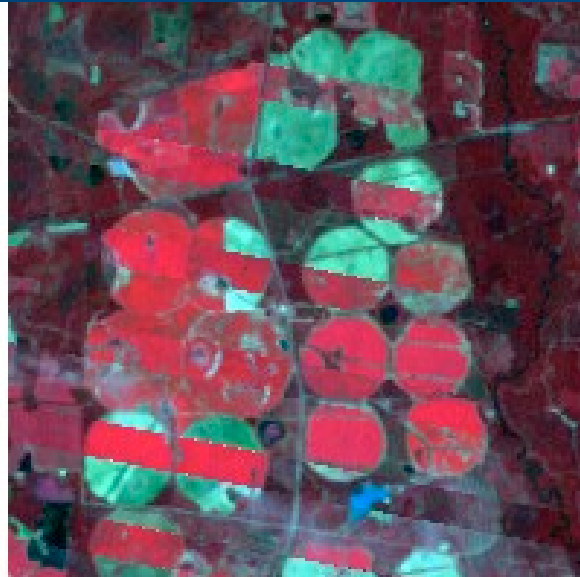
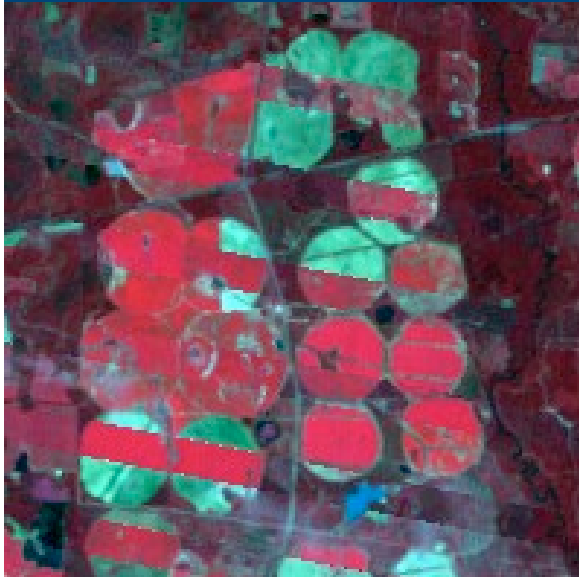


L7 SLC-Off Data Products

- Currently available
 - L1G (geometrically and radiometrically corrected) with 2-pixel interpolation
 - No change in price
- Mid-February
 - User defined amount of interpolation
- June 1, 2004
 - Gap filled data product using anniversary SLC-ON data set using local (17 x 17 window) linear adjustment
 - Product will include both input scenes as well as merged scene

Southern Georgia Rural/Farmland scene Examples

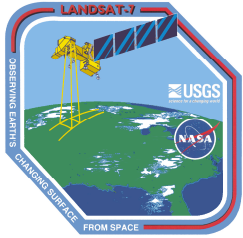
(bands 4-3-2 , excluding high saturations, each triplet stretched identically)



Global Linear

Global Non-Linear

Local Linear



Areas of New Data Product Research

- SLC-off to SLC-off compositing
 - Including cloud masks/exclusion
- Improved browse products to show location of gaps