Issue 7
July 1996

GeoWatch

A Newsletter from GeoSys

GeoSys provides Geophysical Measuring Solutions

In this GeoWatch:

Editorial

Dear GeoWatch reader

With our GeoWatch newsletter we do have always a good feedback from our valued customers. We are convinced that the relationship between designers and users of geophysical equipment needs to be very close. Today's electronic technology allows do built equipment of which some years ago nobody dared to dream of.
Basing on this broad pallet of technical possibilities the users input on the designer is of tremendous importance. Only the user can tell exactly what is needed in the field. It is a duty for every designer not to design what is technically possible but to listen carefully to the customer. By doing so we were realising many real field facts and we are continually able to keep our instrument and system design direction on the way of success.
Knowing that there are many issues around the design of geophysical equipment we start with this GeoWatch issue to incorporate the column 'Design Corner' in which we continually discuss topics out of the instrument design field. We hope you will like it and invite you to continue with your filed input for our instrument designers.

Within the last eight month we have established the **GeoSys India** company successfully. I personally was many times visiting India to keep customers and organisations properly informed about our intention. I would like to thank to all the Indian customers for the understanding and the credit given to your commitment to the Indian market. GeoSys India is fully operational and is capable to serve customers much beyond the service known from regular company representatives. We are also very thankful to Mr. Shyam Thosar, the managing director and his associated stakeholders for the tremendous work and effort during the last months in establishing GeoSys India.

Christoph Kündig
Managing Director

In Europe, Africa, Middle East up to India, contact **GeoSys** or your local representative.

In North America, South America and the Asia Pacific region, contact **Terra** or your local representative.

Summer Vacation

GeoSys offices will be closed for summer vacation from *29th July until 11th August 1996*. After this date we will be back again with full energy and dynamism.

Congratulations!!!
To the Winner of the GSR-12/P
Strong Motion Recorder

In our GeoWatch Issue 6 from January 1996 GeoSys raffled a GSR-12/P. Today we are pleased to announce the Winner of the competition - it is:

Mr. Carlos Sousa Oliveira, Lisbon, Portugal

We congratulate Mr. Oliveira and wish him success and fun with this new equipment. We also thank to all the participants and the many answers and suggestions we received to the questions we had put up in this competition. Thank you!

A new Collaboration in Italy
GeoSys and Pizzi - an agreement to solve your problems

Monitoring systems for dynamic and static controls - combined research, development and commercial activities at the Client's service

For the past few months, our society has been collaborating with the PIZZI firm of Florence.

Our technical-productive experience in the sector of instrumentation for dynamic controls and PIZZI's in the sector of instrumentation for static controls, present our clients with complete, efficient and reliable monitoring systems for structural, geotechnical and geophysical controls.

Our decision to collaborate with the PIZZI firm is based on the fact that it has been operating for years in the sector of static controls; moreover, it is one of the few firms that directly produce most of its products. The PIZZI firm was formed out of an agreement with the Officine Galileo of Florence, which is well known for the typology and quality of it s products in the field of precision mechanics and optics.

PIZZI's products are of excellent quality, certainly among the best to be found on the international market; these products, in combination with ours whose characteristics are equally fine, provide the client with a maximum guarantee of quality, functionality and reliability.

Our collaboration with the Pizzi firm is not limited to a mere commercial fact. Instead, we want to extend our reciprocal effort in the sector of research in order to develop new products and report the results thus acquired.

A first example of this new kind of collaboration can be found in a recent intervention in INDIA, where the two societies held a purely technical seminar on the instrumentation for dynamic and static controls, applied to buildings and monuments (see relative article).

We are programming other seminars on dam controls, in which we will present the instruments and systems used for said monitoring.

Commercially, the collaboration is extremely simple, and is very useful for our Clientele. In fact, each society operates as an agent for the other in its own country; it promotes the other's products and creates a connection with the Client. The offer is presented by the represented firm but, upon the Client's request, who might need to have a national supplier or to buy the requested merchandise directly in his own country, the offer can be presented by the agent who will then supply the products directly, taking care of all import operations and of anything else that may be necessary to sell the merchandise directly.

Our societies guarantee assistance on all of the products with which they deal, both before purchase and afterwards for installation and maintenance (ordinary and exceptional).

We thus hope to improve our relationship with our Clientele; we therefore ask you to send us any comments, observations, suggestions, so that we may emend our activity and render it more efficient. On our behalf, we confirm our intention to continue in this collaboration and to make an effort to satisfy your needs once more in the most complete way possible.

We ask all those who have never used PIZZI's or GEOSYS's products to try our instruments and to try to work with us.

It will no longer be necessary to refer to multiple firms, each with its own specific competence, in order to assemble a complete monitoring system. Call us and we will solve your whole problem.

For more information of our entire product line please contact GeoSys or:

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University of Bergen Seislog and Seisan Software

University of Bergen Alliance
In June 1996 GeoSys , Terra and the University of Bergen (UB), Norway announced a **product development and support alliance**. The alliance objective is to work together to provide the most advanced hardware and software tools for seismology while each individual organization maintains it's own independence. The first software release from the University of Bergen will interface Terra's powerful new IDS-24 digitizer to run with UB's popular **SEISLOG** seismic logging and **SEISAN** analysis software.

Open Architecture
The alliance embraces an open architecture concept which allows the customer to select the best solution to meet their needs without being tied to GeoSys or Terra. UB's software will remain public domain and available free of charge. However, release of advanced features, jointly developed by the alliance, may not be immediately available.

