

Radar reflectivity (1.5 s)
 Two modes merged on a single grid

- from 0 to 200 m => 12.5 m
- from 200 m to 12 km => 25 m

Correction for liquid and gaseous attenuation

Corrected radar reflectivity

Radar sensitivity corrected for attenuation

Classification	cloud	drizzle	rain
Hydrometeor 1	Z < -15 dBZ	-15 dBZ < Z < 0 dBZ	Z > 0 dBZ
Hydrometeor 2	Z < -17 dBZ	-17 dBZ < Z < 0 dBZ	Z > 0 dBZ
Hydrometeor 3	Z < -20 dBZ	-20 dBZ < Z < 0 dBZ	Z > 0 dBZ

radar \ lidar	lidar	noise	molecular/aerosol	Cloud or drizzle/rain
clear	clear	clear	molecular/aerosol	cloud
cloud	cloud	cloud	cloud	cloud
drizzle	drizzle	drizzle	drizzle	drizzle
rain	rain	rain	rain	rain
can't detect cloud	Don't know	Don't know	molecular/aerosol	cloud

ABC from ALIAS (5 s, 15 m)

Adaptative threshold to define cloud or rain

Identify noise in the measurements
 ABC < 30 A.U. is considered as noise => noise mask
 binary dilatation on the noise mask

Remove isolated cloud pixel and fill some gaps using binary dilatation

lidar mask at the ALIAS' time and range resolution

Lidar data are gridded onto the merge radar range resolution
 Radar time is used as reference, closest lidar time profile to radar profile is used (equivalent to 4 radar profiles for 1 lidar profile)

- Radar can detect drizzle or rain anywhere up to 12 km
- Radar can detect cloud only in the range of sensitivity allowing cloud detection
- Lidar can detect cloud up to the last liquid pixel.