SSM/I Basefile

File Format Specification

Release V1

May 25, 2012
1 Introduction

SSM/I Basefiles are files in netCDF version 4.0 format. The filename has the form:

SSMI_TDRBASE_VVVRRR_FNN_DYYYYMMDD_SHHHMMEHHMM_RGGGGG.nc

where:

<table>
<thead>
<tr>
<th>VVV</th>
<th>Algorithm version (e.g. V01)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RRR</td>
<td>Revision (e.g. R00)</td>
</tr>
<tr>
<td>FNN</td>
<td>Satellite Designation (e.g. F15)</td>
</tr>
<tr>
<td>DYYYYMMDD</td>
<td>Date as year month day</td>
</tr>
<tr>
<td>SHHMM</td>
<td>Start time as hour minute</td>
</tr>
<tr>
<td>EHHMM</td>
<td>End time as hour minute</td>
</tr>
<tr>
<td>RGGGGG</td>
<td>Granule number</td>
</tr>
</tbody>
</table>

An example filename is:

SSMI_TDRBASE_V01R01_F15_D20060701_S0122_E0303_R33847.nc

2 Summary of Data Fields

Dimension definitions:

<table>
<thead>
<tr>
<th>Name</th>
<th>Size</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>npixel_lores</td>
<td>64</td>
<td>Number of low res pixels in a scan</td>
</tr>
<tr>
<td>npixel_hires</td>
<td>128</td>
<td>Number of high res pixels in a scan</td>
</tr>
<tr>
<td>nscan_lores</td>
<td>1607</td>
<td>Number of low res scans</td>
</tr>
<tr>
<td>nscan_hires</td>
<td>3214</td>
<td>Number of high res scans</td>
</tr>
<tr>
<td>nchan_lores</td>
<td>5</td>
<td>Number of low res channels</td>
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<tr>
<td>nchan_hires</td>
<td>2</td>
<td>Number of high res channels</td>
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<tr>
<td>nload</td>
<td>5</td>
<td>Number of hot/cold load readings per scan</td>
</tr>
<tr>
<td>ntime</td>
<td>6</td>
<td>Number of date/time fields</td>
</tr>
<tr>
<td>nscpos</td>
<td>2</td>
<td>Number of spacecraft positions reported each scan</td>
</tr>
</tbody>
</table>

Variable definitions:

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Dimensions</th>
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</thead>
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<tr>
<td>spacecraft_id</td>
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<td>begin_time</td>
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<td>Variable</td>
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<td>Shape</td>
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<tr>
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<td>(nscan_lores, npixel_lores)</td>
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<td>Description of Data Fields</td>
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<td>nscan_lores</td>
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<td><strong>offset85v</strong></td>
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<td>nscan_lores</td>
</tr>
<tr>
<td><strong>slope85h</strong></td>
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<td>nscan_lores</td>
</tr>
<tr>
<td><strong>offset85h</strong></td>
<td>float</td>
<td>nscan_lores</td>
</tr>
</tbody>
</table>

3 Description of Data Fields

**spacecraft_id** : Spacecraft ID number from TDR file


**nscan_lores** : Number of low resolution scans

**nscan_hires** : Number of high resolution scans

**begin_orbit** : Beginning orbit number

**tle_xtime** : Time of Two Line Element – in seconds from January 1, 1987 – used to
compute spacecraft ephemeris

**orbit_number** : Fractional orbit number


**lat_lores** : Original pixel latitude for low resolution channels, in degrees

**lon_lores** : Original pixel longitude for low resolution channels, in degrees

**ta19v** : 19.35 GHz V-Pol antenna temperature, in kelvin
Missing data value is: -9999.9f

**ta19h** : 19.35 GHz H-Pol antenna temperature, in kelvin
Missing data value is: -9999.9f

**ta22v** : 22.235 GHz V-Pol antenna temperature, in kelvin
Missing data value is: -9999.9f

**ta37v** : 37.0 GHz V-Pol antenna temperature, in kelvin
Missing data value is: -9999.9f

**ta37h** : 37.0 GHz H-Pol antenna temperature, in kelvin
Missing data value is: -9999.9f

**sfctype_lores** : Surface type for low resolution: 0=Land, 1=Unused, 2=Near Coast, 3=Ice, 4=Possible Ice, 5=Ocean, 6=Coast

**qflag_lores** : Quality flag for low resolution: 0=good, 1=bad geolocation, 2=bad TAs

**lat_hires** : Original pixel latitude for high resolution channels, in degrees

**lon_hires** : Original pixel longitude for high resolution channels, in degrees

**ta85v** : 85.5 GHz V-Pol antenna temperature, in kelvin
Missing data value is: -9999.9f

**ta85h** : 85.5 GHz H-Pol antenna temperature, in kelvin
Missing data value is: -9999.9f

**sfctype_hires** : Surface type for high resolution: 0=Land, 1=Unused, 2=Near Coast, 3=Ice, 4=Possible Ice, 5=Ocean, 6=Coast

