GENERAL DATASET DESCRIPTION

LGSR Technical Series

Unmanned Aerial Vehicle (UAV) data acquired over a subtropical forest area of the UFSM campus Frederico Westphalen, on October 22, 2020, Rio Grande do Sul, Brazil

OCT., 22 2020

LGSR/UFSM campus Frederico Westphalen

Author: Fábio Marcelo Breunig & Eduardo Rieder

Frederico Westphalen, RS, Brazil

Fábio Marcelo Breunig[1] (author) & Eduardo Rieder[1] (author)

[1] *Universidade Federal de Santa Maria, Departamento de Engenharia Florestal, Frederico Westphalen, Rio Grande do Sul, Brasil. E-mail: breunig@ufsm.br*

Title:

Unmanned Aerial Vehicle (UAV) data acquired over a subtropical forest area of the UFSM campus Frederico Westphalen, on October 22, 2020, Rio Grande do Sul, Brazil

Keywords

Images, Drone, UAV, Forest, UFSM, Remote Sensing, GIS.

Data description:

The data were acquired from an aerial survey conducted with an Unmanned Aerial Vehicle (UAV, also *Drone*) covering a forest area of the Federal University of Santa Maria – UFSM in the municipality of Frederico Westphalen, in the Rio Grande do Sul, Brazil (Figure 1). The climate of the region is subtropical (Cfa in the Köppen-Geiger classification) with an average annual temperature of 18 °C and annual precipitation of 1919 mm (Alvares et al., 2013). The rainfall is well distributed throughout the year.

Figure 1. Location of the site of data acquisition. Based on Google Earth Pro scenes. The KML and KMZ are appended to the files.

UAV and camera settings for the acquisition (Specifications Table):

Parameters	Specification/value
Date (YYYYMMDD):	**20201022**
Time of day (BRT = -3)	**14:00 h a.m.**
UAV – Drone - Camera	Matrice 100 (Sequoia Parrot – Multispectral and RGB)
Fly high (meters above ground)	**250 m**
View angle	**90° automatic mode.**
Sky conditions	(x) Clear sky ( ) Low cloud coverage (some clouds) ( ) Completely cloudy
Wind condition	(x) no wind ( ) Low speed ( ) High speed wind
Approximate data acquisition duration	30 minutes
Total of photographs acquired	X3 162; Sequoia Multi 1100+1672+1176; Sequoia RGB 277+420+296
Across track coverage	80%
Cross-track coverage	80%
Fly planning software	Pix4D Capture (Ɠ)

For more information contact: Fábio Marcelo Breunig, breunig@ufsm.br

An example of the mosaic and DEM is showed below (Figure 2 e Figura), referring to a screen capture of Agisoft Metashape (Agisoft LLC, 11 Degtyarniy per., St. Petersburg, Russia, 191144) and, the workflow adopted.

Figure 2. The capture of an orthomosaic in the processing workflow of X3 camera. Lowest quality was applied.

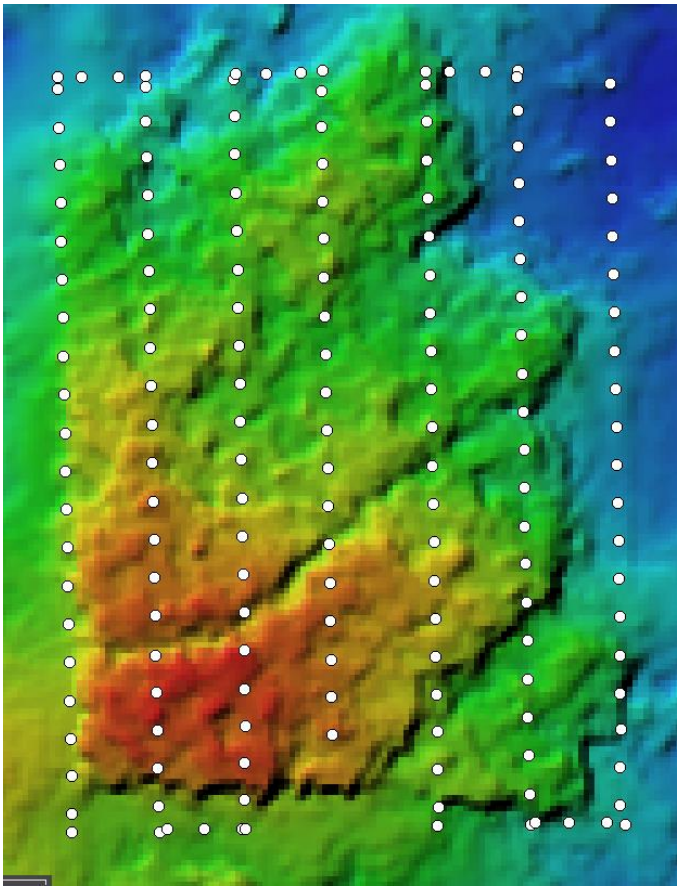

Figure 3. The capture of an DEM in the processing workflow of X3 camera. Lowest quality was applied.

References to the main project/publications:

Breunig, Fabio Marcelo. Combination of UAV, PlanetScope, Landsat, and Sentinel-2 images to precision silviculture and agriculture in a subtropical region. Project. National Council for Scientific and Technological Development (CNPq). Grant 305084/2020-8

Breunig, Fabio Marcelo. CONESAT – Monitoring the CONESUL using remote sensing data. Project. Federal University of Santa Maria, Campus of Frederico Westphalen. Brazil. Available at: <https://www.researchgate.net/project/CONESAT-Monitoring-the-CONESUL-using-remote-sensing-data>.

