

H-SAF CASE STUDY

Product Name	H10 – SN-OBS-01	Validation Institute	IMWM
Case Study Period	25-01-2010	Case Study Geographical Area	Poland

METEOREOLOGICAL EVENT DESCRIPTION

For a few consecutive days in January 2010 the territory of Poland was under the influence of a cold, continental airmass which brought very low temperatures and sunny weather (see **Fig. 40**). Day 25.01.2010, just before the already analyzed Case Study (26th) was chosen for further investigation. During this day cloudiness in central Poland occurred.

DATA/PRODUCTS USED

Reference data: data from Polish SYNOP network and lower level posts - SH database.
Ancillary data: NWC SAF Cloud Type product, METEOSAT-9 RGB ch.139i

RESULT OF COMPARISON

Visual verification shown that clouds over almost all territory of Poland have been properly classified both by H10 and NWC SAF CT products. Cover of semitransparent thin clouds can be also clearly seen on RGB composition. (**Fig.40.**) Classifications marked patches of snow cover on NW corner of Poland and on the south - in the mountain area (surrounded by bare ground pixels in h10 product). On RGB composition, due to semitransparency of high clouds snow cover (red colour) which was extended over almost all area of Poland could be recognized.

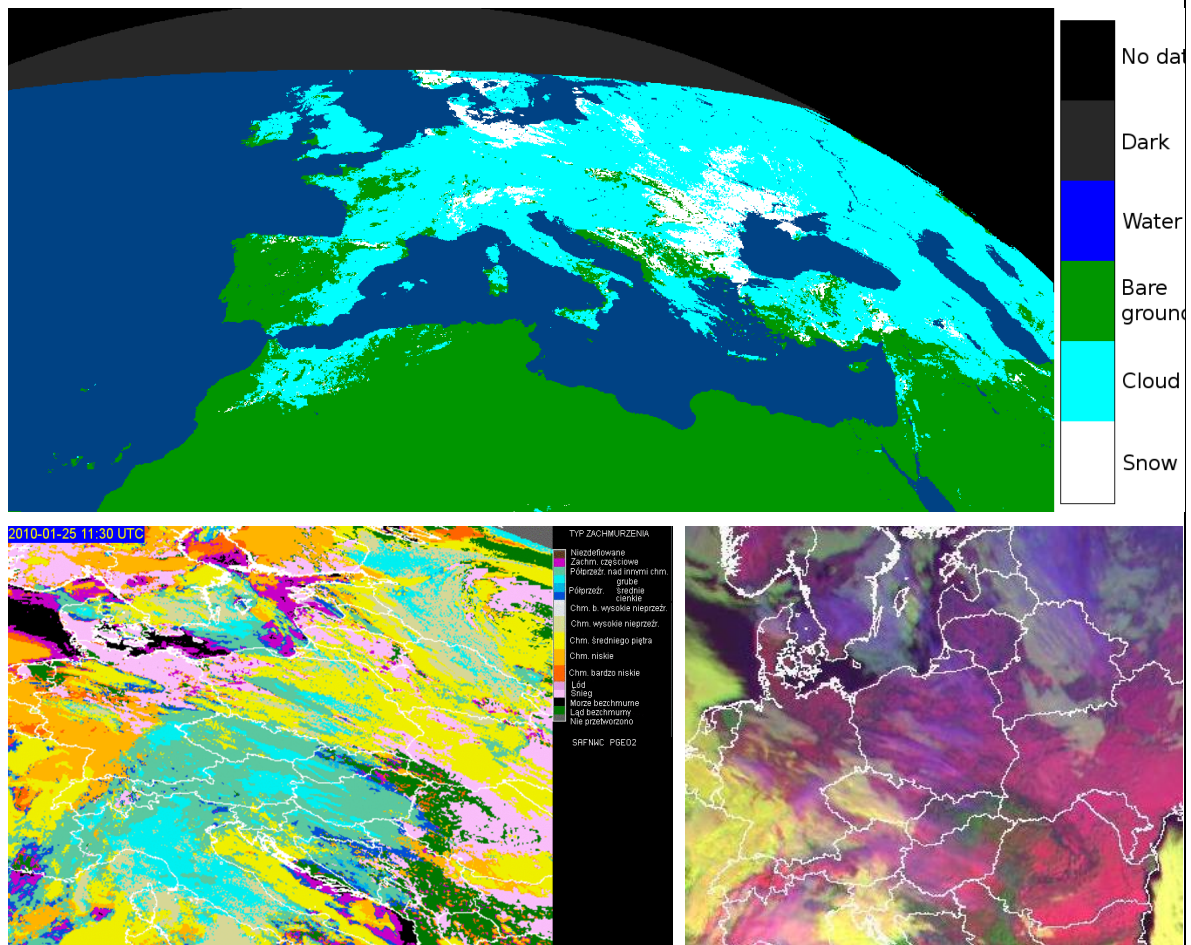


Figure 1 H10 Visual verification. Case study 25.01.2010. Top - H-SAF H10 product; bottom left - NWC SAF Cloud Type product (snow – pink, middle level clouds – yellow, semitransparent clouds – pale green/cyan/purple, ground - green); bottom right – METEOSAT-9 RGB ch.139i (snow - red, high clouds/ice – pink/violet, low clouds – yellow, ground - green)

Scores evaluated

Results of quantitative verification were presented in contingency tables and by calculated indices (see next Table). Areas covered by clouds were discarded from quantitative comparison and this was the reason decreasing of number of total comparisons in regard to 26th of January by more than a half (106 to 278 respectively).

	merged	flat	mountain
H10 25.01.2010	SD>=2	S.D>=2	SD>=2
hits	61	34	27
false_alarm	1	0	1
misses	44	19	25
correct_neg	0	0	0
total	106.00	53.00	53.00
acuracy	0.58	0.64	0.51
bias	0.59	0.64	0.54
POD	0.58	0.64	0.52
FAR	0.02	0.00	0.04

POFD	1.00	-1.#J	1.00
CSI	0.58	0.64	0.51

Table 1 H10- Table 1 H10- Contingency tables and statistics for H10 merged product divided into flat area and mountain area according to Mountain Mask. 25.01.2010

Number of misses comparable to one presented in contingency table for previous Case Study - 26th January - (see Table 10) and much lower number of hits was a reason substantially lower values of evaluated scores calculated for 25th January (58 %, 64%, 51 % for merged, flat and mountain area respectively).

This results could confirm that problematic area was located around mountain region where Mountain Mask is applied. On the south of Poland some pixels were classified as ground whereas on matched ground station snow cover were measured. The explanation of such misclassification is not trivial. Preliminary hypothesis could be: spatial resolution of h10 product, simple mistake in product generation (during mountain mask applying, products merging), problems with algorithm itself (definition of mountain mask or mountain in general, merging algorithm without smooth transition between mountain and flat area), etc. Definitely it need further investigations

CONCLUSION

The weather conditions in analyzed day, 25th of January were similar to the next 26th which was chosen for investigation in previous report. It entitled to extend conclusions and discussions include in that report also for current Case Study.

To summarize: Cloudiness is a main factor limiting applicability of h10 product over Poland and size of sample (low number of comparisons) influence on quality and credibility of calculated statistics