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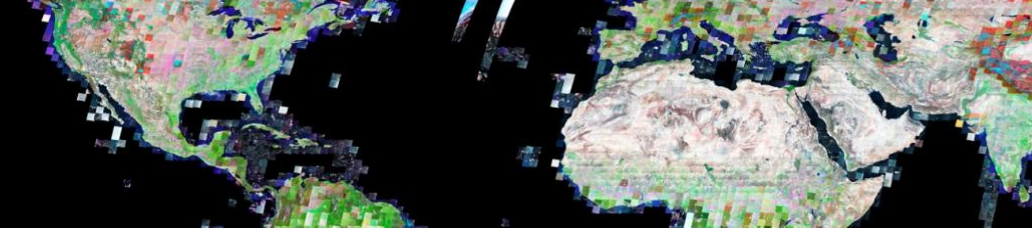

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Important Information: Upcoming Landsat Data Processing Changes

During spring 2015, significant changes to Landsat products will improve the consistency of Landsat 1-8 data records. These changes will enhance data usability.

The planned changes, potential impacts, and benefits are summarized below. **Future Landsat Updates will be published to provide more details on each of these changes**.

Landsat 1-7 MSS, TM and ETM+

1. **Quality Assessment (QA) Band for Landsat 1-7 products**. The new QA band will provide information for detecting clouds, cloud shadows, snow/ice, and water in TM and ETM+ products, compatible with the updated Landsat 8 OLI/TIRS QA band. The new QA band for Landsat MSS will only include values for fill, non-cloudy, and cloudy pixels.

2. **New Cloud Cover Assessment (CCA) algorithm to populate the QA band.** The CFmask (https://code.google.com/p/cfmask/) will be implemented as the primary algorithm for calculation of clouds, cloud shadows, snow/ice, and water in TM and ETM+ products.

3. **New information added to the metadata (MTL.txt) file.** Additions include consistent incorporation of fields describing CCA and fields needed to calculate scene center-based Top-of-Atmosphere (TOA) reflectance:
    a. Cloud Cover Assessment score using the CFmask algorithm
    b. Land Cloud Cover Assessment scores
    c. Earth-Sun Distance constant
    d. Scaling constants for MSS, TM, and ETM+ TOA reflectance
    e. Thermal constants needed to calculate TM and ETM+ TOA brightness temperature

    The name of the Landsat MSS cloud cover parameter was changed to match the TM, ETM+, and OLI/TIRS naming convention, which may affect existing automated processes. The additional parameters will enable other automated processes.

4. **Landsat 4-5 TM National Land Archive Production System (NLAPS) format data will be processed in Level 1 Product Generation System (LPGS).** A number of scenes in the archive could not be processed through LPGS due to formatting and calibration differences resulting from NLAPS processing (see http://landsat.usgs.gov/documents/L4-5TM_NLAPS.xlsx). Upcoming system modifications will enable those scenes to be processed in LPGS, effectively making almost 12,000 "new" scenes available to the user community.

Landsat 8 OLI and TIRS

1. **New Angle Coefficient File added to Level 1 data product.** Per-pixel solar illumination and sensor view angles will be delivered as an additional file within the Level 1 data product. The solar illumination angle coefficients in the Angle Coefficient File can be used in place of the scene-center solar zenith, in combination with the Scaling and Thermal constants to calculate per-pixel TOA reflectance and brightness temperature.

2. **New Cloud Cover Assessment (CCA) algorithm to populate the QA band.** The CFmask (https://code.google.com/p/cfmask/) will be implemented as the primary algorithm for calculation of clouds, cloud shadows, snow/ice, and water. The existing CCA algorithms will remain in the processing flow if the input needed to run CFmask is not available.

3. **Land-Based Cloud Cover.** Using QA Band information, the percentage of land pixels affected by clouds will be calculated and written to the metadata file (MTL.txt) as a scene-based score.

LandsatLook

1. **Additional Quality Image for Landsat TM and ETM+.** The new QA Band in Landsat MSS, TM, and ETM+ data will be added to LandsatLook. The Quality image for TM and ETM+ will be a colored 8-bit .png, as is currently offered for Landsat 8. Landsat MSS Quality images will have fewer categories.

2. **New stretch for the Thermal Band image.** The LandsatLook Thermal Band .jpg is currently stretched with a scene-specific two percent clip. In order to facilitate mosaicking and to permit comparison of images, a constant stretch will be applied to all thermal images.