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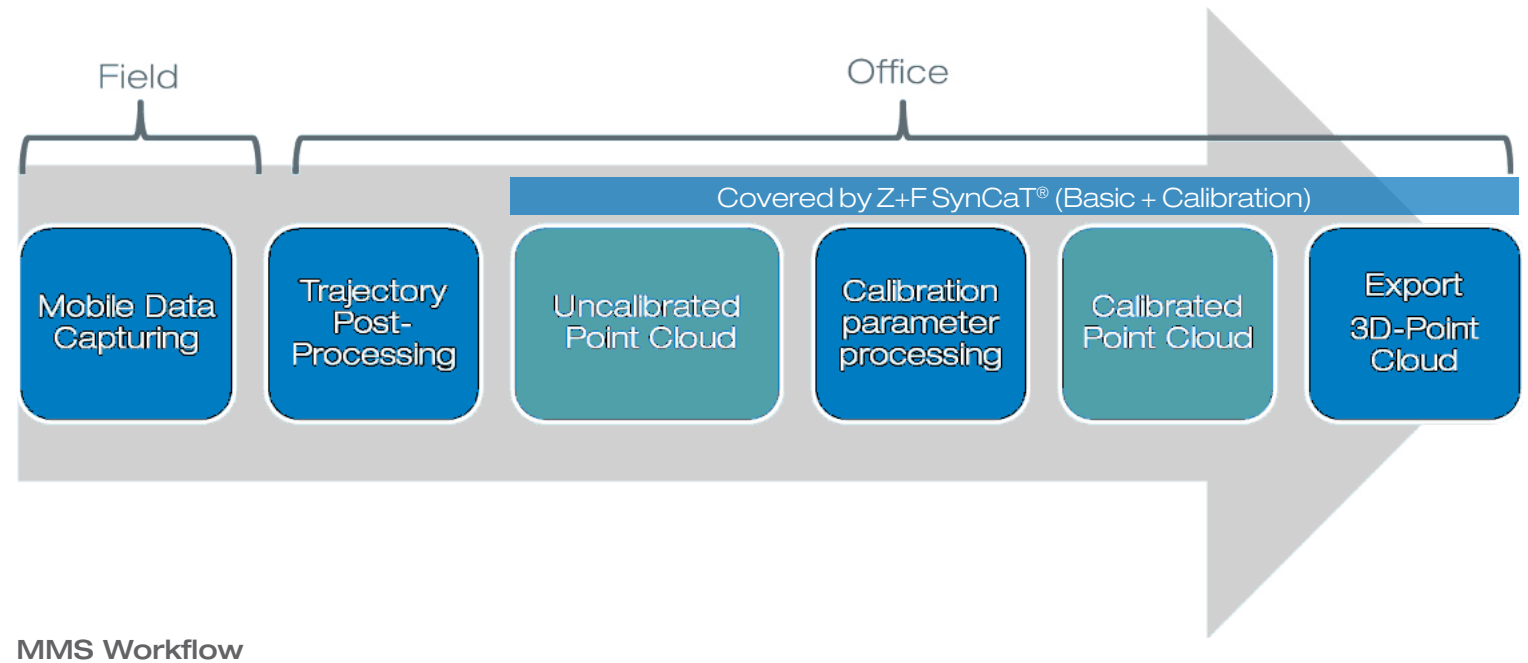


How we build reality

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Z+F SynCaT  
Mobile Mapping Software

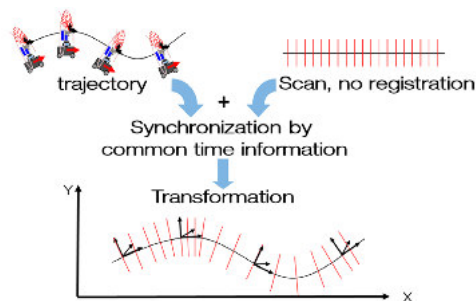




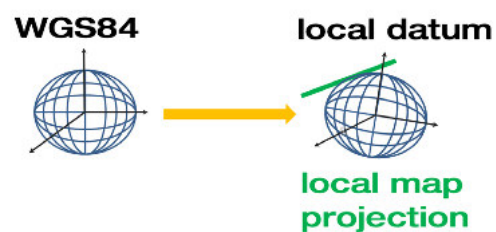
## Z+F SynCaT®

Zoller+Fröhlich creates a connection between the Z+F PROFILER® 9012 and external positioning and navigation systems with the new software Z+F SynCaT®. SynCaT stands for **SYN**chronization, **CA**libration and **T**ransformation - also representing the main tasks of the software. Z+F SynCaT® includes all the features below:

