Subject: Re: MODIS spectral radiance
Posted by James Kuyper on Mon, 20 Aug 2007 11:20:32 GMT
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Tal wrote:
> On Aug 18, 11:08 pm, geonline...@gmail.com wrote:
>> Hi all,
>>
>> Do you have experience in processing MODIS data? I went to the website
>> of MODIShttp://modis.gsfc.nasa.gov/about/specifications.php
>> and was confused with the meaning Spectral Radiance for different
>> bands there. How is the spectral radiance in bands1-19 calculated? Is
>> it based on the sun's temperature?
>>
>> Sorry, this is not an IDL question, but I cannot find a good remote
>> sensing list to post.
>>
>> Qi
>
> ------
> Hi Qi,
>
> Bands 1-19 of MODIS are in the reflective range (up to 2.5 micrometers
> roughly). since an imaging system has only 1000 parameters that will
> make it produce modern art instead of an image, there needs to be some
> normalization between various image pixels so you could make research
> with that.
>
> this normalization is in fact the application of a gain and an offset,
> per pixel, per wavelength, that converts raw image data from digital
> numbers (DN) to units with some physical meaning called radiance.the
> gain is usually measured every now and then, using the camera, in a
> laboratory in front of an integrating sphere, or some other calibrated
> source of light, while the offset is measured during operation by
> closing the shutter in front of the camera. for example, MODIS
> radiance in these bands is in (W m-2 sr-1 µm-1), that is, watts
> (energy flux per unit time) normalized by area (square meters in
> MODIS) and by a solid angle (in sterradians) and by spectral
> resampling of the imaging system (micrometers in MODIS). many other
> radiance units are also possible and you can convert between them.
> this normalization, in fact, calibrates your data and allows you to
> compare values from one image with values from another another. it
> also makes sure that the camera will not be saturated over bright
> areas such as deserts.

I'm not sure I undestand that explanation. Are you saying that the
spectral radiance number listed is the increase in incident spectral
radiance corresponding to an increase of DN by 1?