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 29, 2019, in the Rio Grande do Sul State, Brazil.
Title:
Unmanned Aerial Vehicle (UAV) data acquired over a subtropical forest area of the UFSM campus Frederico Westphalen, on October 29, 2019, in the Rio Grande do Sul State, 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):

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Specification/value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date (YYYYMMDD):</td>
<td>20191029</td>
</tr>
<tr>
<td>Time of day (BRT = -3)</td>
<td>12:00 h</td>
</tr>
<tr>
<td>UAV – Drone - Camera</td>
<td>Phantom 4</td>
</tr>
<tr>
<td>Fly high (meters above ground)</td>
<td>200 m</td>
</tr>
<tr>
<td>View angle</td>
<td>90° automatic mode.</td>
</tr>
<tr>
<td>Sky conditions</td>
<td>( x ) Clear sky</td>
</tr>
<tr>
<td></td>
<td>( ) Low cloud coverage (some clouds)</td>
</tr>
<tr>
<td></td>
<td>( ) Completely cloudy</td>
</tr>
<tr>
<td>Wind condition</td>
<td>( x ) no wind</td>
</tr>
<tr>
<td></td>
<td>( ) Low speed</td>
</tr>
<tr>
<td></td>
<td>( ) High speed wind</td>
</tr>
<tr>
<td>Approximate data acquisition duration</td>
<td>30 minutes</td>
</tr>
<tr>
<td>Total of photographs acquired</td>
<td>Sensor 1/2.3” CMOS</td>
</tr>
<tr>
<td></td>
<td>Effective pixels:12.4 M</td>
</tr>
<tr>
<td></td>
<td>Lens FOV 94° 20 mm (35 mm format equivalent) f/2.8 focus at ∞</td>
</tr>
<tr>
<td></td>
<td>587 photos</td>
</tr>
<tr>
<td>Along track coverage</td>
<td>85%</td>
</tr>
<tr>
<td>Cross-track coverage</td>
<td>80%</td>
</tr>
<tr>
<td>Fly planning software</td>
<td>Drone Deploy</td>
</tr>
</tbody>
</table>

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An example of the mosaic and DEM is showed below (Figure 2 e Figura 3), 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 the X3 camera. The lowest quality was applied.
Figure 3. The capture of a DEM in the processing workflow of the X3 camera. The 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. 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 Sentinel-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:


Fabio Marcelo Breunig, Eduardo Rieder, & Renato Souza Santos. (2021, February 24). Unmanned Aerial Vehicle (UAV) data acquired over a subtropical forest area of the UFSM campus Frederico


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

<http://urlib.net/rep/3ERPQRTRW34M/3E7GBP3?ibiurl.backgroundlanguage=pt-BR>


<https://doi.org/10.5380/biofix.v3i2.59563>

http://doi.org/10.5281/zenodo.4560622


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
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