

## Water quality characteristics and the material circulation in Lake Issyk-kul and its catchment, in Kyrgyz

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### 1. Introduction

Saline Lake is relatively less number than freshwater lakes, also because it is present under the harsh environment of arid regions, are said to have relatively fewer studies than freshwater lakes, A.Lerman 1984.

In the case of Lake Issyk-kul , affect to how Lake Issyk-kul substance to be transported from the catchment various rivers, with the decrease of water level, discussion of whether water circulation of the lake is going to change how the very few. In addition, clarification of water quality mechanism in polar regions is, it can be said that there is significance in elucidating the Earth system, a comparative study of the freshwater lake. In this study, in order to clarify the mass balance of Lake Issyk-kul and its catchment area, a study was conducted for the dissolved substance of the inflow rivers to the lake.

### 2. research methods

The rivers and groundwater, lakes was carried out three times over the summer in 2012 - 2014 the local observation at the center in Lake Issyk-kul. Survey sites in 42 point, 31 point rivers, lakes 9 point, the groundwater two points were carried out. Temperature, water temperature, EC, pH and the field observation, measurement of TOC from samples brought back and subjected to principal component analysis dissolved by ion chromatography.

### 3. Conclusion

Generally the river is a Ca-HCO<sub>3</sub> type, in Lake north and south Among them, ion concentration of dissolved substances is low. On the other hand, high ion concentration in the lake east and west, the difference of the geology of the influence of the difference of basin characteristics were observed. In comparison with the water quality composition of salt lakes of the world, water quality composition of Lake Issyk-kul is a Na-Mg-Cl-SO<sub>4</sub> type, balance of salts that are relatively dissolved is good. This is, through the catchment rivers and groundwater, I considered carbonate is because it has been supplied many from the catchment. Also, seen many geology of igneous system in Hunan part, I believed to be one of the causes also the supply many of SO<sub>4</sub><sup>2-</sup>. Ca<sup>2+</sup> and HCO<sub>3</sub><sup>-</sup> For, it has been suggested that precipitated as CaCO<sub>3</sub> and CaSO<sub>4</sub>. If we examine these solubility product, although a supersaturated state, considering that it is a natural waters, it is considered reasonable, it is necessary to further verification.

### Reference

A.S.Karmanchuk(2002):WaterChemistry and Ecology of Lake Issyk-Kul,NATO ScienceSeries,13,13-26

Keywords: Saline Lakes, Closed Lake, Arid Region, Water Quality