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Best solution for the customer
GeoSys and Terra will integrate the software into a total system solution and guarantee the performance of the software, hardware, sensors and communications elements delivered to the customers. **Public domain software with a guarantee from a company** offers the customer the best of both worlds. GeoSys and Terra will provide the administrative and commercial backbone to the alliance. UB will provide seismic software, software development, and software support. UB will also provide consulting services including: seismology, installation and training consulting services contracted directly with the customer or through GeoSys or Terra.

Customers get 2 for 1
The IDS-24 offers many advanced features and may be optionally configured as a simple HDR digitizing system and/or a digital recorder with threshold or STA/LTA triggers. This gives the customer the ability to have **a seismograph and accelerograph in one box** and fulfill the requirements of both weak and strong motion.

Advanced state-of-the-art products
The Crystal A/D converter set in the IDS-24 provides a 24 bit data format and solid resolution of 22 bits. The IDS-24 has a **Total Harmonic Distortion (THD) of 138dB**. The THD is an extremely important factor in determining the true performance of a HDR digitizing system. Sample rates are customer selectable from 250 to 25 sps. Sample rates below 50 sps provides 23 bit performance.

User flexibility
The IDS provides the user with flexibility and options to expand their system as needed. Up to 8 channels of HDR accelerometers and/or seismometers may be on the system. Each channel has it's own A/D converter and high performance DSP. In addition to HDR A/D conversion the IDS provides management of power, time and communications.

Communication Options
The user may connect directly to the converter board micro controller or the micro controller in charge of the entire system through a code operated switched modem. Bi-directional communication may be implemented by normal voice grade telephone line connection, digital radio or satellite.

Software for Seismology
By running **SEISLOG** and **SEISAN** software with the GeoSys/Terra high performance hardware, customers receive the capability to perform **all** of the **advanced functions required in seismology**. New software and upgrade releases made by UB will be provided free of charge to the customer, thereby assuring that the system will always be kept current.

Seminar on "Vibration Instrumentation for Buildings"

In association with Central Building Research Institute (CBRI), Roorkee, GeoSys India organised a seminar on 27th May, 1996 at NPL Auditorium New Delhi. CBRI is a prestigious organisation in India involved in the field of Building Vibration Studies. This is a new area of application of both Static as well as Dynamic instrumentation within India. About 60 officials from topmost Government organisations like Atomic Energy Commission, Department of Science & Technology, Central Water Commission, India Meteorological Department, Central Road Research Institute, RITES and University of Roorkee participated.

The inaugural lecture was delivered by Dr. S. K. Arora, Head of Seismology Section of Bhabha Atomic Research Center, Mumbai, followed by an account of the activities of CBRI in this field by Prof. Iyengar, Director, CBRI. After the theoretical lectures, Mr. Kündig, Managing Director, GeoSys Switzerland and Mr. Franco Pizzi of Pizzi s.r.l. Italy, discussed the practical aspects of Dynamic and Static instruments used for Building Vibration monitoring. The underlying principles in the design of instruments were explained. In the afternoon, a technical session was held where GeoSys / Terra Technology alliance's Central Recording System along with Accelerometers and Velocity Sensors was demonstrated. A Video film on the Geotechnical products of Pizzi was also shown.

The program concluded with Questions & Answers session, where there was an interesting exchange of information between users of equipment and the manufacturers viz., GeoSys/Terra & Pizzi.

It was perhaps for the first time that such an interactive program was held in India. We are proud to inform that the efforts were well appreciated, going by the reactions of the members of the Scientific Community, those who were present as well as those who were not!

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Portable IDS-20 and IDS-24

The IDS-20 and IDS-24 are now available in a portable package. The advanced electronics of the IDS-20 and IDS-24 have been repackaged in a high impact plastic carrying case suitable for air travel as carry on luggage. This package is lightweight and small enough to fit under an airline seat. The case provides **additional room to carry a laptop computer, triaxial sensor and the sensor cable**. The case is waterproof with military style connectors for up to 8 external channels.

After-shock chasers are able to have both **seismometers and accelerometers** connected to the system. With this combination, seismologists can be assured of capturing the full range of events with resolution of **1 part in 10,485,760**.

There is no channel-to-channel skew and timing accuracy can be as high as 50μ seconds with GPS. The standard internal clock accurate to 0.3 parts per million assures timing precision when a GPS is not available.

The portable IDS has many power options. The basic unit comes with internal batteries that proved approximately 14 hours of autonomy. Power autonomy may be increased by the addition of larger internal batteries at the expense of added weight and loss of storage space. The unit may also be connected to an external 12 volt battery. The internal charger can charge an internal as well as an external battery. The instrument may optionally be connected to solar panels for internal or external battery charging. The unit may be plugged into any power source in the world for internal battery charging or for use in the laboratory.

Portable GNC-CR12 and GNC-CR16

The popular multi-channel GNC-CR12 and GNC-CR16 recorders have also been packaged in a portable, high impact plastic carrying case. Customers may choose between 12 bit and 16 bit performance. Users have the option of **6, 9 or 12 channels**. AllView software gives users the ability to **adapt pressure, displacement, temperature, wind, current and/or other sensor types in addition to accelerometers and seismometers to the portable GNC-CR**. This makes the GNC-CR a truly versatile data recorder.

11 Nuclear Power Plants Select GNC-CR

Eleven GNC-CR 19” rack mount systems for nuclear power plant seismic monitoring compliance have been ordered since the configuration was seismically qualified in June 1995. The GNC-CR system has been selected because of the price/performance ratio, ease of use and availability of event data immediately following a triggered recording. Users have commented that the system is **very easy to use** and that **operation and maintenance time** has been **reduced**. This has been a performance bonus.

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