

KC data issues

(for internal use during KC8 Science Meeting)

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Introduction

Data quality

- Far range extension
- Calibration

Metadata

- Definition of parameters in `facter_m`
- Definition of pixel size
- Variation of PRF for Stripmap data

Introduction

During the KC7 meeting, a thorough study of the metadata provided in the KC header file was considered to be insufficient if an image had to be further processed. For example geocoding of slant range/ ground range would have not been possible.

For this reason it was agreed that the facter_m.dat file produced by SigmaSAR and orbital information would be provided as additional metadata.

A description of the fields required by the GAMMA software was provided by Masanobu Shimada on April 18, 2007.

State of data handling

Fine Beam (FB), slant range

Data from factor_m are sufficient for generating Gamma's parameter file. Geocoding works fine. Some (small) issues on data calibration and pixel size in azimuth.

Fine Beam (FB), ground range

Currently being studied.

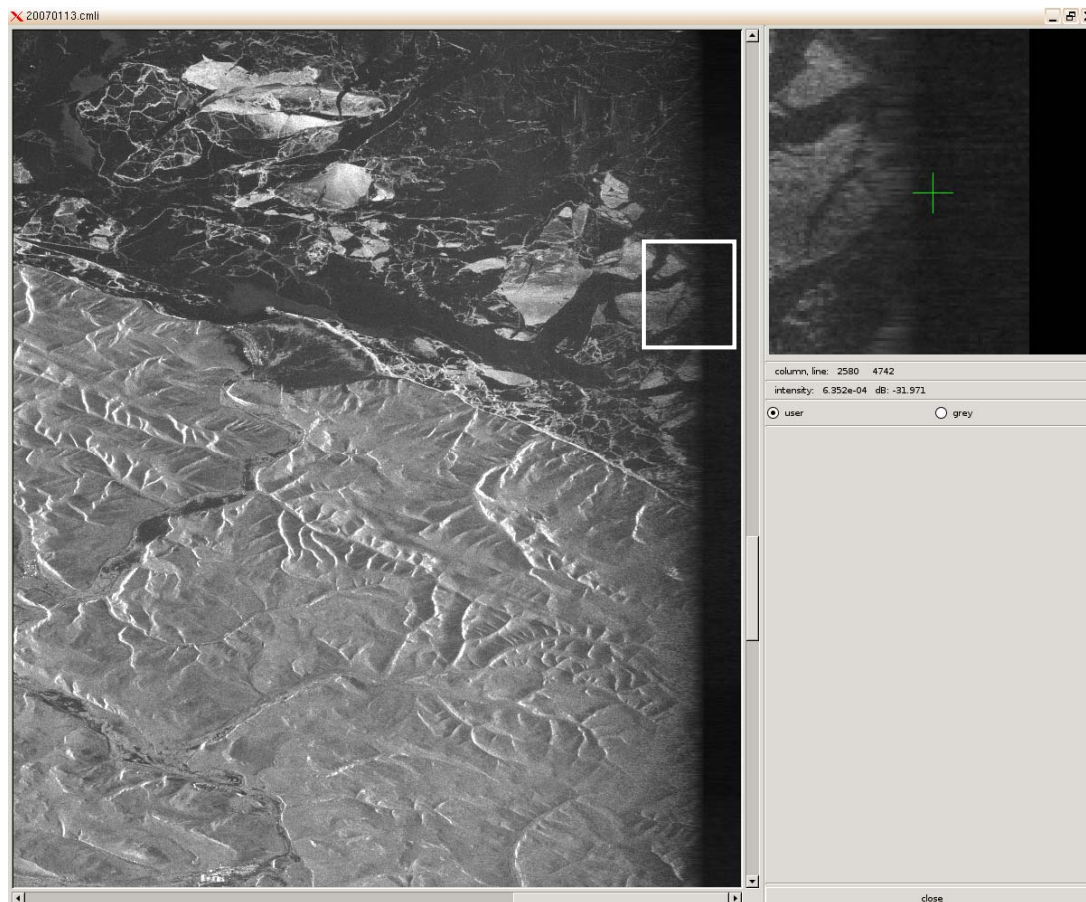
Wide Beam (WB), ground range

See issues in this presentation.

Data quality – Far range extension

KC FB slant range products as well as Level 1.1 SLC appear somewhat blurred and stretched at far range.

This creates problems for mosaicing and applications



For the pixel at the green cross we measure -31 dB

Here there should not be any value

Data quality – Calibration

Using the -83 dB correction factor for the calibration of the data, it seems that too low dB values are obtained.

Rough quantitative assessment:

- FBS HH data from Central Siberia, acquired in Dec 2006 / Jan 2007
- JERS and PALSAR HH full resolution winter data considered as comparison.

- Forests: -12 / -11 dB in KC-data, -10 dB in JERS and PALSAR full resolution data
- Bare surface: -19 / -17 dB in KC-data, -16 / -14 in JERS and PALSAR full resolution data

A more precise assessment can be done when PALSAR full resolution and PALSAR KC data will be available for the same area.

Metadata – Definition of factor_m parameters

The factor_m file is very important for allowing further processing of KC data products.

I am grateful to Masanobu Shimada for taking time and providing necessary information on several parameters in factor_m

I suppose however that the meaning of some parameters changes depending on acquisition mode (Stripmap or ScanSAR) and geometry (slant range, ground range, orthorectified).

For example the field corresponding to the PRF information is approx. 2000 for FB data and around 100 for WB data. What is the meaning of this field for WB data?

It would be ideal to obtain a (short) description of the fields in the factor_m file.

Metadata – Definition of pixel size

In the presentation “PALSAR K&C Data Products” given at the KC7 Science Meeting, FBS and FBD products are presented as “50m Path images” (regardless if slant range, ground range or orthorectified). WB products are presented as 100 m Path images”

When processing FB slant range data, pixel size computed from `facter_m` is ~ 18 m in slant range (= 30 m in ground range) and ~ 51 m in azimuth. These values seem to be the correct ones for FB slant range data.

Is the pixel size 50 m for ground range / orthorectified products only?

For WB slant range data, using information from `facter_m` and indications by Masanobu Shimada, pixel size results in ~ 37 m in range (slant range) and ~ 280 m in azimuth. However, when I use just take the difference between start and end time and divide by the number of lines I obtain 70 m azimuth pixel size.

Question:

What is the pixel size of each product (FB, WB, slant range, ground range, ortho)?

Metadata – Variation of PRF

Since long data stripes are provided, it is likely that the PRF has changed along the track (→ FB data).

Is this taken care of in the processing? In `factor_m` only one value for the PRF is provided.

Would variations of the PRF, if not accounted for, affect the data geocoding?