

IMANEWS(Mar., 2002: Vol.2, No.3)

Motto: We challenge risk boldly, deduce conclusion rapidly, create new business chance and contribute to revitalization of Japanese economy.

IMA (Institute of Mathematical Analysis) news is delivered every month. You can also download it from homepage (<http://www.hi-ho.ne.jp/issiki/>).

R & D in Our Institute

The other day, a person called me. Unfortunately, the author was out, and one of his families replied the phone call. The person asked if there is brochure of our institute. Since the institute does not sell goods or meet many unknown people, there was no big need for such a brochure. The author thought the homepage may be a substitute. However, there was no appropriate description on the homepage. So, he decided to make some explanations helpful for such a purpose. The results are shown in Figures 1 and 2 below.

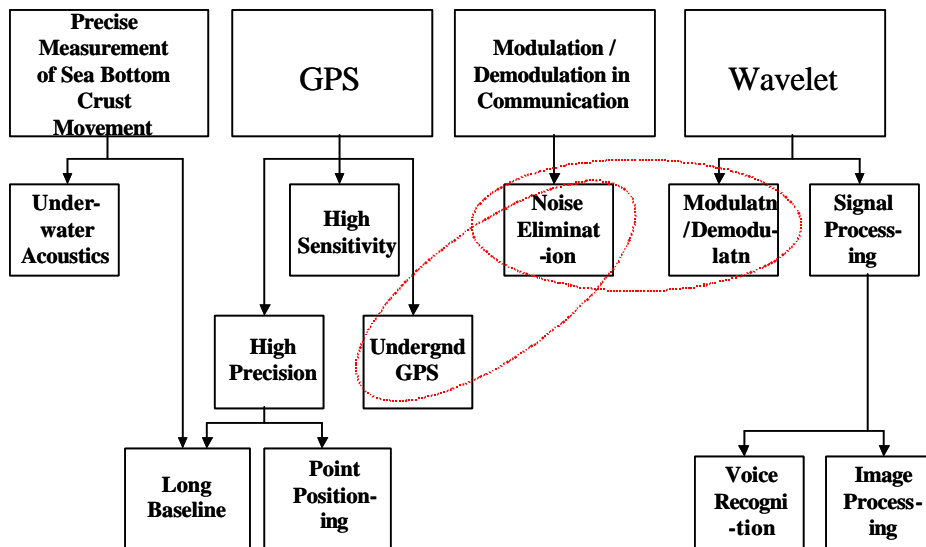


Figure 1 R & D at Institute of Mathematical Analysis

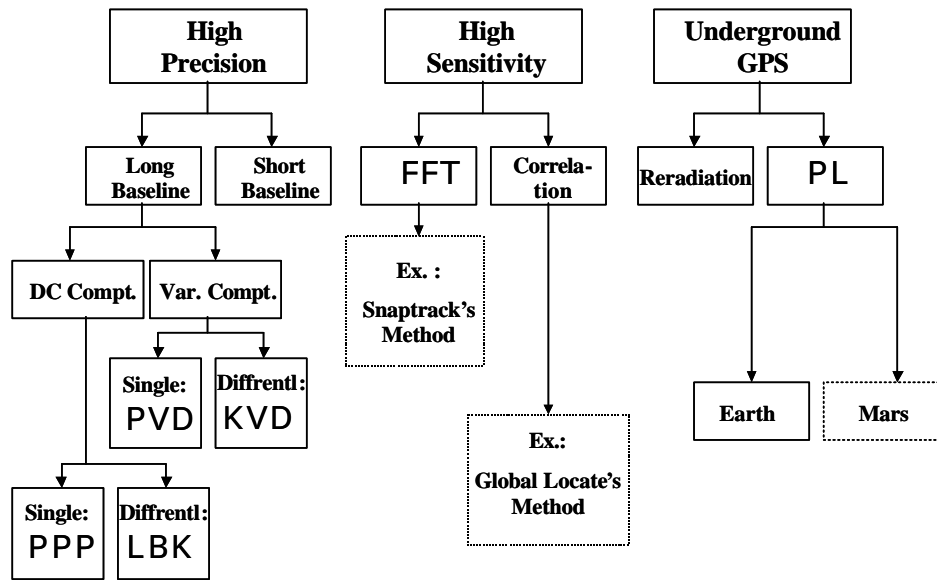


Figure 2 R & D on GPS

Jobs in February

- (1) Proposal for practical use of an Underground GPS (Especially on signal sources)
- (2) Proposal for R&D of a high sensitivity GPS
- (3) Proposal for practical use of a high precision GPS receiver (collection of information in US)
- (4) Basic study on modulation and demodulation of communication (Application of wavelet)
- (5) Preparation of a paper presented at UT2002 (April, Tokyo)
<http://underwater.iis.u-tokyo.ac.jp/ut02/Welcome.html>

Schedule in and after March

- (1) Proposal for practical use of an Underground GPS
- (2) Proposal for practical use of a high sensitivity GPS
- (3) Proposal for R&D of a high precision GPS (Long baseline kinematic)
- (4) Basic study on modulation and demodulation of communication (Application of wavelet)
- (5) Submission of an abstract to ION GPS 2002 (Sept., Portland, Oregon)
<http://www.ion.org/meetings/meetings.cfm#gps>
- (6) Presentation of a paper on GPS Acoustics at UT2002 (April, Tokyo)

<http://underwater.iis.u-tokyo.ac.jp/ut02/Welcome.html>

(7) Presentation of a paper at the Spring Meeting for the Society of Naval Architects of Japan

<http://www.snaj.or.jp>

Essay: Surprising ideas

In the previous IMA news, the author wrote that he attended NTM (National Technical Meeting) of ION (Institute Of Navigation) held at San Diego, California, USA and made a presentation on Underground GPS. He also wrote that he was astonished by a presentation on an application of GPS technology to an unmanned vehicle on Mar's surface.

The author has been studying GPS for several years, but, unfortunately, his research is always one step behind and he feels it a regret. He would like to make an original proposal in ideas at least. He would like to surprise researches in US. How enjoyable it would be if succeeded! The author wrote this kind of nonsense in the previous IMA news.

Then, the author thought following ideas. How about space seismology or planet seismology! For example, it investigates the internal structure of moon, Mars etc. by measuring vibration of the ground caused by artificial earthquakes. The positions of the seismometers and epicenter of the earthquake are measured precisely by GPS technology using pseudolites. Very valuable scientific data may be obtained.

Another idea is an airplane flying in the atmosphere of Mars. The gravity of Mars is 0.38 times that of earth. The atmospheric pressure is 1/200 of that on earth surface. Although the atmosphere is very thin, it may be possible if the fuselage weight is reduced and the wing area is increased very much. Something like a butterfly. The airplane may be able to move around very fast. So, it will collect data in much wider area than a vehicle.

The author thought these ideas are quite unique. However, the former idea has already been performed on moon. And with regards to the latter idea, Australian people have recently developed a flying object used on Mars. There are many unique people in the world!

Link: <http://www.teruya.co.jp>