1. Data production, format, and attribute description
   1. Data generation

Please also kindly cite the following articles and review them for details about data production:

* 1. Vector data format
* ‘Lake\_Relative\_Volume\_Change’ is the lake extents file containing the annual Relative Lake Volume (RLV) of 976 lakes from 1989 to 2019 in the Tibetan Plateau. The longitude, latitude, the regression method, and the DEM data source information are also contained.
* ‘Lake\_ Area’ is the lake extents file which contains the annual lake area of the 976 lakes from 1989 to 2019. The longitude and latitude information is also contained.
* ‘Lake\_Seeds’ is the lake seeds file.
  1. Attribute table (see Table 1 and 2 for lake RLV and area, respectively)

Table 1: Attribute table of lake extents (points) layers with RLV

|  |  |
| --- | --- |
| **Column** | **Description** |
| LakeID | Unique lake identifier |
| Longitude | Longitude of lake |
| Latitude | Latitude of lakes |
| yyyy  (‘yyyy’ is the year format, e.g., 2002) | Lake RLV data for each year. The unit of RLV data is km3. |
| Method | The method used for lake area-elevation simulation.  LRN means linear regression because of no data or only 1 data pair in [MinA/1.5, MaxA\*1.5] of Landsat lake area.  LRC means linear regression because only two data pairs in [MinA/1.5, MaxA\*1.5] of Landsat lake area.  MCI means monotonic cubic interpolation.  PR means polynomial regression  LRS means linear regression because the symmetry axis in trained PR fell in [MinA, MaxA] of the Landsat lake area. |
| DEM | The DEM data source is used in RLV calculation.  SRTM means the Shuttle Radar Topography Mission digital elevation model data was used for RLV calculation.  ALOS means the Advanced Land Observing Satellite digital surface model data was used for RLV calculation. |

Table 2: Attribute table of lake extents (polygons) layers with area

|  |  |
| --- | --- |
| **Column** | **Description** |
| LakeID | Unique lake identifier |
| Longitude | Longitude of lake |
| Latitude | Latitude of lakes |
| yyyy | Lake RLV data for each year. The unit of area data is m2. |