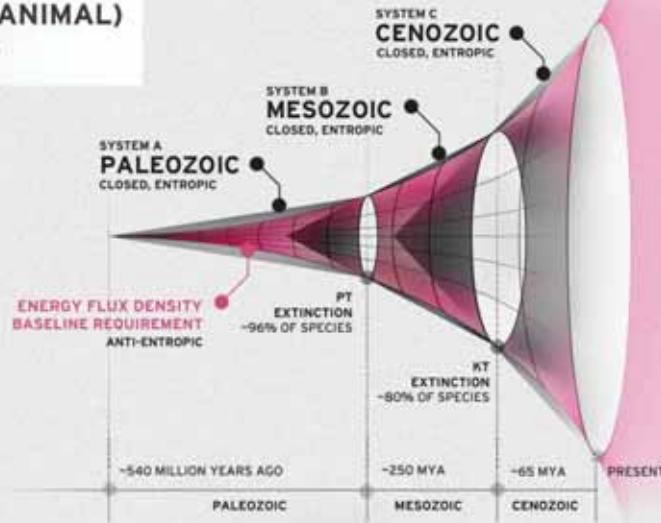
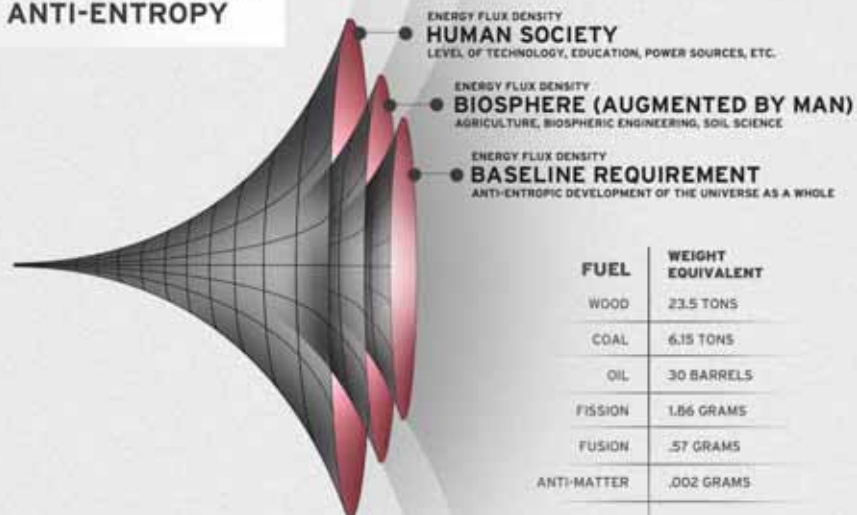


CLOSED (ANIMAL) SYSTEMS



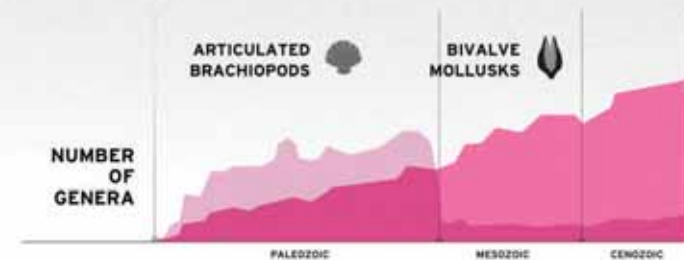
WILLFUL HUMAN ANTI-ENTROPY



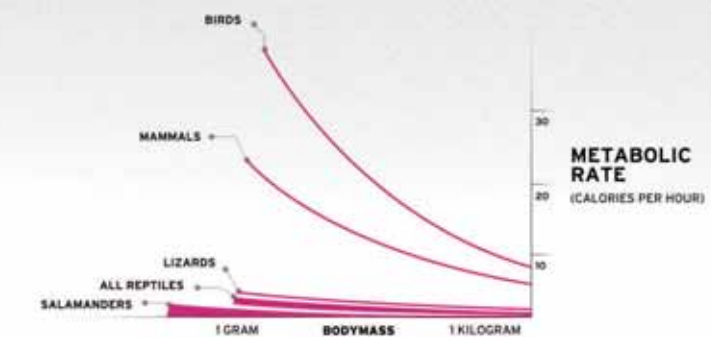
ENERGY FLUX DENSITY



DEVELOPMENT OF PHOTOSYNTHETIC LIFE (LAND)



