GPS RADIO OCCULTATION MEASUREMENTS IN IFS CYCLE 32 AT METEO-FRANCE

<table>
<tr><th>ODB</th><th>mandalay</th><th>type</th><th>Description</th></tr>
<tr><td colspan="4">HDR</td></tr>
<tr><td>MDBRADCURV</td><td>radcurv</td><td>real</td><td>Radius of curvature of the Earth (m)</td></tr>
<tr><td>MDB_UNDULATION</td><td>undulation</td><td>real</td><td>Geoid undulation (m)</td></tr>
<tr><td>MDB_LIMB_AZIMUTH</td><td>limb_azimuth</td><td>real</td><td>Satellite azimuth angle (degrees from the North, positive clockwise)</td></tr>
<tr><td>MDB_IDENT_AT_HDR</td><td>ident@hdr</td><td>integer</td><td>Sounding id (reset at zero every 6 hours)</td></tr>
<tr><td>RETRTYPE_AT_HDR</td><td>retrtype@hdr</td><td>integer</td><td>Quality flag
<table>
<tr><th>Bit</th><th>Value</th><th>Meaning if set</th></tr>
<tr><td>20</td><td>1048756</td><td>d^2N/dz^2 (bkg) suspicious</td></tr>
<tr><td>19</td><td>524288</td><td>dN/dz (bkg) suspicious</td></tr>
<tr><td>18</td><td>262144</td><td>d^2N/dz^2 (obs) suspicious</td></tr>
<tr><td>17</td><td>131072</td><td>dn/dz (obs) suspicious</td></tr>
<tr><td>16</td><td>65536</td><td>starting altitude (obs) < 10km</td></tr>
<tr><td>15</td><td>32768</td><td>non-nominal product</td></tr>
<tr><td>14</td><td>16384</td><td>off-line product</td></tr>
<tr><td>13</td><td>8192</td><td>ascending occultation</td></tr>
<tr><td>12</td><td>4096</td><td>excess phase processing non-nominal</td></tr>
<tr><td>11</td><td>2048</td><td>bending angle processing non-nominal</td></tr>
<tr><td>10</td><td>1024</td><td>refractivity processing non-nominal</td></tr>
<tr><td>9</td><td>512</td><td>meteorological retrieval processing non-nominal</td></tr>
<tr><td>8</td><td>256</td><td>open-loop data</td></tr>
<tr><td>7</td><td>128</td><td>reserved</td></tr>
<tr><td>6</td><td>64</td><td>reserved</td></tr>
<tr><td>5</td><td>32</td><td>reserved</td></tr>
<tr><td>4</td><td>16</td><td>reserved</td></tr>
<tr><td>3</td><td>8</td><td>reserved</td></tr>
<tr><td>2</td><td>4</td><td>background profile non-nominal</td></tr>
<tr><td>1</td><td>2</td><td>product is background profile</td></tr>
<tr><td>0</td><td>1</td><td>Missing</td></tr>
</table></td></tr>
<tr><td>MDBSID</td><td>statid</td><td>character</td><td>Satellite identifier (same as satid@sat)</td></tr>
<tr><td>MDB_THINNINGKEY_ AT_HDR(*)</td><td>thinning key_*</td><td>real</td><td>IBOX*100 + model layer number (surfemiss)
Set by pre_thinner</td></tr>
<tr><td>MDB_THINNING TIMEKEY_AT_HDR</td><td>thinning timekey</td><td>real</td><td>Minutes off time
Set by pre_thinner</td></tr>
<tr><td colspan="4">BODY</td></tr>
</table>

MDBPPP	press	*real*	Impact parameter (m)
MDBPRL	press_rl	*real*	Height above the geoid (m)
MDBVAR	obsvalue	*real*	Bending angle observation (rad)
MDBOMF	fg_depar	*real*	Observation minus background bending angle departure (rad)
MDBOMN	an_depar	*real*	Observation minus analysis bending angle departure (rad)
MDB_AUX_AT_BODY(1)	aux_1	*real*	Vertical gradient of refractivity (dN/dz in m^{-1}) from the observation
MDB_AUX_AT_BODY(2)	aux_2	*real*	Refractivity observation
MDB_CSR_PCLEAR_ AT_BODY	csr_pclear	*real*	Refractivity from the background
MDB_CSR_PCLOUDY_ AT_BODY	csr_pcloudy	*real*	Vertical gradient of refractivity (dN/dz in m^{-1}) from the background
MDB_SURFEMISS_ AT_BODY	surfemiss	*real*	Background layer number in which the observation is found (1=layer immediately above the surface)
MDBVCO	vertco_type	*integer*	Vertical coordinate: 2=altitude (default : 1=pressure)
MDBTBV	tbvalue	*real*	Observed (dry?) temperature
MDBTBVTL	tbvaluetl	*real*	Background temperature
MDBTBVAD	tbvaluead	*real*	Geopotential height of obs temperat.
SAT			
MDB_SATID_AT_SAT	satid@sat	*integer*	Satellite identifier: 40=Ørsted (or Oersted) 41=Champ 722=Grace-A 723=Grace-B 740=COSMIC-1 741=COSMIC-2 742=COSMIC-3 743=COSMIC-4 744=COSMIC-5 745=COSMIC-6 800=Sunsat 820=SAC-C