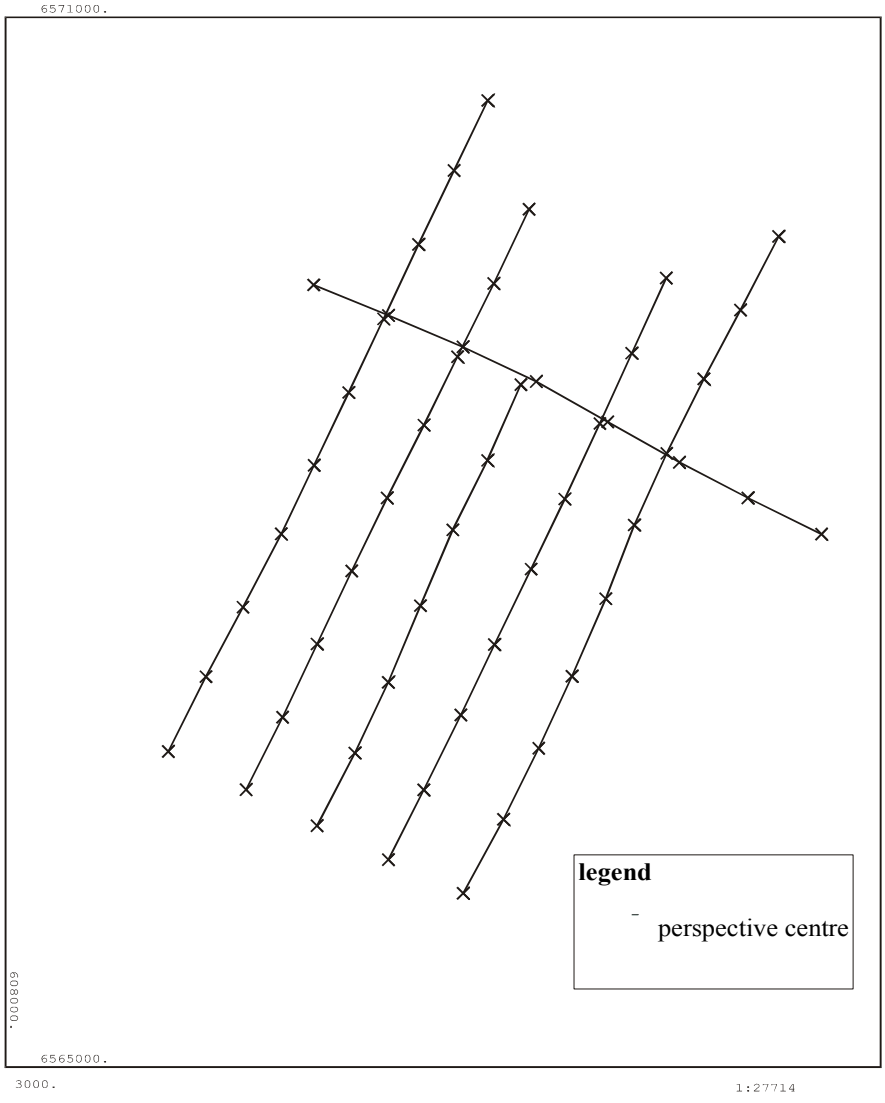
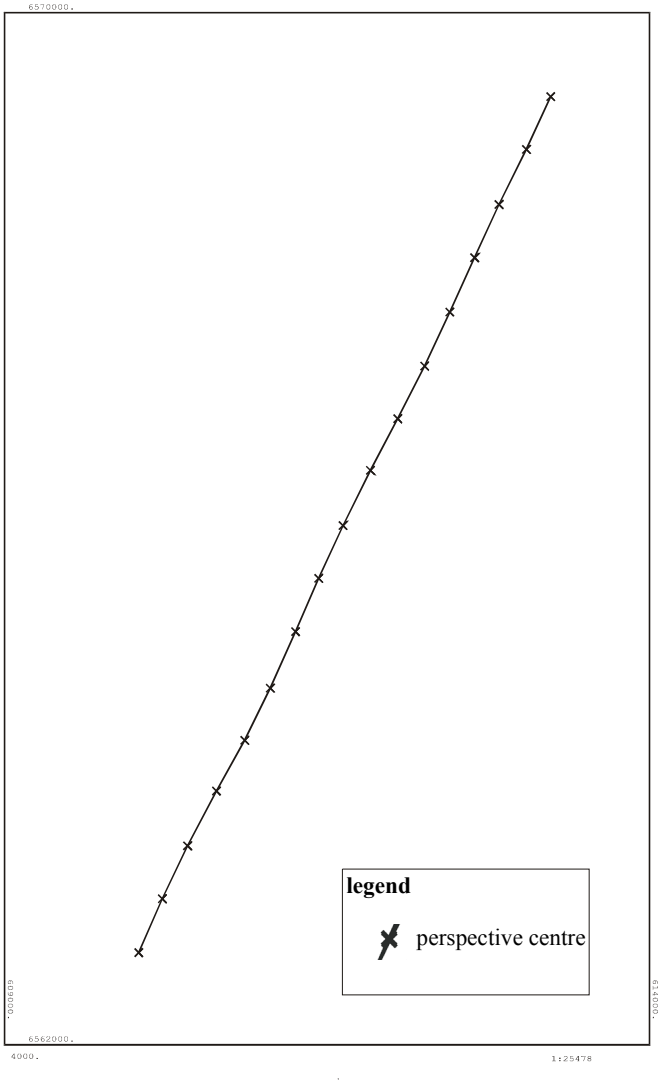
Additional Data description (Phase 2)