BIODIVERSITY OF GENERA

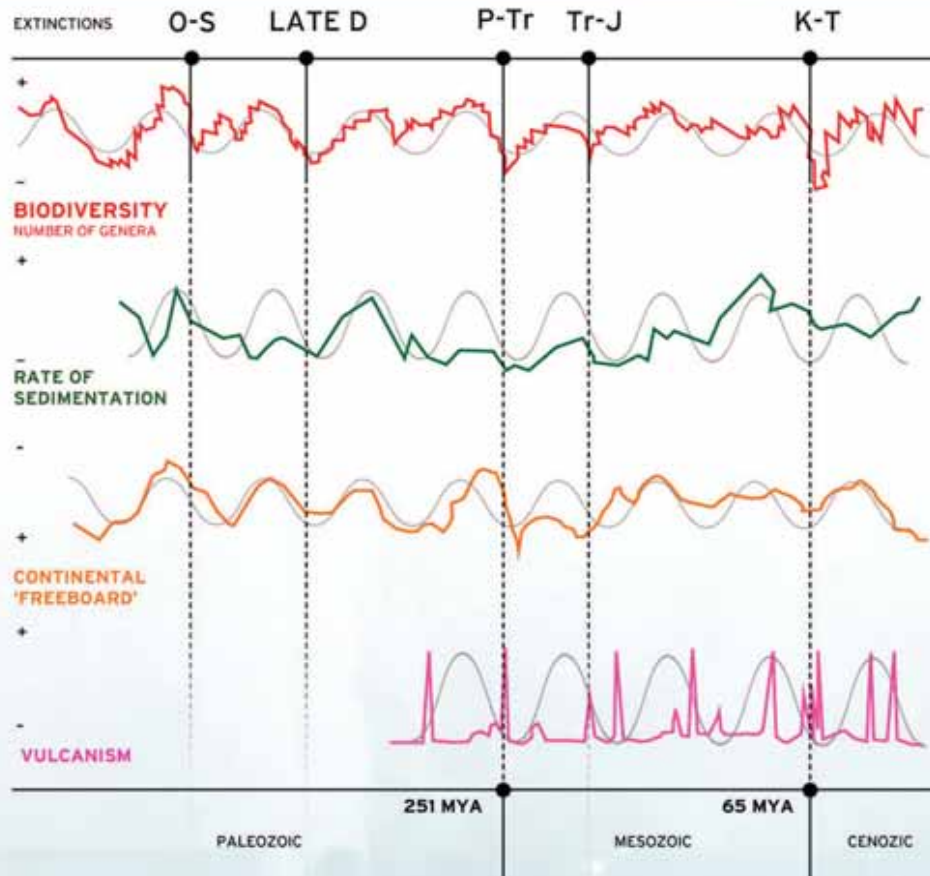


METABOLIC RATES OF SPECIES

GALACTIC CYCLES

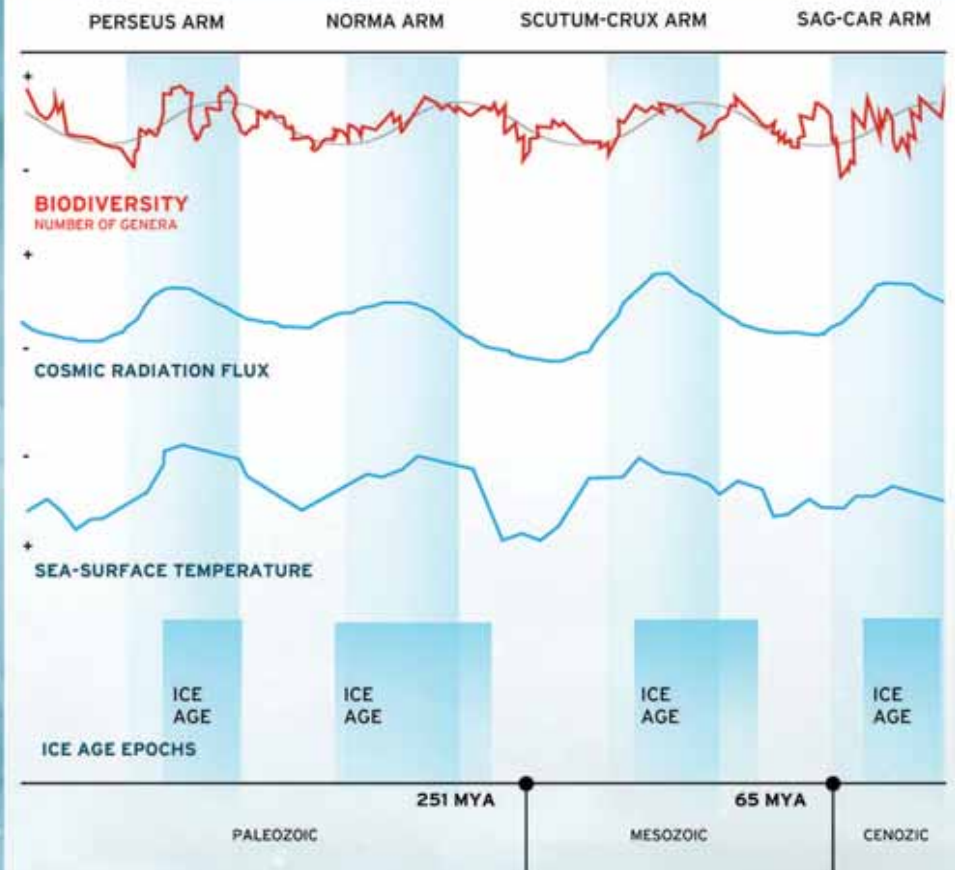
~60 MILLION YEAR CYCLE

TRANSIT OF THE SOLAR SYSTEM ABOVE & BELOW THE PLANE OF OUR GALAXY



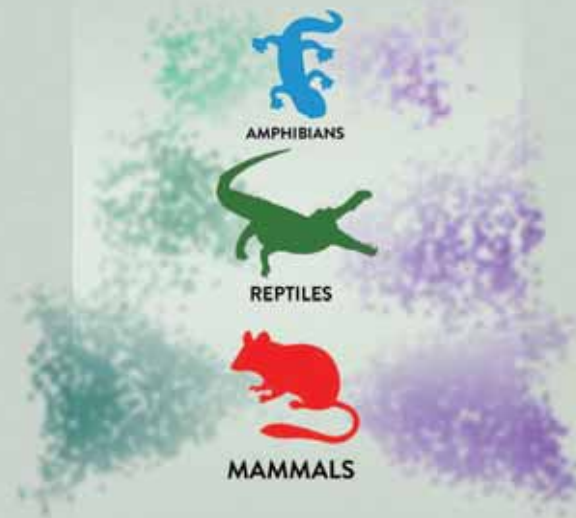
~140 MILLION YEAR CYCLE

TRANSIT OF THE SOLAR SYSTEM THROUGH OUR GALAXY'S SPIRAL ARMS