**qflag_hires** : Quality flag for high resolution: 0=good, 1=bad geolocation, 2=bad TAs

**xtime** : Scan start time (UTC) in seconds since 1 January 1987
spacecraft_time : Ephemeris time in seconds since 1 January 1987
spacecraft_lat : Satellite latitude (repeating) from TDR file, in degrees
spacecraft_lon : Satellite longitude (repeating) from TDR file, in degrees
spacecraft_alt : Satellite altitude (repeating) from TDR file, in km
atime : Time as ascending node crossing in seconds
spacecraft_posx_gci : Orbital Position Vector X in Geocentric Inertial Coordinates, in km
spacecraft_posy_gci : Orbital Position Vector Y in Geocentric Inertial Coordinates, in km
spacecraft_posz_gci : Orbital Position Vector Z in Geocentric Inertial Coordinates, in km
spacecraft_velx_gci : Orbital Velocity Vector X in Geocentric Inertial Coordinates, in km/sec
spacecraft_vely_gci : Orbital Velocity Vector Y in Geocentric Inertial Coordinates, in km/sec
spacecraft_velz_gci : Orbital Velocity Vector Z in Geocentric Inertial Coordinates, in km/sec
autogain1a : Auto gain control setting 1 (scan A) from scan header #1
autogain2a : Auto gain control setting 2 (scan A) from scan header #1
autogain3a : Auto gain control setting 3 (scan A) from scan header #1
autogain1b : Auto gain control setting 1 (scan B) from scan header #1
autogain2b : Auto gain control setting 2 (scan B) from scan header #1
autogain3b : Auto gain control setting 3 (scan B) from scan header #1
rfmxrtemp : RF Mixer temperature in kelvin
forwardradtemp : Forward Radiator temperature in kelvin
hotload1 : Hot Load Thermal Temperature 1 in kelvin
hotload2 : Hot Load Thermal Temperature 2 in kelvin
hotload3 : Hot Load Thermal Temperature 3 in kelvin
refvolt1 : Reference Voltage 1
refvolt2 : Reference Voltage 2
cold_load_19v : 19.35 GHz V-Pol Cold Load Reading in counts
hot_load_19v : 19.35 GHz V-Pol Hot Load Reading in counts
cold_load_19h : 19.35 GHz H-Pol Cold Load Reading in counts
hot_load_19h : 19.35 GHz H-Pol Hot Load Reading in counts
cold_load_22v : 22.235 GHz V-Pol Cold Load Reading in counts
hot_load_22v : 22.235 GHz V-Pol Hot Load Reading in counts
cold_load_37v : 37.0 GHz V-Pol Cold Load Reading in counts
hot_load_37v : 37.0 GHz V-Pol Hot Load Reading in counts
cold_load_37h : 37.0 GHz H-Pol Cold Load Reading in counts
hot_load_37h : 37.0 GHz H-Pol Hot Load Reading in counts
cold_load_85va : 85.5 GHz V-Pol Cold Load Reading (A-scan) in counts
hot_load_85va : 85.5 GHz V-Pol Hot Load Reading (A-scan) in counts
cold_load_85ha : 85.5 GHz H-Pol Cold Load Reading (A-scan) in counts
hot_load_85ha : 85.5 GHz H-Pol Hot Load Reading (A-scan) in counts
cold_load_85vb : 85.5 GHz V-Pol Cold Load Reading (B-scan) in counts
hot_load_85vb : 85.5 GHz V-Pol Hot Load Reading (B-scan) in counts
cold_load_85hb : 85.5 GHz H-Pol Cold Load Reading (B-scan) in counts
hot_load_85hb : 85.5 GHz H-Pol Hot Load Reading (B-scan) in counts
slope19v : 19.35 GHz V-Pol channel slope in degrees/count
offset19v : 19.35 GHz V-Pol channel offset in counts
slope19h : 19.35 GHz H-Pol channel slope in degrees/count
offset19h : 19.35 GHz H-Pol channel offset in counts
slope22v : 22.235 GHz V-Pol channel slope in degrees/count
offset22v : 22.235 GHz V-Pol channel offset in counts
slope37v : 37.0 GHz V-Pol channel slope in degrees/count
offset37v : 37.0 GHz V-Pol channel offset in counts
slope37h : 37.0 GHz H-Pol channel slope in degrees/count
offset37h : 37.0 GHz H-Pol channel offset in counts
slope85v : 85.5 GHz V-Pol channel slope in degrees/count
offset85v : 85.5 GHz V-Pol channel offset in counts
slope85h : 85.5 GHz H-Pol channel slope in degrees/count
offset85h : 85.5 GHz H-Pol channel offset in counts