

Welcome Address

On behalf of the directorate of the Universität Stuttgart it is my great pleasure to welcome all of you to the two-day symposium *Quo vadis geodesia...?* being held on occasion of the 60th Birthday of Prof. Dr.-Ing. habil. Tekn. Dr. h.c. Dr.-Ing. E.h. Dr. h.c. Erik W. Grafarend. Nobody will believe that Erik Grafarend has reached the age of *wise men*, who normally show silver hair and behave according to their age. He seems *ageless*, he stimulates, researches and lectures the basics of geodetic science at our university since 20 years without showing any loss of his young spirit. His always straightforward interests to introduce new theoretical concepts into the disciplines of statistical inference, mathematical and astronomical geodesy, cartographic map projections, and basic surveying computations have made him an national and international well-acknowledged and awarded scientist. We feel honored to have him as member in the professors' board, we feel also honored today by your participation in this symposium.

Erik Grafarend was born on Oct. 30, 1939 in Essen, Germany. After primary and secondary education he started his academic career studying Mining and Surveying at the Technical University Clausthal-Zellerfeld, Germany (1959-1964). He graduated 1964 as Diplom-Ingenieur (MSc) in Mining and Surveying. Spending three years as research associate in the Institute of Mining and Surveying of this university he obtained his doctoral degree (PhD) by submitting a thesis on *Azimuth Gyroscopes*. He realized very soon that natural sciences might be helpful to provide him deeper knowledge and roots for his theory-oriented engineering concepts. Thus, he became again student studying Physics and graduated 1968 with the Diplom-Physiker (MSc in Physics). Prof. Helmut Wolf at Bonn university became his mentor in 1969, when Erik Grafarend was promoted being lecturer for geodesy and geophysics at the Institute of Theoretical Geodesy. After submitting a second thesis for qualifying himself to become professor (Habilitation) he was appointed 1970 Associate Professor at Bonn University. This thesis is well-known, here he wrote down the *Accuracy measures of a point manifold in multidimensional Euclidean spaces*. Due to his splendid publications he qualified himself very soon for a position as Full Professor - he accepted 1975 the offer of the University of the Federal Armed Forces Munich to take over the Chair of Astronomical and Physical Geodesy. He spent five very lively and stimulating years in Munich, organised workshops and seminars to discuss and to deep statistical inference concepts, for example to prove robust statistics and to fully explore the potential of least squares prediction and collocation. Parallel to his Munich activities he became Adjunct Professor of the Technical University of Darmstadt lecturing the basics of satellite orbit computations.

Since 1980 he is with the Universität Stuttgart, he accepted the position being Full Professor and Head of the Geodetic Institute embedded in the Curriculum of Geodesy and Surveying. Besides his strong scientific interests he took over also the responsibility being Dean of the Faculty of Civil Engineering and Surveying (1985-1986) and served from 1995-1999 as Dean for Educational Affairs within the Curriculum of Geodesy and GeoInformatics.

Since the early seventies Erik Grafarend is heavily internationally engaged, he is one of the *pillars* of the International Association of Geodesy (IAG). Here he held several positions: Special Study Group member of many SSGs, SSG President, Commission President, etc. He realised 1980 that there is a need to launch a high level scientific journal, as result the *manuscripta geodaetica* was published. This journal is today one of the internationally recognized journals of our profession, its weight in citation index we gratefully acknowledge. But besides all these activities a real measure of Erik Grafarends output are the more than 230 publications, all of high level. Very often, we the readers of his publications, have difficulties to fully understand his definitions, sets and proofs. But as many of us know him, we give him the confidence that the final results of his complex mathematical boxes are okay. The validation by examples is often done by his staff members.

It seems to us obvious that he was awarded several times. This awarding series started 1971 when he got the Award of the National Science Foundation of Germany (DFG) for research on *The Geodetic*

Reference Surface, the IAG Bomford prize followed 1975 (during the General Assembly in Grenoble/France), also to mention the Senior K. and W.A. Heiskanen Award of The Ohio State University, Department of Geodetic Science, Columbus/Ohio. The National Academy of Sciences awarded him 1978 the Senior Scientist Award. As we realized in the first sentence of this welcome address he obtained three honorary doctoral degrees: the Tekn. Dr. h.c. by the Kungl. Tekniska Högskolan, Stockholm/Sweden (1989), the Dr.-Ing. E.h. by the Technical University of Darmstadt/Germany (1996), and the Dr. h.c. by the Technical University of Budapest/Hungary (1998). Most probably, this series of awards is still open.

What have his colleagues at the Universität Stuttgart done to keep such an outstanding scientist satisfied? Well, we provided him 1997 adequate room facilities, a dream he had from the mid eighties. Many of you may have wondered whether the furniture and the room furnishings are standard of our university. They are not. It is his personal note of room design and interior architectural taste. We further offered him the opportunity to share lectures and exercises in adjustment and statistical inference, an interest he was also looking for from his beginnings at this university. Thus, we feel having done quite a lot to offer him a good atmosphere for science and education, at least during the last few years. We hope, that the next five years Erik Grafarend will further contribute high level papers to geodesy and related disciplines. Let me close with the statement: “ Erik, thank you very much for your contributions. Congratulations to your 60th Birthday. We wish you and Ulrike a further interesting life. Please keep your shape and spirit young. ”

Dieter Fritsch, Vice President Education
Universität Stuttgart