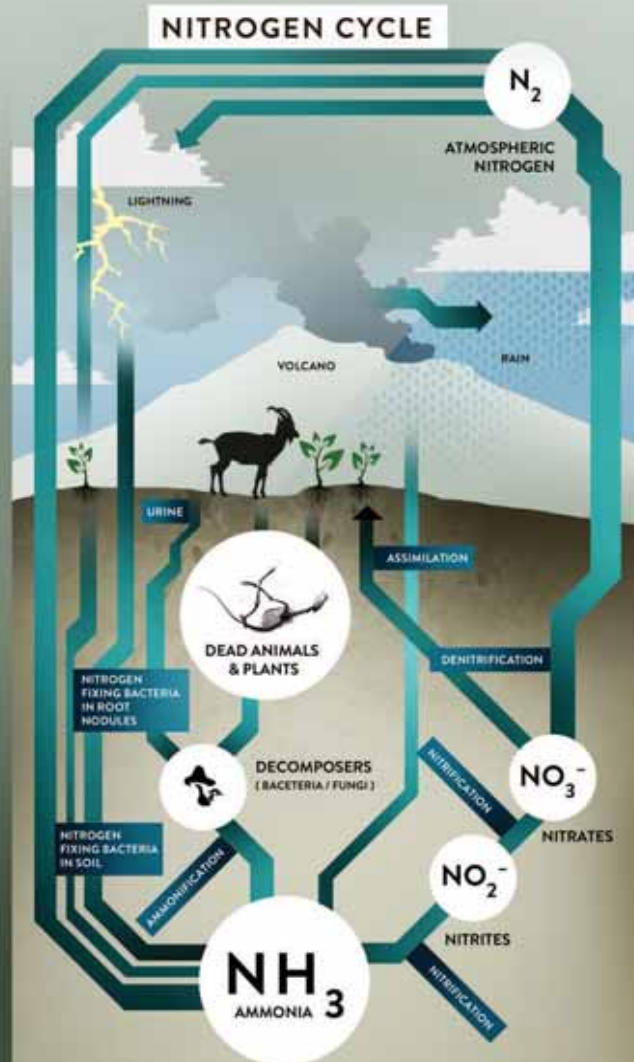
BIOGENIC MIGRATION OF ATOMS

As organisms become more developed, for example with the evolution of life from the amphibian, to the reptilian, to the mammalian form, the biogenic migration of atoms, the amount of material cycling through the organism from the biosphere and back again, increases.