The first test phase dealt with the determination of the GPS shifts, the boresight misalignment, and possibly the focal length and additional parameters (called “system calibration”) from the information of the calibration flights (see Phase 1).The second phase deals with combined processing of GPS/IMU and the photogrammetric information for the test flight 1:5000. The integration of the GPS/IMU data into the bundle block adjustment should result in an improvement of i.e. the most accurate and reliable solution. For this Phase we have decided to use two different photogrammetric scenarios. Two photogrammetric **blocks** each consisting of 53 photos and two photogrammetric **stripes** include 17 photos each flown one by one by both companies. Together with the system calibration parameters determined in phase 1, the participants can perform an integrated bundle block adjustment, improving the exterior orientation, the additional parameters and the ground coordinates of the tie and check points.

Test 1:5000
(Block)



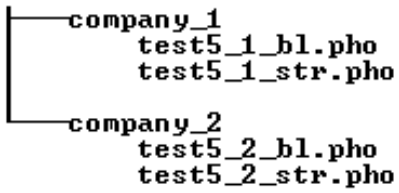
Test 1:5000
(Stripe)



File structure:

The test data are contained in a file "archive" created using the archive utility for Windows95/98/2000 and NT[1], namely WINZIP (see www.winzip.com). This file is called ***phase2.exe*** and is a self-extracting ZIP file created with the WinZip Self extractor. A self-extracting ZIP file is an executable program file which includes a ZIP file and software to extract the contents of the ZIP file. You can execute a self-extracting ZIP file just as any other WINDOWS-program. After extraction of the ZIP-file, the directories and files in the "unzip to" directory the following file structure should be available. The format for all data is the ASCII/DOS (carriage return with CR/LF) format.

[1] If you use another operating system, please notify us at wegmann@ipi.uni-hannover.de for further instruction. Don't forget to name the operating system you are using.



description (non-italic = Directory; italic = File):

Company_1(2):	Test data for the second TEST-PHASE from the first (second) GPS/IMU system.
Test5_block:	The test data for the Block Test Flight 1:5000.
test5_1(2)_bl.pho	The image coordinates of tie points (format see also data description Phase 1) for the first (second) company.
Test5_strip:	Test data for the Strip Test Flight 1:5000.
testl5_1(2)_str.pho	The image coordinates of GCP and tie points for the first (second) company.

For data description Image Coordinates and GPS/IMU please see the data description Phase 1:

Participants' results have to be returned to the pilot centre

The results of each participant consist of

- The image coordinates measured manually at IPI transformed into object space by a least-squares forward intersection with the exterior orientation of your[2] (in Phase 1) computed parameters for each tie-point of the test-stripes and test-blocks for the testflight 1:5000 [unit meters, in UTM/EUREF89].
- The computed parameters of the integrated sensor orientation and a detailed report, clarifying which input data has been used for the integrated sensor orientation.
- The computed object coordinates for the tie-points of the test-stripes and test-blocks in the test flight 1:5000 determinated by integrated sensor orientation.
- The computed exterior orientations (elements in UTM/EUREF89) for each image of the blocks and stripes.
- A detailed description of the applied mathematic model and strategy for the determination of the integrated sensor orientation (e.g. additional parameters).
- Comments on the potential and/or problems of the integrated sensor orientation with these test data and on the test data set (tie-point distribution, test flight configuration etc.).
- The filled in questionnaire. The questionnaire will be sent to the test participants beginning of April.

The results are to be sent back to the pilot centre on floppy disk or via email in ASCII Format.

[2] If you have not participated in the first phase then with the misalignment parameters from the pilot centre. If you want this data, feel free to contact wegmann@ipi.uni-hannover.de

Format requirements

System calibration parameters:

- **The additional calibration parameters**, as described in the report, with appropriate units.

The **exterior orientations** for each image exposure time given in test-stripe and test-block computed by bundle block adjustment.

- XYZ Position in meter
  <Image no.> <X[m]> <Y[m]><Z[m]>
- Omega, phi, kappa in degrees with
  omega(primary), phi (secondary), kappa (tertiary)

The **object coordinates** for each tie-point computed by forward intersection **and** computed by bundle block adjustment.

- <Point no.> <X[m]><Y[m]><Z[m]>

Deadline for delivery of results

May 31st, 2001