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AN ECONOMICAL BREAKTHROUGH TO COME WITH THE 4TH WAVE REVOLUTION  
BROUGHT BY "VIRTUAL GLOBE" OBSERVING SYSTEMS

**Abstract**

Optical Observation of the Earth has been herald in the 80s with the 1st wave Landsat program followed 10 years later with the 2nd wave illustrated by Spot opening large scale commercial activities. The present third wave is focused on cheap and numerous satellites constellation but unchanged commercial rules. Will it stay like this ? Let's have a dream and imagine what will be in a century time Optical Earth Observation ?

The 4 th wave will simply reproduce our Planet in full and continuously to the smallest details. In other word, create a Planet avatar (as a virtual GLOBE) permanently updated that anyone can access or visit anytime (as does Google-Earth with a painful process and on a yearly basis). The planet "cinema" is to be invented but not as a naive copy at 24fs but 1fd (1 frame a day) Such Earth observing system is then becoming a kind of Xerox machine , automatically reproducing the planet with clients getting hold of their images by simple access to this full virtual planet reproduction. Economical consequence are enormous since:

- The Space infrastructure and its use is a stable CAPEX figure which once amortised makes imagery production nearly cost-less
- The number of clients is nearly unlimited since in any circumstance the image data over any place and whatever the needed surface, are available
- The running of the system can be in theory unmanned since no operations apart maintenance make profits getting higher while products get cheaper.
- No market limits (any request can be served anytime)
- As a time machine, get hold of the "previous" pictures "before" any event happen !!

In theory such a machinery could even work without much intervention creating a strange robot machinery with a kind a brain (AI applications) continuously connected to eyes (the alive virtual planet)

This 4th wave will carry incredible economical consequences with figures of merit multiplied by more than 1500 ! (5 time less expensive/sqKm and 365 time better time continuity):

Is it Science fiction or magic ? Certainly not, but this is under way with a European initiatives like the "v-GLOBE" program pioneered by the European Blue Planet company.

One will describe this striking evolution with insights on the associated technical and economical novel ways to offer a real live planet accessible at inconceivable prices and comfort.