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Wide Area Grid technology as a new way to conceive integrated Earth Observation satellite systems: The e-CORCE case

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Space applications are to-day participating to our everyday life on a continuous fashion and most of the time in an invisible way. Meteorology, telecom and more recently GPS driven applications are these days fully participating to our modern and comfortable way of life. Therefore a new revolution is underway by which Space Remote Sensing technology will bring the full of the Earth available in a digital form. Present requirements for digital Earth creation at high resolution requirement are pushing space technology to a new technological frontier that could be called the: 1 day to one week, 1 meter, 1 Earth, challenge.The e-CORCE vision (e-Constellation d'Observation Recurrente Cellulaire) relies on a complete new avenue to create a full virtual earth with the help of small satellite constellation and make them operated as sensors connected to a powerful internet based ground network. To handle this incredibly high quantity of information (10 000 Billions metric pixel), maximum use of psycho-visual compression associated to over-simplified platforms considered as space IP nodes and a massiveWorld-wide Gridbased system composed of more than 40 receiving and processing nodes is contemplated. The presentation will introduce the technological hurdles and the way modern upcoming cyber-infrastructure technologies called WAG (Wide Area Grid) may open a practical and economically sound solution to this never attempted challenge.