[H-CG38_29AM2] Systems of life in closed-ecology on planets
Convener:*Kaori Tomita-Yokotani(Graduate School of Life and Environmental Sciences, University of Tsukuba), Hiroshi Kojima(none), Chair:Kaori Tomita-Yokotani(Graduate School of Life and Environmental Sciences, University of Tsukuba)
Tue. Apr 29, 2014 11:00 AM - 12:45 PM  424 (4F)
Living creatures on the earth have been evolved since its origin a long time ago. They equip several important functions affecting each other. Knowledge on those functions and interaction of the ecology is essential for secure design of a closed-ecosystem with limited number of living species under the harsh environments, such as space and deep sea or desert.

12:30 PM - 12:45 PM

[HCG38-P01_PG] Growth of Hydrobryum puncticulatum(Yakushimakawagoromo) may be blocked by the increase of Melosira varians in Isso River
3-min talk in an oral session
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Keywords:Hydrobryum puncticulatum, periphyton, Yakushima, nutrient

*Hiroyuki KITABUCHI and his colleagues from the University of Shiga Prefecture, Toyohashi University of Technology, Yakutane-goyou Research Group, Environmental System Co., Ltd, and Nikkaki Bios Co., Ltd, presented a study examining the impact of increasing Melosira varians on Hydrobryum puncticulatum, a national monument and endangered species found in the Isso River of Yakushima. For the first time in their observation, an increase of Melosira varians was observed to cover Hydrobryum puncticulatum from 2011, posing a serious concern. The study aimed to clarify the cause of the bloom of Melosira varians.

To examine this, the team measured the annual variability of dissolved nutrient concentration, which was most accessible to Melosira varians. From 2009 to 2013, there was no increase in concentration of NO₃-N, SiO₂-Si. Additionally, PO₄-P was much lower (0.003±0.001 mg/l). This suggests that the increase of Melosira varians was not related to dissolved nutrient concentration in Isso river. The team also considered the possibility that the floating mud deposited during dry-spell could have contributed to nutrient intake, similar to how algae can take up dissolved nutrients.

Therefore, the team concluded that Melosira varians may intake suspended nutrient, and this nutrient can be taken up by both Melosira varians and Hydrobryum puncticulatum, suggesting that the ecosystem may be able to sustain nutrient intake from suspended sources.