Subject: Re: ENVI: AVHRR Calibration for Old NOAA Platforms
Posted by wcapehar on Wed, 22 Nov 2000 08:00:00 GMT
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I agree Paul, but I am also refering to ramp calibrations that for
bands 3, 4, & 5 that are embedded in the headers for each scan-line...
LAS, for example, extracts that information (as to my ancient c-
programs from a past life).

Cheers
Bill

In article <3A1BCC7E.58E80C26@ncep.noaa.gov>,
Paul van Delst <pvandelst@ncep.noaa.gov> wrote:
> wcapehar@my-deja.com wrote:
>>
>> Has anyone figured out a way to get ENVI (3.4 or previous releases)
to
>> calibrate the older NOAA plaform's AVHRR data? I am assuming that
the
>> thermal data ramp calibrations (DN -> Radiance) is taken from the
scene
>> but the wave-number insertion to get it into Tempreratures requires
the
>> Plaform-specific values.
>
> I would argue that the former quantity also must be
(satellite/instrument) platform
> specific also. Each instrument channel's spectral response functions
are slightly
> different thus the radiometric calibration and polychromaticity
correction coefficients
> are instrument/channel specific. My experience is with NOAA HIRS and
GOES IR instruments
> but if you're talking about thermal AVHRR channels, then what I said
applies (I have no
> idea how to calibrate visible channel data).
>
> The calibration and polychromaticity correction coefficients as well
as the channel
> central frequencies for just about every satellite that's flown are
available from
> NOAA....somewhere....I know there is a NOAA website with all this
info somewhere. I have
> the latter numbers from NOAA-5 (TIROS-N!) to NOAA-15 (minus NOAA-13
which futzed out in
> orbit I believe) but it's not officially sanctioned data.

>
> e.g.: Note the difference between NOAA-5, NOAA-14, and NOAA-15 AVHRR. These differences
> are significant when it comes to calculating temperatures from measured radiances:
>
> AVHRR PLANCK-FUNCTION CONSTANTS FOR TIROS-N ("NOAA-05")
> CHANNEL CENT-WN FK1 FK2 BC1 BC2
> 3 2651.105 .22193E+06 .38144E+04 1.81578 .99757
> 4 920.615 .92933E+04 .13246E+04 .46051 .99841
> 5 920.615 .92933E+04 .13246E+04 .46051 .99841
>
> AVHRR PLANCK-FUNCTION CONSTANTS FOR NOAA-14
> CHANNEL CENT-WN FK1 FK2 BC1 BC2
> 3 2659.515 .22405E+06 .38265E+04 1.98132 .99734
> 4 929.383 .95613E+04 .13372E+04 .43272 .99852
> 5 834.606 .69244E+04 .12008E+04 .24104 .99909
>
> AVHRR PLANCK-FUNCTION CONSTANTS FOR NOAA-15
> CHANNEL CENT-WN FK1 FK2 BC1 BC2
> 3 2694.853 .23310E+06 .38773E+04 1.58348 .99781
> 4 925.715 .94486E+04 .13319E+04 .36698 .99874
> 5 839.502 .70469E+04 .12079E+04 .21465 .99919
>
> As for the calibration coefficients, depending on the calibration scheme, some are
> calculated pre-launch and others calculated in-flight. In some cases time-averaged
> coefficients are used. I, personally, would not rely on a commercial package to calibrate
> correctly since calibration schemes have improved over time and are still being worked on
> to get the most out of satellite data. The NOAA NESDIS research and operational folks that
> do this stuff day-in/day-out are a bunch of smart cookies.
>
> Have a lookee at:
> http://www2.ncdc.noaa.gov/docs/klm/html/d/app-d.htm
> for some of the later NOAA satellite numbers. Maybe it will lead you to the older
> instruments' data.
>
> Anyway, sorry for the brain-dump, but satellite radiance calibration is a subtle business.
>
> cheers,
>
> paulv

>
> --
> Paul van Delst Ph: (301) 763-8000 x7274
> CIMSS @ NOAA/NCEP Fax: (301) 763-8545
> Rm.207, 5200 Auth Rd. Email: pvandelst@ncep.noaa.gov
> Camp Springs MD 20746
>



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