

**LOCAL AND GLOBAL WATERS ON VENUS AND EARTH: POOR PLANETARY SUPPLY ON VENUS.**  
 Y.Miura<sup>1</sup> and T. Tanosaki<sup>2</sup>, <sup>1</sup>Yamaguchi University (Yamaguchi City, Japan; yasmiura50@gmail.com), <sup>2</sup>Kogakuin University (Tokyo, Japan).

**Introduction:** Water on Earth-type planets of the Solar System has been discussed by molecular existence of global water based on facts of water-planet of Earth. The main purpose of the present paper is to elucidate new model of water volatiles of Venetian planet compared with other Earth-type planets [1-4].

**Materials and water volatiles of planets:** Materials are classified as rock (solids), air (gas) and water (liquid), where water Earth has all three materials globally [1]. Venus has global air and rocks as in Mars (Fig.1). Global water molecules (or water ions) have been obtained only water planet of Earth. Local water molecular ions, however, might be stored in all solid rocks of other planets, the Moon and Asteroids, as shown in Fig.1 [1].

	Mercury	Venus	Earth	The Moon	Mars	Asteroids
Size	Medium	Large	Large	Medium small	Medium	Small
Density	High	Higher	Highest	Lower	Medium	Lower
Materials	Rock	<u>Air, Rock</u>	Air, Water, Rock	Rock	Air, Rock	Rock
Water Molecules	Local?	Local? Air (minor)	Global, Local	Local?	Local? Air(minor)	Local?

Fig.1. Size, density, materials and water volatiles of four Earth-type planets, the Moon and asteroids. Earth shows global systems of three materials with global and local waters. However, Venus shows two materials without global water, but possible local water ions on the rocks [1-3].

**Global materials of the Earth-type planets:** Earth-type planets have all solid rock globally, where "global materials" are used for rock (solids), air (gas) and water (liquid). However, other global systems of air and water volatiles are different with the formation of individual planet. At primordial period of the Solar System, all rocks have contained volatile elements and ions during collision process of developed celestial bodies, which is the main process to be mixed volatiles and heavy elements of mixed rocks with "local water molecular ions" discussed here. Figure 2 shows global three materials on Earth, but other planets of Venus and Mars have only two materials without global water.

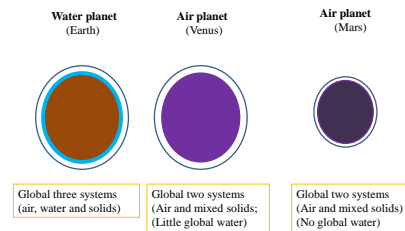


Fig.2. Schematic diagrams of global three systems (Earth) and two systems (Venus and Mars) [1, 2].

**Local and global waters of planets:** Local water has been mixed with solid rock from primordial to present situations of each planet. However global water on planet Earth is difficult to explain the problem of huge amounts of water (H<sub>2</sub>O) and stable location with dynamic exchanges of three materials based only one planet. Therefore, it is proposed for global water system to be mixed with two planetary supplies by rapid process (Fig.3).

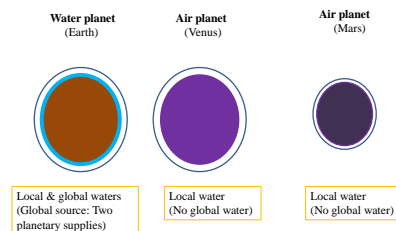


Fig.3. Schematic diagrams of global and local water on three planets.

**Summary:** Brief summary is as follows. (1) Global three materials of rock, air and water can found in the inner Solar System. (2) Local water can be formed by mixing to the rocks, whereas global water found only Earth is required huge supply from two more planets. (3) Venus has no mixed source of global water.

**References:** [1] Miura Y. (2011), *VEXAG-9*, #45, 51. [2] Miura Y. (2012) *LPSCXXXXIII* Abstract #2920. [3] Miura Y., Fukuyama S. (1999) *Journal. Materials Proc. Tech.* (Elsevier), 85, 192-193. [4] Miura Y. (1994): *Astro. Soc. Pacific Conf. Ser.*, 63, 259-264.