A Big Earth Data Platform for Three Poles

**Characteristics of Hydrochemistry in Lake Balkhash Catchment, Kazakhstan (2019)**

1、Description

In this study, major ions in water samples from the Lake Balkhash catchment were analyzed using an integration of mathematical statistics, Piper three-line map, Gibbs model and principal component analysis (PCA). Water types and main mechanisms controlling the hyrdochemistry presented a visible spatial heterogeneity. The chemical composition of lake waters was dominant with SO4-Na and Cl-Na, whereas river waters were classified as HCO3-Ca. The chemical composition downward the Ili River waters evolved from bicarbonate to sulfate and chlorination type. Gibbs model suggested that the main mechanisms control the lake water chemistry were evaporation-crystallization processes and major ions in river water were affected by the processes of rock-weathering and evaporation. The controlling factors in water chemistry changed from the upstream to downstream of the Ili River, which may be contributed to the lager impacts of precipitation and discharge of snow melting water on the upper waters, whereas more influence of evaporation on the lower waters. Furthermore, PCA analysis showed that human activities also play an important role in the chemical composition of lake water, middle and lower reaches of Ili River and other rivers.

2、Keywords

Theme：Water Quality/Water Chemistry  
Discipline：Terrestrial Surface  
Places：The Lake Balkhash catchment  
Time：2019

3、Data details

1.Scale：None

2.Projection：

3.Filesize：0.15MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：50.0 | - |
| west：70.0 | - | east：88.0 |
| - | south：40.0 | - |

5、Time frame:2020-01-12 16:00:00+00:00--2020-01-12 21:43:39+00:00

6、Reference method

References to data:

WU Jinglu. Characteristics of Hydrochemistry in Lake Balkhash Catchment, Kazakhstan (2019). A Big Earth Data Platform for Three Poles, doi:10.11888/Hydro.tpdc.2704482020

References to articles:

7、Supporting project information

Pan-Third Pole Environment Study for a Green Silk Road-A CAS Strategic Priority A Program

8、Data resource provider

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