Preface

The 50th Photogrammetric Week is a special event in the sense, that it also looks back to its roots 1909, when Dr. Carl Pulfrich introduced the "Vacation course in stereophotogrammetry" in Jena/Germany. At that time stereoscopy was the focus of mainly terrestrial photogrammetric applications. Almost one hundred years have passed. Today, photogrammetry offers high tech image data collection systems and image data processing algorithms for 3D point cloud measurements and object reconstructions. The methods and systems of photogrammetry have changed completely, but I would say, not the spirit of the Photogrammetric Week series. It is the structure of a vacation course itself - owing to the lack of space - to treat selected topics only chosen from a broad range discipline. A systematic and detailed review is therefore often not possible. On the other hand, however, a vacation course has a special attraction in the way that besides reviews of general product lines most recent scientific ideas, developments and products can be highlighted and discussed to the pleasure and profit of both groups: the participants (pupils) and the presenters (teachers). It is the stimulating atmosphere which is strengthened by the social events in the evenings which makes a vacation course very special. The Photogrammetric Week series is a success story never matched by any other scientific symposia or workshop line in geodesy and surveying!

For this reason, the Photogrammetric Week '05, which takes place traditionally in Stuttgart, from September 05 to 09, will again make a selection of three main topics to be presented by Invited Speakers in the mornings and demonstrations by the OpenPhowo Partners in the afternoons. An attractive social event program complements the scientific schedule to leave ample room for open discussions and intercultural relations.

In order to provide some continuity of the bi-annual symposium the following three topics are discussed:

- Performance of photogrammetric image data collection,
- Web-based photogrammetric image and geodata services, and
- Photogrammetry towards the year 2025.

In the meantime digital airborne camera systems are going to be used in the daily work of photogrammetric enterprises. The paradigm shift 'from analogue to digital' seems to be in full swing for image data collection. An overview of the systems ADS40, DMC and UltraCamD will be presented by the manufacturers as well as the users. Some new systems are launched, such as the Next Generation Scanner JAS-150. Radar image data collection from space as well as from the airplane is complementary to optical imagery. The integration of GPS/INS allows the simultaneous recording of exterior orientation parameters, which is a necessity for line scanning systems and an option for full frame imagery. The testsite Vaihingen/Enz of the Institute for Photogrammetry (ifp), Universitaet Stuttgart, delivers a good reference frame for testing the geometrical accuracy and radiometric resolution of optical sensors – in its 10 years of history nearly all digital airborne camera systems could be flown and image data processed. Further ideas on optical transfer functions, calibration and georeferencing will be presented.

The second chapter highlights geospatial data production and Web dissemination. Today, data can be stored location independent and accessed any time. New concepts of distributed data processing are researched and offered by vendors of photogrammetric hardware and software. Image matching becomes more robust through the superior radiometric homogeneity of digital imagery. Data fusion for DTM generation and DTM revision is still under investigation. Geodata standardization be-

comes more and more important. A review of OGCs data formats is given. Real-time photogrammetry has become a standard in close-range applications, when will it be used in airborne applications as well?

The third chapter deals with future topics in photogrammetry and its related disciplines. What will be the working style in 2025? What about productivity? How will we learn new technologies and workflows? We expect answers to all these exciting questions from the invited speakers. But we all know: ”The future is not predictable!” It will be interesting to see how our workflows of today will change in the next 20 years. Remember 20 years ago, when the first CCD data were processed and image matching was announced as a breakthrough delivering fully automatic 3D pointclouds. New technologies will come out, which can be seen already latent on the horizon. eLearning will complement vacation courses such as the Photogrammetric Week series, but hopefully not substitute on-campus visits.

The invited speakers of the Photogrammetric Week series, who are the authors of the papers, are always carefully selected as representatives from academia, industry and consulting. For this year’s event, the overall objective was the presentation of projects carried out at German speaking universities to acknowledge the original idea of Dr. Pulfrich. Once again, the reader can make profit from the author’s profound knowledge. As shown the years before, photogrammetry is a fascinating stand-alone geospatial imagery engine. However, it provides valuable tools and methods to be used in GIS, remote sensing, Computer Aided Facility Management, CAD, and many other special purpose applications. The Photogrammetric Week series serves – from its beginnings in 1909 – as a forum to stimulate new developments, cooperations and standardizations. Hopefully this book again will contribute to bridge the gaps of several geospatial disciplines.

The aforementioned main topics structure the book into three chapters. For this reason, the reader has fast access to the corresponding contributions. Not all papers fit exactly under the corresponding chapter headline, but may give an overview of neighbouring fields of interest as well.

This book could not be made possible without the help and discipline of the invited speakers of the 50th Photogrammetric Week. The editor gratefully acknowledges their cooperation to finish the papers in time. Once again the Institute for Photogrammetry, Universitaet Stuttgart, did the final word processing for the homogenous book layout. Sincere thanks here to Markus Englich, who did a great job and is always a very reliable partner. Let me also thank Martina Kroma and Werner Schneider for their helpful support in the organisation. The book is also available in softcopy format (CD-ROM) for fast digital data access. Last but not least, we thank the Wichmann Verlag, Heidelberg, for publishing the book.

Stuttgart, September 2005 Dieter Fritsch