Hi-tech and State: at Space Distance from Each Other

By Victoria Musorina, Source: IToday.ru (http://www.itoday.ru/20261.html)

In late June Vexcel (USA), world-famous engineering solutions integrator in the market of the Earth remote sensing from space, bought in the “UniScan” ground receiving stations providing Earth remote sensing from space data reception, designed by Research & Development Center “ScanEx” (Russia). Vexcel representatives applied to “ScanEx” in spring 2008, ScanEx Vice-President Olga Gershenzon told iToday.ru. Negotiations were carried out and terms were settled in the course of year. In former times Vexcel was a business rival of “ScanEx”, and developed identical stations as well.

The purchasing cost Vexcel $700 000. The customers stayed satisfied with the bargain. “Your station consumes so little energy, that we are about to apply for a grant, as energy-efficient business”, — joked the customers. Indeed, why not? They will apply for a grant and get money from the government. It should be noted that USA — the world’s leading technological state — itself develops several ground receiving station lines on the same level with “ScanEx”. But as for price-quality-energy consumption-reliability ratio “UniScan” remains without a rival.

So far for $700 000 Vexcel obtained universal small-aperture station “UniScan” with 2.4 m antenna, providing satellite data reception at a speed of 320 megabit/s. The station provides reception from Aqua, Terra and ENVISAT-1 satellites in USA.

Who Are the Market Participants

The station was installed personally by the founder and General Director of “ScanEx” Vladimir Gershenzon, the constructor of the station. The “UniScan” ground station is his personal innovation. “ScanEx” production differs from both Russian and foreign competitors in two principle moments. From the one hand, the company manufactures production of the full cycle — up to software. The stations development and production is based in Russia. From the other hand, it was “ScanEx” who succeeded in designing of the unique station with the smallest in the world antenna reflector diameter. The best rivals’ result — 5 m diameter reflectors for stations functioning in the same band frequency and receiving signals with the same speed. Whereas “ScanEx” uses 2,4 m diameter antenna reflectors. And the cost price of the station is in direct proportion to the size of antenna reflector.

“ScanEx” works with data delivered by 17 Earth remote sensing satellites. Among them are India, France, USA, Canada, Korea, Taiwan etc. satellites. And “ScanEx” receive data from 9 RS satellites in the direct reception mode, to the proprietary network of receiving stations.

In early June another receiving station was installed in Megion, 22 km east of Nizhnevartovsk. It is aimed at providing satellite data reception within a radius of up to 2500 km in the northern regions of Siberia, which have always been blind areas beyond the reach of ground stations receiving data from RS satellites in the direct reception mode. “ScanEx” specialists accept and process several tens gigabytes of space data every day.

“ScanEx” is not the only company producing ground receiving stations. Many Russian companies are able to manufacture just antenna reflector, tens can make guided reflector for satellite data reception, but only five can produce the whole ground station for the Earth remote sensing data acquisition and processing. Among them are: Leningrad R&D Institute of Television — producer of the “Suzhet” L-band station (band for data transmission from meteo-satellites), Russian Institute of Space Device Engineering — X-band stations producer (band for the most complex and difficult for processing satellite data; “ScanEx” Center’s stations operate in this very band). Also it should be mentioned about “OPTEX” science and production company. The core business of “OPTEX” is data acquisition and transformation systems production. Ground stations production is not the main line of the company’s business. “OPTEX” assesses its market share as 10-15%. Like “ScanEx”, “OPTEX” uses mainly foreign satellites data (Canada, USA, India etc.).

ScanEx RDC sells 10-15 ground stations a year

Where Are Money?

“ScanEx” earns not only on ground stations sale (stations give one half of income). Various online services, mostly based on proprietary technologies, are also profitable.

A good start was made by geoservice Kosmosnimki.ru, operating since the beginning of 2007. The basis is ScanEx Web GeoMixer, proprietary technology of “ScanEx” RDC, which allows combining of different data types in one online project, work with bitmapped and vector

images simultaneously and search for graphic data. Similarly — via web-interface — “ScanEx” realizes diverse geoservices for the concrete customer needs.

