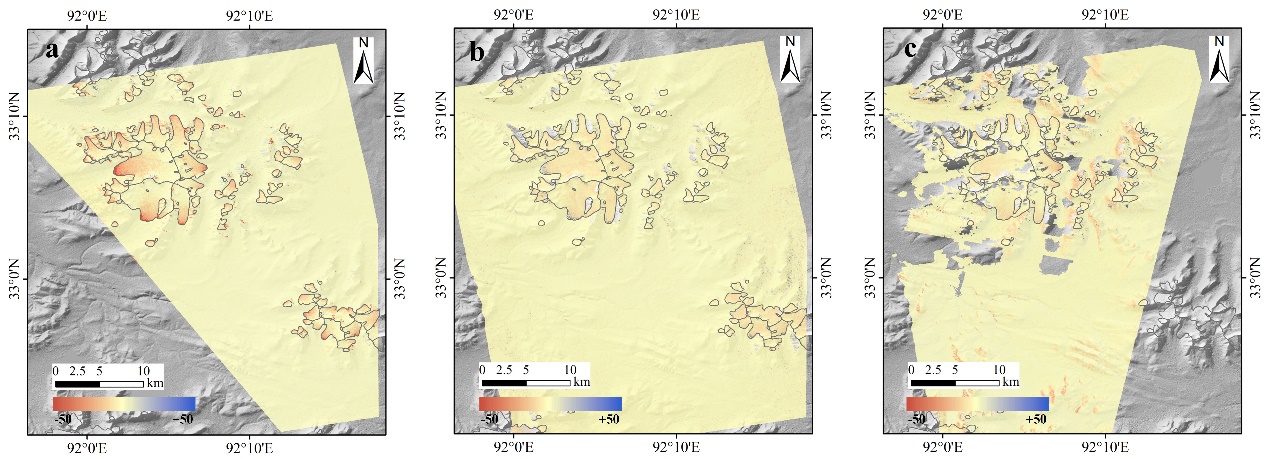
Annual mass balance time series of Dongkemadi Glacier, 2000-2020, from a linear albedo-based model using geodetic data and validated with the glaciological method

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**Table S1** Annual glacier mass balances in 2000-2020 estimated from the parameter scenarios t12, t13, t23 and Hugonnet (Numbers listed in this table are rounded to two decimal places).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year** | **Scenario t12**  **(m w.e.)** | **Scenario t13**  **(m w.e.)** | **Scenario t23**  **(m w.e.)** | **Scenario Hugonnet (m w.e.)** |
| 2000 | −0.43±0.27 | −0.39±0.21 | −0.49±0.48 | -0.41±1.18 |
| 2001 | 0.10±0.29 | −0.03±0.22 | 0.27±0.50 | 0.02±1.29 |
| 2002 | −0.51±0.27 | −0.45±0.20 | −0.60±0.48 | -0.47±1.16 |
| 2003 | 0.14±0.30 | 0.00±0.22 | 0.34±0.51 | 0.06±1.31 |
| 2004 | −0.06±0.28 | −0.14±0.21 | 0.04±0.49 | -0.11±1.26 |
| 2005 | −0.15±0.28 | −0.20±0.21 | −0.08±0.49 | -0.18±1.24 |
| 2006 | −1.17±0.24 | −0.90±0.19 | −1.54±0.46 | -1.00±1.04 |
| 2007 | −0.53±0.27 | −0.46±0.20 | −0.63±0.48 | -0.49±1.16 |
| 2008 | 0.35±0.31 | 0.15±0.23 | 0.64±0.52 | 0.23±1.35 |
| 2009 | −0.04±0.29 | −0.12±0.22 | 0.08±0.50 | -0.09±1.26 |
| 2010 | −1.14±0.24 | −0.88±0.19 | −1.50±0.46 | -0.98±1.05 |
| 2011 | −0.24±0.28 | −0.26±0.21 | −0.22±0.49 | -0.25±1.22 |
| 2012 | −1.05±0.25 | −0.82±0.19 | −1.37±0.46 | -0.90±1.06 |
| 2013 | −1.27±0.24 | −0.97±0.18 | −1.69±0.45 | -1.08±1.24 |
| 2014 | −0.67±0.26 | −0.55±0.20 | −0.82±0.47 | -0.60±1.13 |
| 2015 | −1.06±0.25 | −0.83±0.19 | −1.39±0.46 | -0.91±1.06 |
| 2016 | −1.21±0.24 | −0.93±0.19 | −1.60±0.45 | -1.03±1.03 |
| 2017 | −0.28±0.28 | −0.29±0.21 | −0.27±0.49 | -0.29±1.21 |
| 2018 | −0.88±0.25 | −0.70±0.19 | −1.13±0.47 | -0.77±1.09 |
| 2019 | −0.69±0.26 | −0.57±0.20 | −0.85±0.47 | -0.61±1.13 |
| 2020 | −0.21±0.28 | −0.24±0.21 | −0.17±0.49 | -0.23±1.23 |



**Fig. S1.** Surface elevation changes for the Dongkemadi Glacier and its surroundings during the time periods of 2000–2012 (a), 2012–2014 (b), and 2014–2018 (c).



**Fig. S2.** The distribution of the elevation differences over the off-glacier regions (three-sigma filter was used to identify outliers) during the time periods of 2000–2012 (a), 2012–2014 (b), and 2014–2018 (c). Med is the median value and SD is the standard deviation.