



ISSN 0256-1840

INTERNATIONAL SOCIETY FOR PHOTOGRAMMETRY AND REMOTE SENSING
INTERNATIONALE GESELLSCHAFT FÜR PHOTOGRAMMETRIE UND FERNERKUNDUNG
SOCIÉTÉ INTERNATIONALE DE PHOTOGRAMMÉTRIE ET DE TÉLÉDÉTECTION

INTERNATIONAL ARCHIVES OF PHOTOGRAMMETRY AND REMOTE SENSING
INTERNATIONALES ARCHIV DER PHOTOGRAMMETRIE UND FERNERKUNDUNG
ARCHIVES INTERNATIONALES DE PHOTOGRAMMÉTRIE ET DE TÉLÉDÉTECTION

Volume

Part

Band

32

Teil

4

Volume

Tome

ISPRS Commission IV Symposium

“GIS - Between Visions and Applications“

Editors

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September 7-10, 1998

Stuttgart, Germany

Organized by:



Institute for Photogrammetry
Stuttgart University

Cooperating Organization:



German Society for Photogrammetry
and Remote Sensing

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PREFACE

Mapping and Geographic Information Systems (GIS) have in recent years become twins. Today, it is a known fact, that techniques of both are used side by side to deal with spatial data. The future belongs to digital mapping techniques which are integrated into GIS as data collection and data visualization methods. By linking GIS geometry and attributes (thematic) the real power develops for various applications: land information management, environmental protection, topographic mapping, telecommunication, urban planning, infrastructure improvement and optimization, traffic navigation, facility management, to name but a few. Moreover, in addition to solving the mapping problems of our planet Earth, other planets shall be mapped using data collected during manned and unmanned space flights to the Moon, Mars and other celestial bodies.

Computerized mapping has become a major issue of photogrammetry and remote sensing. On the one hand it helps to improve the methodology and keeps the profession aligned with technological achievements. On the other hand, the interface between GIS and photogrammetric methods is highly dependent on top-down strategies which use existing spatial data and object information. Automated feature extraction can not only be solved by bottom-up processes operating in the image space. The feedback loop between GIS databases and feature extraction using optical imagery is still at its beginning. Therefore, the real challenge is the integration of modern photogrammetric mapping techniques in GIS. This will open new application fields of GIS, today seen as visions for the midterm future: highly automated feature location and extraction, fully integrated digital terrain models, 3D urban modeling and web based visualization, availability of high resolution satellite imagery for data revision, etc.

The long-term future becomes even more fascinating: the combination of optical and Radar imagery, all integrated in GIS, a high degree of automation for GIS data revision processes, distributed databases, OpenGIS, makes access to spatial data from any place in the World feasible. Large databases offered and maintained by national and international institutions as well as private companies provide a spatial data environment, which is hardly to be realized from today's perspective.

During its presidency of Technical Commission IV the Federal Republic of Germany aims at data fusion of all kinds, which means, to combine photogrammetry, remote sensing and GIS. The symposium "*GIS- between visions and applications*" will give us an excellent overview on the state-of-the-art of processing techniques and technological achievements.

The secretariat of Technical Commission IV would like to thank all authors for delivering their papers in due time for printing these proceedings. For the first time in ISPRS history the proceedings will be available in hardcopy and softcopy format. The final word processing of all incoming manuscripts by Esther Hinz and Antje Quednau is gratefully acknowledged.

Stuttgart, September 1998

Dieter Fritsch, Markus English, Monika Sester

**The International Archives of Photogrammetry and Remote Sensing
Volume XXXII, Part 4
ISPRS Commission IV – “GIS Between Visions and Applications”**

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