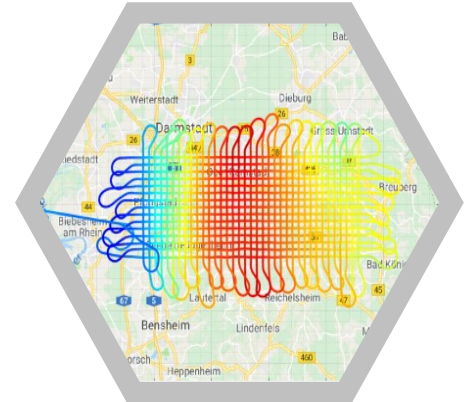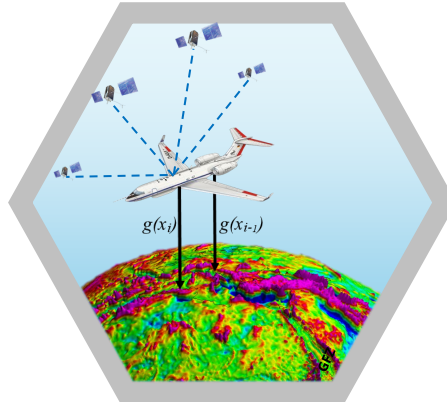# iPosCAL-GRAV

**iMAR** NAVIGATION & CONTROL

## iPosCAL-GRAV

### INS/GNSS Post Processing & Calculation Software



**iPosCAL** is iMAR's powerful and easy-to-use INS/GNSS/ODO post-processing software, fully compatible with all iMAR INS/GNSS devices supporting the iXCOM communication protocol, like the iCORUS. The software allows the processing of single data sets as well as fully automated **ultra-fast batch-evaluation** of a larger survey campaigns with up to hundreds of flights / tracks.

**iPosCAL-GRAV** is designed for airborne or shipborne **gravimetry** data processing, showing its full potential in combination with iMAR's family of strapdown gravimeter iCORUS. On top of the basic iPosCal-Suite features for IMS-based surveying like the precise determination of position, velocity and attitude over time, it offers additional functionality for airborne or shipborne gravimetry: The automated determination of survey line endings, an automated generation of cross-over statistics as well as basic cross-over network adjustment methods, the generation of gravity map images, and more.

## CAPABILITIES & FEATURES

- Determination of gravity from raw acceleration / rotation data and GNSS trajectory.
- **Easy-to-use processing mode** for the less experienced user.
- **Expert mode**, allowing the fine-tuning of all relevant processing parameters, GNSS-arrays with multiple antennas, user-customizable output files, and much more.
- Position, velocity, attitude and standard deviation determination with exceptional performance.
- ultra short processing time at a very high accuracy (**~5 seconds processing time per 1 hour measurement data**).
- Automated, batch-processing to handle even very large campaigns (command line interface available in addition).
- Signal Processing: multi constellation / multi frequency GNSS, Filter and spectrum analyzer capability, lever arm estimator, multi-turn calculation etc..

### *The high performance, ultra fast and easy-to-use Post-Proc Solution for Field Operators and Experts*

# iPosCAL-GRAV

![iMAR NAVIGATION & CONTROL]

## Technical Data iPosCAL-GRAV

*- all performance indicators given as RMS values unless stated otherwise -*

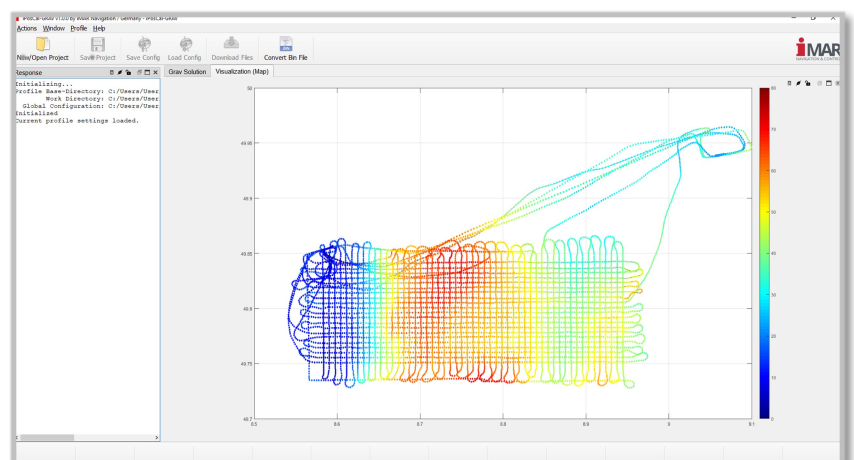| Input Data and Formats | Value |
|---|---|
| Post Processing | - iXCOM PostProcLog (any iMAR INS/GNSS system with iNAT architecture)<br>- NovAtel SPAN™ raw data format<br>- ASCII / .csv |
| Gravimetry | - iXCOM GravLog (iCORUS product family)<br>- optional terrestrial gravity tie value at port/airport to obtain absolute gravity estimates |
| GNSS Aiding | - Waypoint™ GravNav™ ASCII files<br>- binary files from GNSS eng. of type MOSAIC (Septentrio™) or OEM77xx (NovAtel™)<br>- RINEX 3.x (raw GNSS observations) |

| Output Data (excerpt) | Remark |
|---|---|
| Position | latitude / longitude / ellipsoidal height & time |
| Velocity | North-East-Down or body fixed front Starboard-Down |
| Attitude | roll / pitch / heading or as full 3x3 rotation matrix |
| Gravity or Gravity Disturbance | |
| Estimates of Acceleromter and Gyroscope Bias | |
| Estimated Standard Deviations | postion, velocity, attitude, gravity |
| Quick Look Data | even available without RTK correction in the field |

| Output Formats | |
|---|---|
| ASCII / .csv | customizable format |
| Binary files | Matlab™ scripts and Python scripts available |
| .kml | for integration with GoogleEarth™ |
| NetCDF data files | for integraiton with GMT |



**iCORUS-02 Stapdown Gravimeter
(INS/GNSS for data acquisition)**