

Calculating Albedo from Landsat

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1 Albedo algorithm

To calculate albedo for Landsat 8 data, you'll need Landsat bands 1-5. The steps are as follows:

1.1 1) Go from raster data, saved as Digital Numbers, to top of the atmosphere (TOA) reflectance:

$$\rho * \lambda = \text{reflectance mult band} * DN + \text{reflectance add band}$$

where

$$\text{reflectance mult band} = 2.000 \times 10^{-5}$$

$$\text{\$ reflectance add band} = -0.100000 \text{ \$}$$

1.2 2) Go from reflectance to albedo using Ron Smith's normalized Liang et. al. algorithm:

$$\alpha = \frac{(0.356 * B1) + (0.130 * B2) + (0.373 * B3) + (0.085 * B4) + (0.072 * B5) - 0.018}{1.016}$$

In []: