



# Color-compensation for atmosphere and mixing satellite images for texturing Vricon 3D-models

## About Vricon

Vricon serves the global professional geospatial market with world-leading 3D geodata, 3D visualization solutions, and 3D image processing solutions. We're on a mission to build the Globe in 3D—a revolution in GEOINT tradecraft—that offers decision makers and analysts the entire world in highly accurate, immersive 3D. Vricon's customers are varied and come from the telecommunications, emergency response, defense, and intelligence communities.

We are searching for the best and brightest to join a culture that is open and flexible, inclusive and positive. We offer opportunities for growth and the ability to work with talented people who make a real difference for our clients. The majority of our research and development work is done in our Linköping office in Sweden, which employs about 40 engineers who work on cutting-edge technology to produce unparalleled, global, precise 3D geospatial data and software.

## The Thesis

Digital surface models (DSM) are the main product of Vricon. The texture of the models is an advanced mix of satellite images. All satellite imagery is affected at some level by light-wave scattering from haze, water vapor and particulates in the atmosphere. Any or all of these conditions may be present in any given scene and they are typically not uniformly distributed. Maxar has a product/algorithm, Acomp (Atmosphere COMPensation), that reduces those effects.

[https://digitalglobe-marketing.s3.amazonaws.com/files/documents/AComp\\_WP\\_ACOMP.pdf](https://digitalglobe-marketing.s3.amazonaws.com/files/documents/AComp_WP_ACOMP.pdf)

- A) The thesis shall evaluate the use of Acomp for Vricon purpose.
- B) Next step is to create a modified Acomp that should fit Vricon purpose better when texturing the 3D-models.

And even if you have a number of images covering the same area with no atmosphere effects there is another important factor for creating a final nice texture in the Vricon model.

- C) Last step is to mix images from different seasons (best mix of grass and snow?) and images from different angles of incidence and different satellites.

Different satellites have different spectral sensitivity. Available images from e.g. World View 3 are total 29 wavelength band between 405 and 2365 nm with spatial resolution of 0,31 to 30 meter.



The different characteristics in the wavelengths and can also be used during the reconstruction of the 3D-model and classification of the landscape in the future.

**Qualifications**

Master of Science student with knowledge in image processing, texturing and sensors and also interest of the lights physics due to different wavelength bands. 1-2 persons.

**Contact**

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