LETTER OF AGREEMENT
FOR
SCIENTIFIC COOPERATION

between

Gravity Section, Geodetic Survey Division
Natural Resources Canada
615 Booth Street, Ottawa, Ontario, K1A 0E9

and

Geodetic and Geophysical Research Institute
of the Hungarian Academy of Sciences.
H-9400, Sopron, Csatkai Endre u. 6-8.

1. Background

During the recent visit of P. Varga to Ottawa in August 1995, discussions with D. Nagy indicated that a number of projects, in which he is involved, may be of common interest. This was explored further during Nagy's visit to the GGRI in September 1995. As a result of these discussions, a proposal for scientific cooperation between the institutes was developed. A brief list of research projects and a list of personnel interested in these projects is included in this Letter of Agreement (LOA).

2. Research Projects

2.1. 3-D Gravity Modelling

a) Development of software for general 3-D gravity modelling, including the preparation of data (e.g. DTM based volume approximation for creating an optimal number of prisms), data modification and the actual 3-D gravity modelling. Investigation of the accuracy and the limits of modelling.

b) Calculation of the various potential related quantities for a 3-D model composed of prisms (such as potential, gravity, deflections of the vertical, various derivatives, elements of the Eotvos tensor and other values required in differential geometry for the description of the properties of local equipotential surfaces).

2.2. Vector and Pixel Data Compression

a) Compression of vector data

Generalization of lines (vectors) such as rivers, boundary lines, coast lines requires the screening of data producing a much smaller file size. A second objective is to develop Bezier approximations to the vectors leading naturally to the use of PostScript.

b) Compression of pixel data

In addition to the use of the wavelet transform for signal compression used in GIS, the use of recent developments in the field of fractals looks very promising for compressiuon of pixel data, particularly the use of affine transforms in connection with Iterated Function Systems.

2.3 ADOBE's Acrobat

Investigation of the use of ADOBE's Acrobat for the production of an electronic form of document. This may be the way of the future to communicate or exchange information. The Portable Document Format (PDF) would allow the exchange, and/or modification and printing of documents produced by various computer

platforms and software packages.

2.4. Publication of Colour Diagrams

Investigation into the reproduction of colour diagrams suitable for publication and/or presentation. This involves the (possible) conversions amongst the various colour representations (Red-Green-Blue, Hue-Saturation-Brightness, Cyan-Magenta-Yellow-Black), change of scale (to magnify images obtained from screen capture), change of orientation and combination of the diagram with overlays.

2.5. Networking

Development of the basic tools required to make use of the extensive information available on Internet.

2.6. PostScript

Development of target oriented procedures in PostScript to supplement output from commercial software packages and to provide smooth integration for desktop publications and for presentations.

3. Cooperative Agreement

3.1 This LOA is purely for scientific cooperation between the institutes and does not require any funding additional to the annual appropriations for the normal programs of the two institutes. Any unusual requirement for additional funding will be considered only on a case by case basis.

3.2 Supervision

The supervision of this agreement is the responsibility of:

R. A. Gibb, Chief, Gravity Section, GSD, Ottawa
J. Zavoti, GGRI of the HAS, Sopron

3.3 Participants

Bathha, L. GGKI of the HAS
Banyai, L. "
Kalmar, J. "
Major, Z. "
Papp, G. "
Nagy, D. Gravity Section, GSD

4. Duration of Agreement

This Letter of Agreement is effective following the signing of this document by the Directors of the institutes and remains in effect until termination is expressed in writing by either Party.

Signatures were removed for privacy

P. Varga
Director
Geodetic and Geophysical Research Institute

Date: 23th January 1996

M. Corey
Director
Geodetic Survey Division

Date: