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WEGENER: World Earthquake GEodesy Network for Environmental Hazard Research

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WEGENER is originally the acronym for Working Group of European Geoscientists for the Establishment of Networks for Earth-science Research. It was founded in March 1981 in response to an appeal delivered at the Journées Luxembourgeoises de Geodynamique in December 1980 to respond with a coordinated European proposal to a NASA Announcement of Opportunity inviting participation in the Crustal Dynamics and Earthquake Research Program. WEGENER, during the past 32 years, has always kept a close contact with the Agencies and Institutions responsible for the development and maintenance of the global space geodetic networks with the aim to make them aware of the scientific needs and outcomes of the project which might have an influence on the general science policy trends. WEGENER was serving as Inter-commission Project 3.2, between Commission 1 and Commission 3, of the International Association of Geodesy (IAG) until 2012. Since then, WEGENER project has became the Sub-commission 3.5 of IAG commission 3, namely Tectonics and Earthquake Geodesy.

In this study, we briefly review the accomplishments of WEGENER as originally conceived and outline and justify the new focus of the WEGENER consortium. The remarkable and rapid evolution of the present state of global geodetic monitoring in regard to the precision of positioning capabilities (and hence deformation) and global coverage, the development of InSAR for monitoring strain with unprecedented spatial resolution, and continuing and planned data from highly precise satellite gravity and altimetry missions, encourage us to shift principal attention from mainly monitoring capabilities by a combination of space and terrestrial geodetic techniques to applying existing observational methodologies to the critical geophysical phenomena that threaten our planet and society. Our new focus includes developing an improved physical basis to mitigate earthquake, tsunami, and volcanic risks, and the effects of natural and anthropogenic climate change (sea level, ice degradation).

In addition, expanded applications of space geodesy to atmospheric studies will remain a major focus with emphasis on ionospheric and tropospheric monitoring to support forecasting extreme events. Towards these ends, we will encourage and foster interdisciplinary, integrated initiatives to develop a range of case studies for these critical problems. Geological studies are needed to extend geodetic deformation studies to geologic time scales, and new modeling approaches will facilitate full exploitation of expanding geodetic databases. In light of this new focus, the WEGENER acronym now represents, “World Earthquake GEodesy Network for Environmental Hazard Research”.