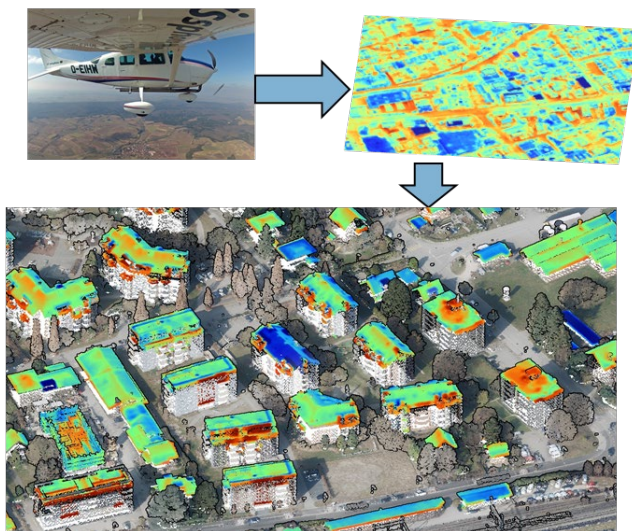


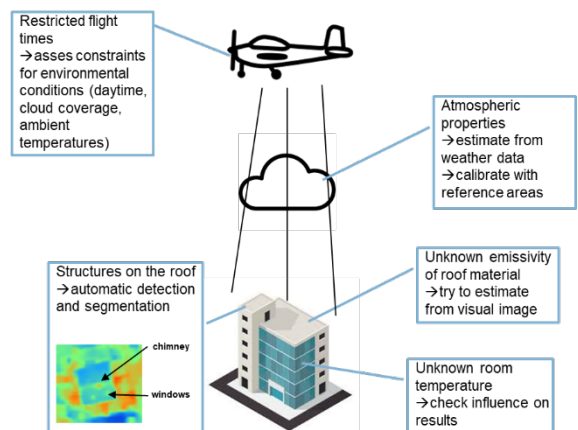
ThermoPlaner3D – Detailed building energy evaluation from large-area 3D thermography

The decarbonization of heating systems is an important prerequisite for achieving climate protection targets. The ThermoPlaner3D project is developing novel innovative products that enable energy providers to profitably support energy efficiency in buildings through detailed 3D building energy analyses at the city scale. The analysis methods, based on airborne, multi-perspective thermographic data collection, provide the quantitative basis for investment decisions. Energy providers are enabled to plan new, sustainable heating solutions while minimizing the associated risks. In addition, energy suppliers offer their existing and potential new customers the opportunity to evaluate the energy status of their buildings with a comprehensive, interactively visualized 3D building energy model. The research partners FHNW (geospatial data analysis and visualization) and ZHAW (thermographic sensing, building energy modeling) are developing validated, modular and automated analysis procedures based on airborne multi-perspective data collections of thermographic, RGB and NIR images as well as LiDAR data. The analysis results are integrated into a comprehensive 3D building energy model and visualized interactively for energy providers and their customers. SWG, the energy provider of the city of Grenchen, is involved in ThermoPlaner3D as a pilot user and for feedback. The results of the Innosuisse-funded ThermoPlaner3D project are marketed by a joint venture of Considerate AG (energy technology) and BSF Swissphoto AG (aerial data acquisition).

Aerial thermography



Scientific challenges



Possible tasks include:

- Improve aerial infrared measurement by studying the involved physical effects in the lab and outdoors
- Implementing data processing pipeline
- Implementing interactive 3D visualizations
- Develop and analyze suitable building energy models