Breunig, Fabio Marcelo. Integration of multiscale remote sensing data in the precision agriculture and silviculture (in Portuguese: Integração de dados multiescala de sensoriamento remoto na agricultura e silvicultura de precisão). Project. National Council for Scientific and Technological Development (CNPq). Grant 113769/2018-0

Breunig, Fabio Marcelo. Combination of UAV, PlanetScope, Landsat and Sentinel-2 images to precision silviculture and agriculture in a subtropical region (in Portuguese: Combinação de imagens de VANT, PlanetScope, Landsat e Sentinal-2 para a silvicultura e agricultura de precisão em uma região subtropical). Project of the National Council for Scientific and Technological Development (CNPq). Grant 305084/2020-8

Acknowledgments:

This work was supported by the National Council for Scientific and Technological Development (CNPq) (Grants 113769/2018-0, 312081/2013-8, 478085/2013-3 and, 305084/2020-8) and Fundação de Amparo à Pesquisa do Estado do Rio Grande do Sul (Grant 23830.388.22048.19092016).

Other considerations

PS. A pdf file is also attached with this description

Declaration of Competing Interest

The author declares that he has no competing interests or personal relationships that have or could be perceived to have influenced the work reported in this report.

References associated:

Alvares, Clayton Alcarde, José Luiz Stape, Paulo Cesar Sentelhas, José Leonardo De Moraes Gonçalves, and Gerd Sparovek, 'Köppen's Climate Classification Map for Brazil', *Meteorologische Zeitschrift*, 22 (2013), 711–28 <https://doi.org/10.1127/0941-2948/2013/0507>

Fabio Marcelo Breunig, & Eduardo Rieder. (2021, February 23). Unmanned Aerial Vehicle (UAV) data acquired over a subtropical forest area of the UFSM campus Frederico Westphalen, on November 11, 2020, Rio Grande do Sul, Brazil. Zenodo. http://doi.org/10.5281/zenodo.4558044

Fabio Marcelo Breunig, & Eduardo Rieder. (2021, February 24). Unmanned Aerial Vehicle (UAV) data acquired over a subtropical forest area of the UFSM campus Frederico Westphalen, on November 5, 2020, Rio Grande do Sul, Brazil. Zenodo. http://doi.org/10.5281/zenodo.4558265

Fabio Marcelo Breunig, & Eduardo Rieder. (2021). Unmanned Aerial Vehicle (UAV) data acquired over a subtropical forest area of the UFSM campus Frederico Westphalen, on December 23, 2020, Rio Grande do Sul, Brazil. Zenodo. http://doi.org/10.5281/zenodo.4557790

Fabio Marcelo Breunig, & Eduardo Rieder. (2021). Unmanned Aerial Vehicle (UAV) data acquired over a subtropical forest area of the UFSM campus Frederico Westphalen, at February 18, 2021, Rio Grande do Sul, Brazil [Data set]. Zenodo. http://doi.org/10.5281/zenodo.4557192

Breunig, Fábio Marcelo (2020, October 20). Unmanned Aerial Vehicle (UAV) data acquired over an experimental area of the UFSM campus Frederico Westphalen, on October 20, 2020, in Rio Grande do Sul, Brazil. Zenodo. http://doi.org/10.5281/zenodo.4354331

Breunig, Fábio Marcelo (2017, July 11). Unmanned Aerial Vehicle (UAV) data acquired over a subtropical forest area of the UFSM campus Frederico Westphalen, on July 11, 2017, Rio Grande do Sul, Brazil. Zenodo. http://doi.org/10.5281/zenodo.4328340

Breunig, Fábio Marcelo (2017, July 7). Unmanned Aerial Vehicle (UAV) data acquired over a subtropical forest area of the UFSM campus Frederico Westphalen, on July 7, 2017, in Rio Grande do Sul, Brazil. Zenodo. http://doi.org/10.5281/zenodo.4327943

Breunig, Fábio Marcelo (2019): UAV images acquired over the UFSM campus in Frederico Westphalen, RS, Brazil. Universidade Federal de Santa Maria, PANGAEA, https://doi.org/10.1594/PANGAEA.897548

Breunig, Fábio Marcelo (2019): UAV derived orthomosaic over the “prainha” in the municipality of Iraí, Rio Grande do Sul, Brazil. Universidade Federal de Santa Maria, PANGAEA, https://doi.org/10.1594/PANGAEA.897909

Breunig, Fábio Marcelo, Rafaelo Balbinot, Rafael Vendruscolo, and Renato Beppler Spohr, ‘Situação Ambiental Do Campus Da UFSM de Frederico Westphalen, RS’, in Anais XVI Simpósio Brasileiro de Sensoriamento Remoto - SBSR, ed. by Instituto Nacional De Pesquisas Espaciais - INPE (Foz do Iguaçu - PR, Brazil: INPE, 2013), pp. 7241–48 <http://urlib.net/rep/3ERPFQRTRW34M/3E7GBP3?ibiurl.backgroundlanguage=pt-BR>

Bertani, Gabriel, Fabio Marcelo Breunig, and Renato Beppler Sphor, ‘Análise de crescimento da mancha urbana do município de Frederico Westphalen, RS-Brasil através de imagens Landsat 5 TM’, Revista Geografar, 7 (2012), 68–83 <http://ojs.c3sl.ufpr.br/ojs2/index.php/geografar/article/view/24092>

Sestari, Geovane (2019): RPAS orthomosaic over a remnant of rainforest on UFSM/IFFar campus in the municipality of Frederico Westphalen, Rio Grande do Sul, Brazil. PANGAEA, https://doi.org/10.1594/PANGAEA.910114

ORCID

Fábio Marcelo Breunig: https://orcid.org/0000-0002-0405-9603

Eduardo Rieder: https://orcid.org/0000-0003-3572-4941

Renato Souza Santos: https://orcid.org/0000-0002-0984-6307