 DEVELOP Recipe Card

Creating Land, Cloud, and Sediment Masks Fall 2015

Create By: Virginia Water Resources II

# Requirements

ArcGIS 10.1 Landsat 8 OLI Surface Reflectance

Steps

1. Download Landsat 8 OLI Surface Reflectance data from United States Geological Survey’s (USGS) EarthExplorer.
2. Create **NDVI** image using raster calculator:

* Float(“band5.tif” – “band4.tif”) / Float(“band5.tif” + “band4.tif”)
* Use Reclassify Tool to assign values in NDVI that are <= 0 to “1”, and all others to “NoData”.

1. Using the **cf\_cloud\_mask** data product:

* Use the “Reclassify” tool to assign values 2 and 3 as 0, and assign all others as 1.

1. Create **NDTI** image using raster calculator:

* Float(“band4.tif” – “band3.tif”) / Float(“band4.tif” + “band3.tif”)
* Identify values greater than [Mean (NDTI) + Standard Deviation (NDTI)] and reclassify them as NoData and the remaining values as 1.

1. You should now have three different masks for your image. In this case we aimed to separate water pixels that had low sediment values and no clouds over head.
2. Then use the Extract by Mask tool in ArcGIS to obtain a land, cloud, and high sediment product.
3. The order does not particularly matter in which you run the extractions, as long as extraction of the sediment mask comes last, since its values are based on variable that depend on the current map.
4. After your bands have had the extractions run on them, the data that is left should be useful water values without high sediment to cause false positives.