"The evolution of species, leading to the creation of new, stable, living forms, must move in the direction of an increasing of the biogenic migration of atoms in the biosphere..."

-Vladimir Vernadsky
Russian Academician, Biogeochemist



3.7 BILLION YEARS AGO
Early Earth with Dispersed Iron in The Oceans. Cyanobacteria concentrated that iron and released Oxygen into the water.



3.7-2.4 BILLION YEARS AGO
Iron Deposits form through the death of Cyanobacteria. Oxygenated Oceans turn from Green to Blue.

2.4 BILLION YEARS AGO - PRESENT
Man uses the iron deposits in a more organized fashion to build up the Noosphere, pictured here in the form of North American Rail Networks

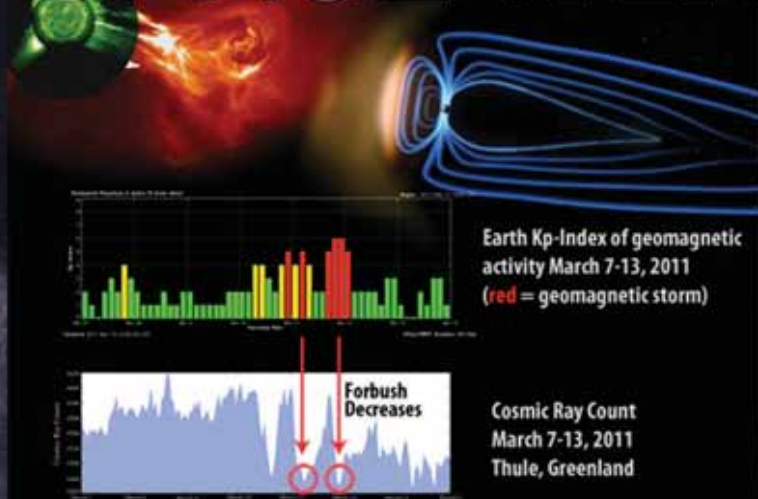


There exists still a third form of biogenic migration of atoms. In our epoch, the psychozoic epoch, this third form begins to take on an extraordinary importance in the history of our planet, it is the migration of atoms, also sustained by organisms, but which is not genetically or immediately related to the penetration or to the passage of atoms through their bodies. This migration is provoked by technological activity.

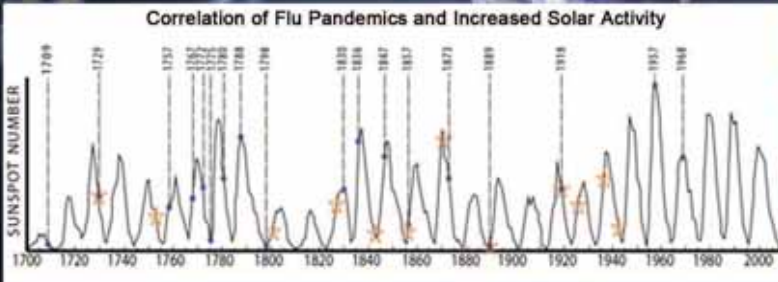
Entirely new bodies have been created in this way, as for example, metals in a free state. The face of the Earth transforms itself and virgin nature disappears. This migration does not seem to be related directly to the mass of living matter; it is conditioned in its essential traits by the work by the work of the thought of the conscious organism.

