Lake storage variation on the endorheic Tibetan Plateau and its attribution to climate change since the new millennium

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Supplementary Information

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Figure S1. Base areas and minimum areas for 871 studied lakes. Lakes with extrapolated hypsometry are those with minimum areas less than base areas (red dots below the diagonal line).
Supplementary Table S1

Table S1. Detailed information of lakes used for volume validation (Source: Messager et al [4]).

| Lake Name                | Longitude | Latitude | Size (km²) | Total Volume (Gt) | Elevation (m) |
|--------------------------|-----------|----------|------------|-------------------|---------------|
| SilingCo                 | 89.05     | 31.78    | 1748.21    | 49.00             | 4539          |
| NamCo                    | 90.66     | 30.71    | 1961.90    | 87.12             | 4724          |
| Ayakkum                  | 89.43     | 37.56    | 616.65     | 6.16              | 3876          |
| LexieWudan               | 90.21     | 35.74    | 220.80     | 3.68              | 4870          |
| Aksayquin                | 79.82     | 35.22    | 165.96     | 1.59              | 4844          |
| UlanUla                  | 90.36     | 34.76    | 480.82     | 7.98              | 4855          |
| Dogai Coring             | 89.00     | 34.55    | 360.11     | 6.63              | 4818          |
| LumajangdongCo           | 81.64     | 34.05    | 346.93     | 15.64             | 4812          |
| Namru                    | 90.84     | 32.08    | 207.02     | 2.63              | 4568          |
| Ngangla Ringco           | 83.05     | 31.57    | 497.66     | 5.00              | 4716          |
| TarongCo                 | 84.33     | 31.18    | 473.29     | 16.15             | 4567          |
| Zhari Namco              | 85.64     | 30.95    | 957.20     | 23.95             | 4612          |
| Tangra                   | 86.50     | 30.95    | 824.31     | 99.01             | 4535          |
| Dorsoi.pngco & Migriggyangzhamco | 90.25     | 33.62    | 877.81     | 20.15             | 4936          |
| Dogaicoring-Q*           | 89.26     | 35.32    | 208.99     | 1.33              | 4787          |
| DagazeCo*                | 87.53     | 31.89    | 251.37     | 2.13              | 4465          |
| PengCo*                  | 90.97     | 31.51    | 148.02     | 1.81              | 4529          |
| Xuelian*                 | 90.23     | 34.11    | 40.22      | 0.23              | 5275          |

* lakes without ICESat hypsometry
Supplementary Table S2

Table S2. Summary of changes in lake water storage (LWS), P-ET (net precipitation, estimated from mascon data with GLDAS-modeled scale factors) and non-lake water storage (NLWS) across the CP. All uncertainties are 95% confidence intervals.

| Periods                        | LWS      | P-ET     | NLWS     |
|-------------------------------|----------|----------|----------|
|                               | Gt yr⁻¹  | Gt yr⁻¹  | % of ∆LWS| Gt yr⁻¹  | % of ∆LWS |
| Increasing P-ET period (2002–2012) | 9.05 ± 0.65 | 6.89 ± 0.27 | 76.13 ± 5.83 | -2.16 ± 0.70 | -23.87 ± 8.08 |
| Decreasing P-ET period (2013–2015) | -8.09 ± 3.37 | -14.98 ± 2.03 | 185.17 ± 74.44 | -6.89 ± 3.93 | -85.17 ± 56.33 |
| Entire study period (2002–2015)  | 7.34 ± 0.62 | 4.66 ± 0.18 | 63.49 ± 5.39 | -2.68 ± 0.65 | -36.51 ± 9.58 |