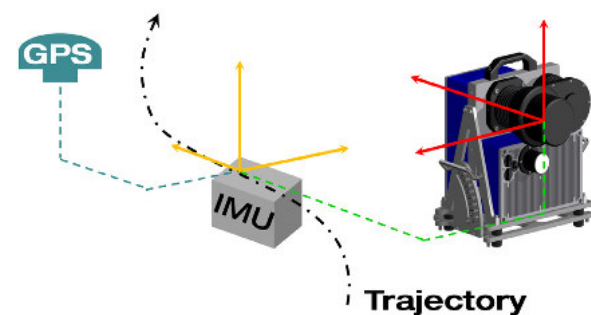
- Synchronization**  
 Synchronization of Z+F PROFILER® 9012 laser scanner data with trajectory data and generation of 3D point cloud files



**Transformation**  
 Transformation of 3D point cloud data into different local coordinate systems and application of different local/global height correction models (geoid correction files)

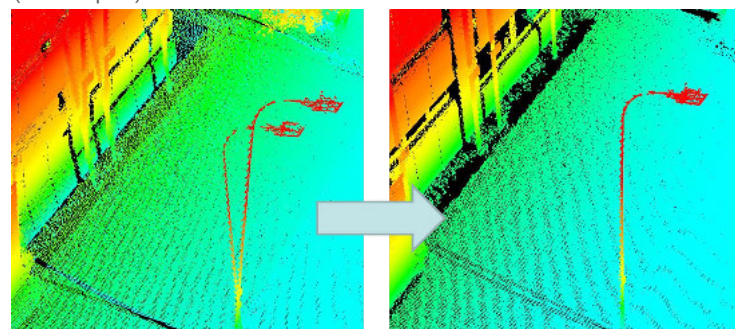


- Calibration**  
 Processing of calibration parameters for different system integrations (translation, rotation offsets between the coordinate systems of the navigation system (trajectory) and the Z+F PROFILER® 9012 laser scanner)



- Correction:**  
 Individual offset estimation referring to predefined ground control points (GCP's)

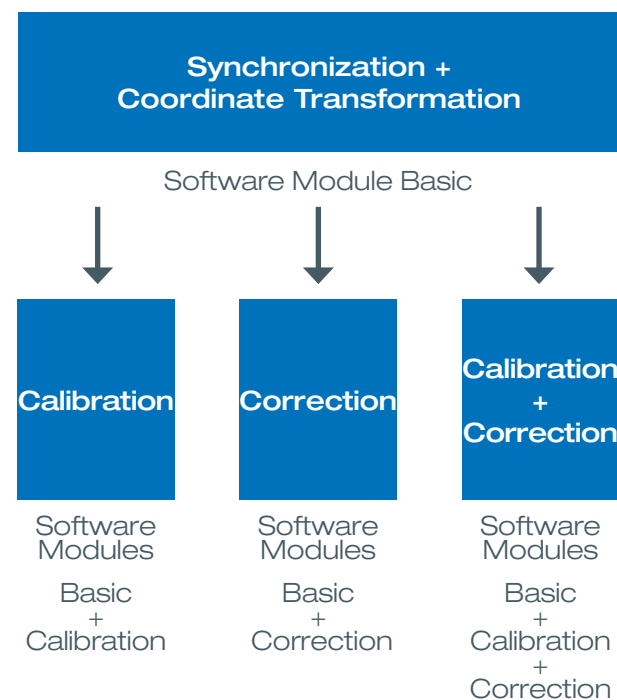
Result of system calibration with Z+F SynCaT® (example)



Uncalibrated point cloud      Calibrated point cloud

### Z+F SynCaT® - Modules

Z+F SynCaT® is a modular structured mobile mapping software. The modularization allows to combine the software package specifically for the customer needs.



#### Basic Module:

- Based on the latest Z+F SDK<sup>1</sup> time-API<sup>2</sup> technology
- Based on the latest Z+F SDK filter technology
- Flexible scanner setup (e.g. processing single-/dual-scanner setup)

- Time-based data processing
- New speed-sampling algorithm (delete or thin out data, at slower platform movement)
- Uses geometrical system description and calibration information: Apply individual scanner setup parameter for point cloud processing calibration offsets (3x translation-, 3x rotation parameter) with optional time offset
- Coordinate transformation into different local coordinate systems
- Export to LAS / LAZ / TXT<sup>3</sup> (file split option available)
- 3D-Viewer (incl. profile-view capabilities)  
Elevation / intensity mapping  
Select points in viewer by elevation / time

#### Additional modules:

- Calibration plug-in (incl. calibration viewer)
- Trajectory re-correction with physical targets  
Offset estimation (constant translation) with help of ground control points (GCP)

#### Input requirements for Z+F SynCaT®:

- Z+F PROFILER® ZFS<sup>4</sup> files (incl. time-stamping information, see trajectory file)
- Z+F IMAGER® ZFS files (generated in profiler mode, incl. time-stamping information)
- ASCII Trajectory file from the navigation unit  
GPS time information  
Geographic WGS84 coordinates lat/long  
Ellipsoidal heights  
Orientation angles (Roll, Pitch, Yaw)

<sup>1</sup> SDK - Software Developer Kit  
<sup>2</sup> API - Application Programming Interface  
<sup>3</sup> LAS / LAZ / TXT - Standard file formats  
<sup>4</sup> ZFS - Z+F proprietary file format