Principal Researcher	Shigenori MARUYAMA	**Number of Researchers**	4
Research Institution • Department • Title	Professor, Graduate School of Science and Engineering, Tokyo Insitutute of Technology	**Location of Institution**	Meguro, Tokyo

Title of Project	Decoding the Earth ' s Evolution, Part II
Abstract of Research Project	We have realized that the catastrophic global-scale mega-events of solid Earth, extensive changes of surface environment, and rapid life evolution accompanying mass-extinction, have closely related each other in time, through the first-stage research Program, ' Decoding the Earth ' s Evolution ' during 1995 to 1998. The next target is to clarify the mechanism for those co-relations, by the well-focused detailed field mapping and sampling, combined with laboratory works by multi-disciplinary analytical methods. The expected results are, (1) quantitative analysis of physico-chemical environment such as water depth, pH, XCO2, XO2, XCH4 and others of early life, together with new discoveries of diversified microfossils at 3.5 Ga, (2) rapid evolution of life, in response to the rapid environmental change, particularly XO2 at 2.7 Ga and 0.75 Ga, (3) rapid P/T change of subduction zone geotherms at 0.75 Ga and its effect to the surface environments, and (4) super-anoxia at 0.25 Ga and its relation to global-scale kimberlitic magmatism. Based on these new data set, the mechanisms of (1) initiation of plate tectonics, (2) mantle overturn, (3) initiation of return flow of seawater into the mantle, and (4) birth of African superplume will be tested.
References	(1) Maruyama, S. and Isozaki, Y. (1998) History of Life and the Earth, Iwanami-Shinsho, Tokyo, 275pp (in Japenese). (2) Maruyama, S., Isozaki, Y., Nakashima, S. and Windley, B.F. (2001), History of the Earth and Life, In ' Geochemistry and the origin of Life ', Eds. by S. Nakashima et al., Universal Academic Press, Inc. Tokyo, Japan, 285-328.
Term of Project	Fiscal years 2003-2007 . (5years)

Budget Allocation (in thousand of yen)	FY2003	FY2004	FY2005	FY2006	FY2007	TOTAL
	16,000	17,000	17,000	17,000	17,000	84,000

Homepage Address	http://www.geo.titech.ac.jp/lab/maruyama/maruyamalab.html