****

**Figure S1:** Scatterplot showing DEM differencing off the glacier terrain. Points outside the green and red lines indicate outliers in the DEM differencing results.

****

**Figure S2:** Bias-corrected off-glacier terrain DEM differencing. A bias-correction of +23 m was applied to TanDEM-X data. Mean Bias after terrain correction: -0.02 m

****

**Figure S3:** Scatterplot of DEM differencing over glaciated area indicating surface changes.Points outside the green and red lines indicate outliers in the DEM differencing results on the glacier surface.

**Table S1. Comparison of glacier recession in Pangong Region with other neighboring regions of western Himalaya**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No.** | **Geographic location** | **Total Loss** | **Assessment Period (decades)** | **Loss per Decade** | **Reference** |
| 1 | Kashmir Valley,  Jammu and Kashmir | 28.82% | 1980-2018  (3.8) | 7.58% | Romshoo et al. 2020 |
| 2 | Sind Basin,  Dras Basin,  Lidder Basin,  Jammu and Kashmir | 12% | 1996-2014  (1.8) | 6.6% | Ali et al. 2017 |
| 3 | Harmukh Range,  Jammu and Kashmir | 16.47% | 1992-2018  (2.6) | 6.33% | Murtaza et al. 2021 |
| 4 | Tirungkhad Basin,  Himachal Pradesh | 26.1% | 1966-2011  (4.5) | 5.8% | Mir et al. 2014 |
| 5 | Ladakh Range,  Jammu and Kashmir | 12.8% | 1991-2014  (2.3) | 5.56% | Chudley et al. 2017 |
| 6 | Lidder Valley,  Jammu and Kashmir | 17.92% | 1980-2013  (3.3) | 5.43% | Murtaza and Romshoo 2017 |
| 7 | Baspa Basin,  Himachal Pradesh | 18.1% | 1976-2011  (3.5) | 5.17% | Mir et al. 2017 |
| 8 | Warwan Basin,  Jammu and Kashmir | 19% | 1962-2001  (3.9) | 4.87% | Brahmbhatt et al. 2012 |
| 9 | Zanskar Basin,  Jammu and Kashmir | 15.03% | 1977-2013  (3.6) | 4.17% | Shukla and Qadir 2016 |
| 10 | Kang Yatze Massif,  Jammu and Kashmir | 14% | 1969-2010  (4.1) | 3.41% | Schmidt and Nusser 2012 |
| 11 | Beas Basin,  Himachal Pradesh | 11.6% | 1972-2006  (3.4) | 3.41% | Dutta et al. 2012 |
| 12 | Lahaul and Spiti  Himachal Pradesh | 7.45% | 1971-2016  (4.5) | 3.24 | Das and Sharma 2019 |
| 13 | Bhut Basin,  Jammu and Kashmir | 9% | 1962-2001  (3.9) | 2.31% | Brahmbhatt et al. 2012 |
| 14 | **Pangong Region,**  **Jammu and Kashmir** | **6.7%** | **2.9** | **2.3%** | **Present study** |
| 15 | Suru Basin,  Jammu and Kashmir | 6% | 1971-2017  (46) | 1.3% | Shukla et al. 2020 |

**References:**

1. Romshoo, S. A., Fayaz, M., Meraj, G., and Bahuguna, I. M. (2020). Satellite-observed glacier recession in the Kashmir Himalaya, India, from 1980 to 2018. *Environmental Monitoring and Assessment*, 192(9), 1-17. doi: 10.1007/s10661-020-08554-1
2. Ali, I., Shukla, A., and Romshoo, S. A. (2017). Assessing linkages between spatial facies changes and dimensional variations of glaciers in the upper Indus Basin, western Himalaya. *Geomorphology*, 284, 115-129. doi: 10.1016/j.geomorph.2017.01.005
3. Murtaza, K. O., Dar, R. A., Paul, O. J., Bhat, N. A., and Romshoo, S. A. (2021). Glacial geomorphology and recent glacial recession of the Harmukh Range, NW Himalaya. *Quaternary International*, 575, 236-248. doi: 10.1016/j.quaint.2020.08.044
4. Mir, R. A., Jain, S. K., Saraf, A. K., and Goswami, A. (2014). Glacier changes using satellite data and effect of climate in Tirungkhad basin located in western Himalaya. *Geocarto International*, 29(3), 293-313. doi: 10.1080/10106049.2012.760655
5. Chudley, T. R., Miles, E. S., and Willis, I. C. (2017). Glacier characteristics and retreat between 1991 and 2014 in the Ladakh Range, Jammu and Kashmir. *Remote Sensing Letters*, 8(6), 518-527. doi: 10.1080/2150704X.2017.1295480
6. Murtaza, K. O., and Romshoo, S. A. (2017). Recent glacier changes in the Kashmir alpine Himalayas, India. *Geocarto International*, 32(2), 188-205. doi: 10.1080/10106049.2015.1132482
7. Mir, R. A., Jain, S. K., Jain, S. K., Thayyen, R. J., and Saraf, A. K. (2017). Assessment of recent glacier changes and its controlling factors from 1976 to 2011 in Baspa basin, western Himalaya. *Arctic, Antarctic, and Alpine Research*, 49(4), 621-647. doi: 10.1657/AAAR0015-070
8. Brahmbhatt, R. M., Bahuguna, I. M., Rathore, B. P., Kulkarni, A. V., Nainwal, H. C., Shah, R. D., & Ajai. (2012). A comparative study of deglaciation in two neighbouring basins (Warwan and Bhut) of Western Himalaya. *Current Science*, 298-304.
9. Shukla, A., and Qadir, J. (2016). Differential response of glaciers with varying debris cover extent: evidence from changing glacier parameters. *International Journal of Remote Sensing*, 37(11), 2453-2479. doi: 10.1080/01431161.2016.1176272
10. Schmidt, S., and Nüsser, M. (2012). Changes of high altitude glaciers from 1969 to 2010 in the Trans-Himalayan Kang Yatze Massif, Ladakh, northwest India. *Arctic, Antarctic, and Alpine Research*, 44(1), 107-121. doi: 10.1657/1938-4246-44.1.107
11. Dutta, S., Ramanathan, A. L., and Linda, A. (2012). Glacier fluctuation using satellite data in Beas basin, 1972–2006, Himachal Pradesh, India. *Journal of Earth System Science*, 121(5), 1105-1112. doi: 10.1007/s12040-012-0219-1
12. Das, S., and Sharma, M. C. (2019). Glacier changes between 1971 and 2016 in the Jankar Chhu Watershed, Lahaul Himalaya, India. *Journal of Glaciology*, 65(249), 13-28. doi: 10.1017/jog.2018.77
13. Romshoo, S. A., Fayaz, M., Meraj, G., and Bahuguna, I. M. (2020). Satellite-observed glacier recession in the Kashmir Himalaya, India, from 1980 to 2018. *Environmental Monitoring and Assessment*, 192(9), 1-17. doi: 10.1007/s10661-020-08554-1
14. Shukla, A., Garg, S., Mehta, M., Kumar, V., and Shukla, U. K. (2020). Temporal inventory of glaciers in the Suru sub-basin, western Himalaya: impacts of regional climate variability. *Earth System Science Data*, 12(2), 1245-1265. doi: 10.5194/essd-12-1245-2020