



Supercycles, Wilson cycles and the future of Earth's oceans

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At the dawn of the 20th Century Alfred Wegener proposed the existence of a supercontinent – Pangaea - gathering all the continental masses on Earth. Five decades later, while seeding the theory of plate tectonics, Tuzo Wilson introduced a new concept that would become known as Wilson cycles, which describes the evolution of oceans: 1) opening and spreading, 2) foundering of the passive margins and development of new subduction zones and 3) consumption and closure. Later on, in the 70's evidences for the existence of a number of other supercontinents and ancient oceans on Earth's history started to emerge. Today, concepts like supercycles, supercontinents, superoceans and Wilson cycles are loosely used. However, several important questions remain. How do subduction zones initiate in pristine oceans? Which major ocean on Earth will close to form the next supercontinent? The Atlantic (introversion), the Pacific (extroversion), or both? Are Wilson cycles of lower order than Supercycles? Are we in an abnormally long supercycle? Is there any cyclicity at all? These are some of the questions that we will tentatively address together with the proposal of several future scenarios for the evolution of Earth's oceans and continents.