

**GPS RADIO OCCULTATION MEASUREMENTS IN IFS  
CYCLE 33 AT METEO-FRANCE**

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

MDBPPP	press	<i>real</i>	Impact parameter (m)
MDBPRL	press_rl	<i>real</i>	Height above the geoid (m)
MDBVAR	obsvalue	<i>real</i>	Bending angle observation (rad)
MDBOMF	fg_depar	<i>real</i>	Observation minus background bending angle departure (rad)
MDBOMN	an_depar	<i>real</i>	Observation minus analysis bending angle departure (rad)
MDB_AUX_AT_BODY(1)	aux_1	<i>real</i>	Vertical gradient of refractivity (dN/dz in m <sup>-1</sup> ) from the observation
MDB_AUX_AT_BODY(2)	aux_2	<i>real</i>	Refractivity observation
MDB_CSR_PCLEAR_AT_BODY	csr_pclear	<i>real</i>	Refractivity from the background
MDB_CSR_PCLOUDY_AT_BODY	csr_pcloudy	<i>real</i>	Vertical gradient of refractivity (dN/dz in m <sup>-1</sup> ) from the background
MDB_SURFEMISS_AT_BODY	surfemiss	<i>real</i>	Background layer number in which the observation is found (1=layer immediately above the surface)
MDBVCO	verco_type	<i>integer</i>	Vertical coordinate: 2=altitude (default : 1=pressure)
MDBTBV	tbvalue	<i>real</i>	Observed (dry?) temperature
MDBTBVTL	tbvalue <sub>tl</sub>	<i>real</i>	Background temperature
MDBTBVAD	tbvalue <sub>ad</sub>	<i>real</i>	Geopotential height of obs temperat.
<b>SAT</b>			
MDB_SATID_AT_SAT	satid@sat	<i>integer</i>	Satellite identifier: 40=Ørsted (or Oersted) 41=Champ 42=TERRASAR-X 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