



- A monthly round-up of space industry developments for the information of our clients and friends -

ProtoStar Closes \$210 Million Financing

On November 15, *ProtoStar Ltd.*, a Bermuda-based satellite operator with principal U.S. operations in San Francisco, successfully closed a \$210 financing consisting of \$160 million in senior secured convertible notes sold to institutional investors and a \$50 million equity contribution by several venture and private equity funds. *Jefferies & Company Inc.* acted as placement agent for the transaction. Earlier this year, ProtoStar raised \$40 million in a Series B financing round led by *VantagePoint Venture Partners* with participation by *New Enterprise Associates* and *RedShift Ventures*. The cumulative financing proceeds will be applied to purchase, refurbish and launch a completed *Space Systems/Loral FS-1300* variant communications satellite originally constructed for *China Telecommunications Broadcast Satellite Corporation*. ProtoStar's business plan involves the development of a multi-satellite constellation to address under-served direct-to-home satellite service markets in Asia.

RRSAT, Globalstar & ORBCOMM IPOs

Three satellite services companies, *RRSat Global Communications*, *Globalstar Inc.* and *Orbcomm Inc.* launched initial public offerings on the *Nasdaq* stock exchange during the first week of November. RRSat, which leases capacity on various satellites and offers television programmers "one stop" managed distribution services, raised \$47.5 million, which it will apply to expand its U.S. operations. Globalstar and Orbcomm respectively raised \$127.5 and \$101.2 million, which will be applied to the development and procurement of next-generation satellite systems.

Arianespace To Launch TerreStar 1

On November 8, *TerreStar Networks Inc.*, a subsidiary of *Motient Corporation*, and *Arianespace* announced a "Launch on Demand" contract for the *TerreStar 1* satellite, the largest commercial communications satellite scheduled to be launched into geostationary orbit. The spacecraft, currently under construction by *Space Systems/Loral*, is expected to weigh 6,700 kilograms at launch. The contract is a first in the industry and provides TerreStar a flexible launch window commencing in November 2007, with options for two additional launch services that can be assigned to TerreStar affiliates for operations in Europe or elsewhere. The TerreStar launch services will be performed as dedicated missions, most likely aboard *Ariane 5 GS* vehicles, which are being phased out in favor of the high-lift *5 ECA* variant.

October Satellite Orders & Launches

The *Federal Republic of Nigeria* and *Surrey Satellite Technology Ltd* on November 6 signed a contract for delivery of the *NIGERIASAT-2* Earth observation satellite, related ground infrastructure and a training program intended to further establish a national indigenous space capability. The spacecraft, expected to weigh 300 kilograms at launch, will be equipped with two imaging instruments, the first with 2.5-meter panchromatic and 5 meter multi-spectral resolution and swath width of 20 kilometers, and the second with 32-meter resolution and swath width of 300 kilometers. NIGERIASAT-2 will also include a 16 gigabyte solid state data recorder and the capability to download images at rates of up to 210 megabits per second. The satellite is scheduled for launch in 2009 and will operate in a 700-kilometer polar orbit. On November 9, an *International Launch Services Proton Breeze M* launch vehicle successfully placed the *BADR-4* satellite into geostationary transfer orbit from the *Baikonur Cosmodrome* in Kazakhstan for the *Arab Satellite Communications Organization* (ARABSAT). The 3,300 kilogram spacecraft, based on the *EADS Astrium Eurostar E2000+* platform, is equipped with a 32 Ku-band transponder payload supplied by *Alcatel Alenia Space*. BADR-4 will be positioned at ARABSAT's 26°EL video neighborhood to provide direct-to-home, voice and data communications services across the Middle East, North Africa and parts of Europe. On November 20, *Orbital Sciences Corporation* announced that it had been selected by *SES NEW SKIES* to deliver the *NSS-9* satellite. Based on Orbital's *STAR™2* platform, the spacecraft will be equipped with 28 active transponders and generate 2.3 kilowatts of payload power. Scheduled for launch in 2008, NSS-9 will be initially operated at the 183°EL orbital position, however may eventually be deployed to other SES orbital positions. The next day, SES NEW SKIES affiliate *SES ASTRA* announced that it had awarded *EADS Astrium* a contract for construction of the *ASTRA 3B* satellite. The spacecraft, based on the *Eurostar E3000* platform and designed for the distribution of direct-to-home and two-way broadband services across Europe, will feature a hybrid Ku- and Ka-band payload consisting of 52 transponders, 20 of which are intended to replace existing in-orbit capacity and the remaining 32 will offer new capacity at SES ASTRA's 23.5°EL "video hotspot" for European broadcast services. ASTRA 3B is currently scheduled for launch by the end of 2009.

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