Master's Thesis

**Assessment of the Empirical Line using Pseudo-Invariant
Targets atmospheric correction method for Sentinel-2 Remote
Sensing Data**

Tselepis Stavros

Limassol, May 2019

CYPRUS UNIVERSITY OF TECHNOLOGY

FACULTY OF ENGINEERING AND

DEPARTMENT OF CIVIL ENGINEERING AND GEOMATICS

Master's Thesis

Assessment of the Empirical Line using Pseudo-Invariant Targets atmospheric correction method for Sentinel-2 Remote Sensing Data

Stavros Tselepis

Limassol, May 2019

Approval Form

Master's Thesis

Assessment of the Empirical Line using Pseudo-Invariant Targets atmospheric correction method for Sentinel-2 Remote Sensing Data

Stavros Tselepis

Supervisor: Dr. Diofantos G. Hadjimitsis

Signature _____

Member of the committee: Dr. Phaedon C. Kyriakidis

Signature _____

Member of the committee: Dr. Chris Danezis

Signature _____

Cyprus University of Technology

Limassol, May 2019

Copyrights

Acknowledgements

I would like to thank everyone who supported me during the writing of this Thesis and everyone who helped me through this master's degree.

Especially I would like to thank my supervisor professor Mr. Diofantos Hadjimitsis for the response and support they have provided me during the preparation of this thesis.

Finally, I would like to thank my fellow student Mr. Efthyvoulou Stefanos for the corporation in the collection of the data.

ABSTRACT

To examine the earth's surface and identify several problems that requires attention multi-temporal satellite images are often used. To make the data of satellites comparable, atmospheric correction is a necessary procedure to remove radiometric distortion of satellite images acquired under different atmospheric conditions, solar conditions and angles. Several methods and algorithms have been developed to minimize the atmospheric effects that affect the value we get from a satellite image. Scattering, Absorption, and Refraction influence the signal registered by remote sensors. Until this far researches have shown that several methods were applied with success in the early generation of Landsat. The goal of this assessment is to test the PIT's Method also for Sentinel 2 and Landsat 8 images. Ground observations during the satellite overpass consists of the use of field Spectro-radiometers to retrieve the ground reflectance values. The reflectance of fixed targets in different material and colour in Paphos, Cyprus will be used to examine Pseudo-invariant target's (PIT's) Method for Sentinel-2 Satellite data and Landsat 8 Satellite data.

Keywords: Sentinel Satellites; Atmospheric Corrections; Remote Sensing; Regression Method