-Vladimir Vernadsky
Russian Academician, Biogeochemist

SPACE WEATHER

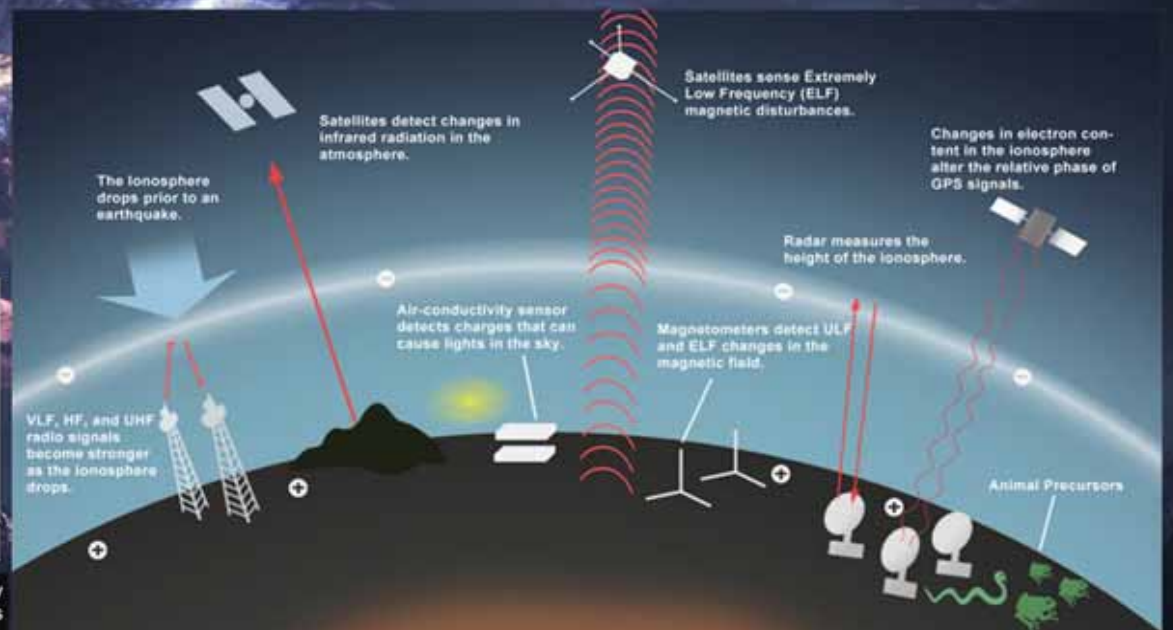
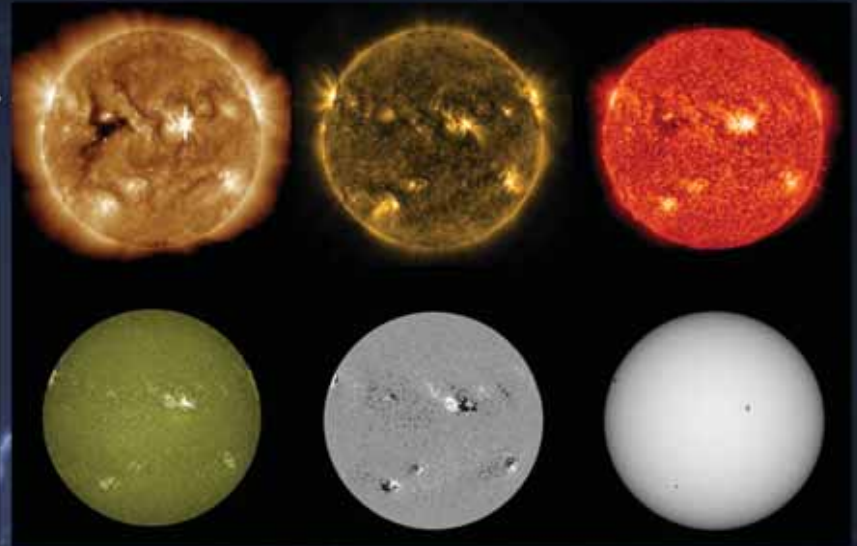


In this image (which is both a dramatic re-enactment, and a presentation of real data), the Sun threw off a coronal mass ejection late on March 7, 2011. This CME (the fastest since 2005, at ~2,200 km/s) struck the Earth's geomagnetic field early on March 11, setting off a series of two strong reverberations over the next 48 hours (in red). Both of these strong geomagnetic storms were immediately followed by a sudden drop in cosmic ray flux, as measured from the neutron detector in Thule, Greenland. These drops in cosmic ray flux, due to the sudden onset of geomagnetic storms, are called Forbush Decreases.



Pandemic influenza mapped against sunspot number and nova occurrences (mostly flare-ups of our near neighbor Nova η Carinae) for the past 300 years. Notice that as solar activity increases, so does the amount of flu pandemics.

Six images of the Sun taken at the same time, but in different wavelengths and using various imaging techniques. The corona is captured well in the top left image, with a dark coronal hole seen in the left center of that image. The bottom center image is a mapping of the magnetic polarity. Notice how the same sunspot appears differently in different images. Credit: NASA Solar Dynamics Observatory.



A diagram of various forms of non-seismic precursors to large earthquakes