

THE EUROS DR PROJECT “RADIOMETRIC ASPECTS OF DIGITAL PHOTOGRAMMETRIC IMAGES” – THE FINAL RESULTS

E. Honkavaara^{a*}, L. Markelin^a, L. Martínez^b, F. Pérez^b, R. Arbiol^c

^a Finnish Geodetic Institute, Geodeetinrinne 2, 02430 Masala, Finland (Eija.Honkavaara, Lauri.Markelin)@fgi.fi

^b Supporting Centre for the Catalan Earth Observation Program. Direction Area. Institut Cartogràfic de Catalunya. Parc de Montjuïc s/n 08038 Barcelona, Spain. (Lucas.Martinez, Fernando.Perez)@icc.cat

^c Management Area. Institut Cartogràfic de Catalunya. Parc de Montjuïc s/n 08038 Barcelona, Spain. Roman.Arbiol@icc.cat

KEY WORDS: Camera, Image, Radiometric, Calibration, Correction, Quality, Accuracy, Multispectral

ABSTRACT:

This presentation gives the final conclusions of the EuroSDR project “Radiometric aspects of digital photogrammetric images”. Results of the project are presented in the following publications. The final report is under preparation and will be available in the EuroSDR web-pages www.eurosd.net.

REFERENCES:

General descriptions of the project:

Arbiol R., Martínez L., 2009. ICC-Banyoles 2008 Campaign in the framework of EUROS DR Radiometry Project. Project description and preliminary results. International Geomatic Week, Castelldefels (Barcelona) 3 - 5 March.

Honkavaara, E., Arbiol, R., Markelin, L., Martínez, L., Bovet, S., Bredif, M., Chandelier, L., Heikkinen, V., Korpela, I., Lelegard, L., Pérez, F., Schläpfer, D., Tokola, T., 2011. The EuroSDR project “Radiometric aspects of digital photogrammetric images” – Results of the empirical phase. In Proceedings of the ISPRS Hannover Workshop 2011, June 14-17, 2011, Hannover, 8 pages.

Honkavaara, E., Arbiol, R., Markelin, L., Martínez L., Cramer, M., Korpela, I., Bovet, S., Thom, C., Chandelier, L., Ilves, R., Klonus, S., Reulke, R., Marshall, P., Tabor, M., Schläpfer, D., and N. Veje, 2009. Status report of the EuroSDR project “Radiometric aspects of digital photogrammetric airborne images”. Proceedings of the ISPRS Hannover Workshop 2009, Hannover, Germany, June 2-5, 2009.

Honkavaara, E., Arbiol, R., Markelin, L., Martínez, L., et al., 2012. The EuroSDR project “Radiometric aspects of digital photogrammetric images” – Final Report. EuroSDR official publication. (under preparation)

Theory of image radiometry and results of Phase I

Honkavaara, E., Arbiol, R., Markelin, L., Martínez, L., Cramer, M., Bovet, S., Chandelier, L., Ilves, R., Klonus, S., Marshall, P., Schläpfer, D., Tabor, M., Thom, C., and N. Veje, 2009. Digital airborne photogrammetry – A new tool for quantitative remote sensing? – A state-of-the-art review on radiometric aspects of digital photogrammetric images. *Remote Sensing*, Vol. 1, 577-605.

Calibration

Honkavaara, E., Nurminen, K., Markelin, L., Suomalainen, J., Ilves, R., 2011. Calibrating and validating multispectral photogrammetric 3D imaging system at a permanent test site – Case study with an Intergraph DMC. *Photogrammetric Record*, 26 (134), 229-249.

Markelin, L., Honkavaara, E., Hakala, T., Suomalainen and J., Peltoniemi, J., 2010. Radiometric stability assessment of an airborne photogrammetric sensor in a test field. *ISPRS Journal of Photogrammetry and Remote Sensing*, 65(4): 409-421.

Martínez, L., Pérez, F., Arbiol, R., Tardà, A., 2011. Radiometric characterisation of a VNIR hyperspectral imaging system for accurate atmospheric correction. International Geomatic Week. 15 – 17 March, Barcelona.

Martinez L., Soler M.E., Pérez F. y Arbiol R., 2009. Efecto de la atmósfera en la resolución de la DMC. XIII Congreso de la Asociación Española de Teledetección. Calatayud (Zaragoza) 23-26 September.

Atmospheric correction of images

Markelin, L., Honkavaara, E., Beisl, U. and Korpela, I., 2010. Validation of the radiometric processing chain of the Leica ADS40 airborne photogrammetric sensor. *International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences*, 38(7A): 145-150.

Markelin, L., Honkavaara, E., Schläpfer, D., Bovet, S., Korpela, I., 2012. Assessment of radiometric correction methods for ADS40 imagery. PFG 4/2012

Results of applications using reflectance signatures

Heikkinen, V., Korpela, I., Tokola, T., Honkavaara, E., Parkkinen, J., 2011. An SVM classification of tree species radiometric signatures based on the Leica ADS40 sensor. *IEEE Transactions on Geoscience and Remote Sensing*. *IEEE Transactions on Geoscience and Remote Sensing*, 49(11): 4539-4551.

Korpela, I., Heikkinen, V., Honkavaara, E., Rohrbach, F., Tokola, T., 2011. Variation and directional anisotropy of reflectance at the crown scale - Implications for tree species classification in digital aerial images. *Remote Sensing of Environment* 115 (8), 2062-2074.