Clutter Routine and 2A25

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Clutter routine for 1B21 V7 is known to have the following three problems, which causes a large rainfall rate in 2A25, though the occurrence of these is infrequent:

（1）　A problem due to a known bug, which was found after the "final" version.　The bug was fixed, but the fixed code has not been sent to JAXA nor to NASA.

（2）　Though the DEM is changed from DID to SRTM30, the latter of which is believed to be accurate, the clutter routine does not use the SRTM30 information effectively. The clutter code needs refinement.

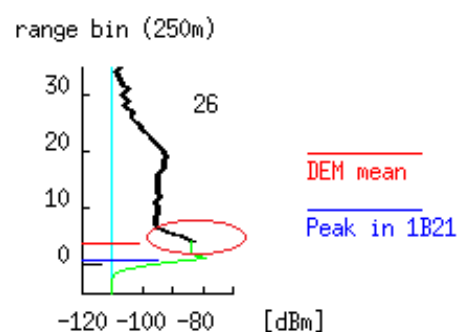（3）　A problem due to unknown causes still remains.
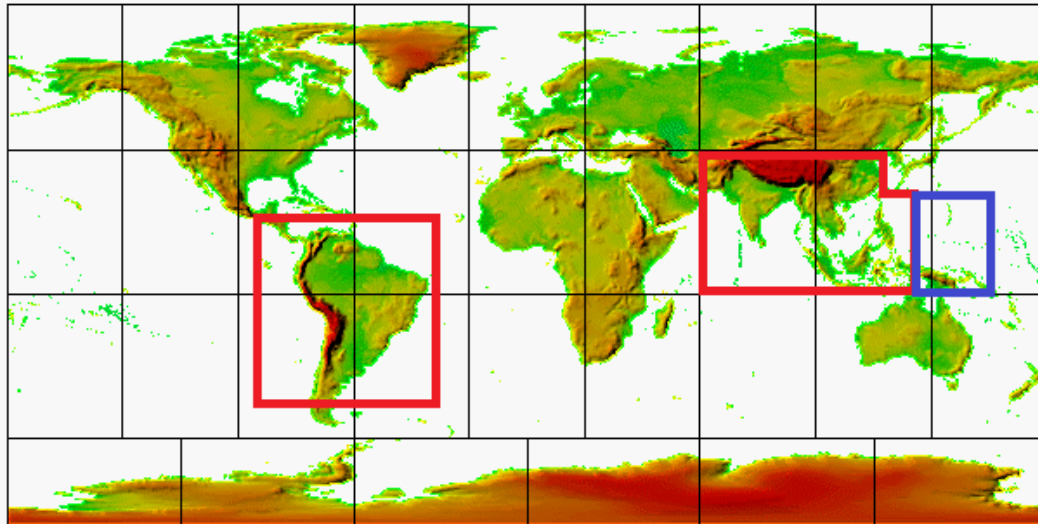
Where DID was replaced with SRTM30 in V7 are marked by bold lines.
New Guinea area was added to the "final" version to fix a problem.

An Example of the problem due to a bug, which was found after the "final" version.
(A profile of received power in 1B21 ITE229)

orbit 60865, scan 3871, anglebin 26
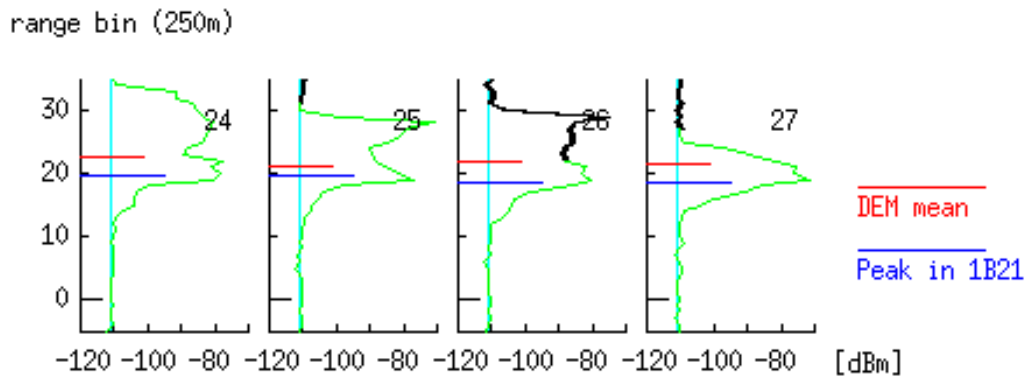
lat=30.0578, lon=110.6547

nearSurfRain = 173.5 mm/h
e_SurfRain   = 164.4 mm/h

This problem occurs over the land where the elevation is lower than 1km.
The bug was fixed, but the bug-fix code was not handed in.

An Example of the problem due to the fact that SRTM30 is not effectively used.

range bin (250m)

orbit 60869, scan 5552, anglebin 26

lat = 27.5919, lon = 88.1054

nearSurfRain = 300 mm/h
e_SurfRain   = 300 mm/h

A sample stat on large rainfall rate in 2A25 (July 2008)

nearSurfRain or e_SurfRain >= 150 mm/h
  95 cases （300 mm/h :16 cases）

（55 cases out of the above 95 cases seems to be natural judged from 1B21 profile.)

Among unnatural 40 cases (95-55=40) , 29 cases seem to be occurred due to the clutter routine problems.
（300 mm/h :8 cases)

  - 19 cases   (300 mm/h : 4 cases)
         would disappear by a (not handed in) bug fix.
  - 10 cases (300 mm/h: 4 cases)
         seem to be occurred due to DEM information not
         effectively used or due to causes not identified yet.