For instance, the following geoservices were developed: “Kosmosnimki — White Sea” (for the harp seal protection program in the White Sea), and “Kosmosnimki — Seas of Russia” (for the project of nonrecurring ecological situation and navigation monitoring in Russian seas).

“ScanEx” developed and implemented the new Russian technology of operational many-satellites monitoring of objects, processes and phenomena, explains the Center’s press secretary Nadezhda Pupysheva. Ground receiving stations, satellite space data and geoportal technologies (in other words, proprietary geoinformation systems) are used together.

Space imagery data could be sold to the state agencies and organizations, closely associated with nature management. But, as one may find out, the “space truth” is not very often in need in Russia. Here is a typical example: in the Stavropol Territory the more valuable crops are sowed in the center of fields of cheaper crops, masking the main crops (for the purpose of avoid tax, as tax depends on the crop type). In the described situation authorities only gain from purchasing of space images. But it doesn’t happen always. In many ways it is the state who blocks development of innovation companies, such as “ScanEx” RDC.

ScanEx RDC values its archive of space images at $200 mln

Defending Secrets, or State in Role of Polichinelle

Domestic technologies development, which players of the Earth remote sensing from space market try to put into practice, hinges on the inert Russian legislation. Main problem of the sector is unwarranted secrecy of satellite data (in the rest of the world it is settled in absolutely different way). Procedure of space data acquisition and processing activities licensing is

extremely complicated as well. Needless to tell about the education quality in this sphere and participating in international organizations, joining companies connected with the Earth remote sensing.

Dominating position of Federal Space Agency, which controls usage of satellite imagery, hampers the market not last of all. And it is not very clear, what is protected so diligently from science intensive business. Today Russia don't dispose of efficiently functioning RS satellites (except "Resurs-DK1"). As opposed to foreign countries, no differentiation of market participants exists in Russia to satellite systems developers and operators dealing only with satellite data. It prevents the sector from progress.

Trying to exert civilized influence upon the law-givers, the Earth remote sensing market players decided to unite. The matter is about Association of the Earth remote sensing data providers and consumers foundation.

Who Needs the Space?

In the meantime, domestic technologies, related to satellite data receiving ground stations development and further processing, are the real rivals for the foreign developments, sais Maxim Klushnikov, "OPTEX". But it is necessary to admit that Russian space technologies in whole lag 20-30 years behind the West.

Authorities don't take notice of Russian companies' progress, in spite of the fact that domestic space data usage is important for the state. It passes laws concerning state realty cadastre, navigation activities, Town planning code of the Russian Federation. For proper application of these laws, space data usage is absolutely necessary. Developed economies have made use of it successfully for a long time. However, publication of these images will make many organizations' (not only of agricultural and nature management sectors) activities much more transparent. Bureaucracy don't need that.

But we launched the first satellite in the world. Though it took place in another country, and there is no way to see it from satellite.

INFO

"ScanEx" profit was announced of about 450 million rubles for 2008. In 2009 "ScanEx" expects the sameresults. "ScanEx" works with a complete cycle of remote sensing data usage – from acquisition and processings of Earth observation images from space to thematic products development, from ground receiving stations production to space monitoring centers organization. Among the biggest "ScanEx" projects in 2008-2009 — design engineering and

installation in 2005–2008 of Russian forests space monitoring system with annual imagery of intensive logging area (over 110 million ha) at high spatial resolution (6-10 meters); customer — Federal Forestry Agency of the RF Ministry of Agriculture. Another sizeable project — development and realization of operational radar satellite monitoring of the Black Sea navigation environmental safety, creation of specialized geoportal "Kosmosnimki — Black Sea" (customer — the Sea Port Administration of Novorossiysk); nonrecurring operational space monitoring of environmental safety, ship position and ice situation in the five seas of Russia (customer — EMERCOM of the Russian Federation). At the present time "ScanEx" has already designed and installed over 60 ground receiving X-band stations in Russia and abroad.