新しいディジタルビーコン受信機の開発状況

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Current status of development of new digital beacon receiver

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We have successfully conducted observations of total-electron content (TEC) of the ionosphere using a satellite-to-ground beacon experiment. A unique dual-band (150/400MHz) digital receiver GRBR (GNU Radio Beacon Receiver) was developed based on the recent digital-signal processing technologies. Now there are 2 new beacon-satellite projects on the way. One is TBEx (Tandem Beacon Explorer), a project by SRI International, to fly a constellation of two 3U cubesats with triband beacon transmitters. Another one is a constellation of FORMOSAT-7/COSMIC-2 satellites, also with triband (or quad-band) beacon transmitters. All of these satellites will be placed into low-inclination orbits by the same launch vehicle in late 2018. This launch will provide great opportunities to enhance studies of the low-latitude ionosphere. We are now developing the new GRBR system that covers all frequencies (150/400/965/1067 MHz) for dual- or triple-band beacon experiment with these satellites. We will report current status of this development.