

The second Comprehensive Scientific investigation and research exhibition series on the Qinghai-Tibet Plateau

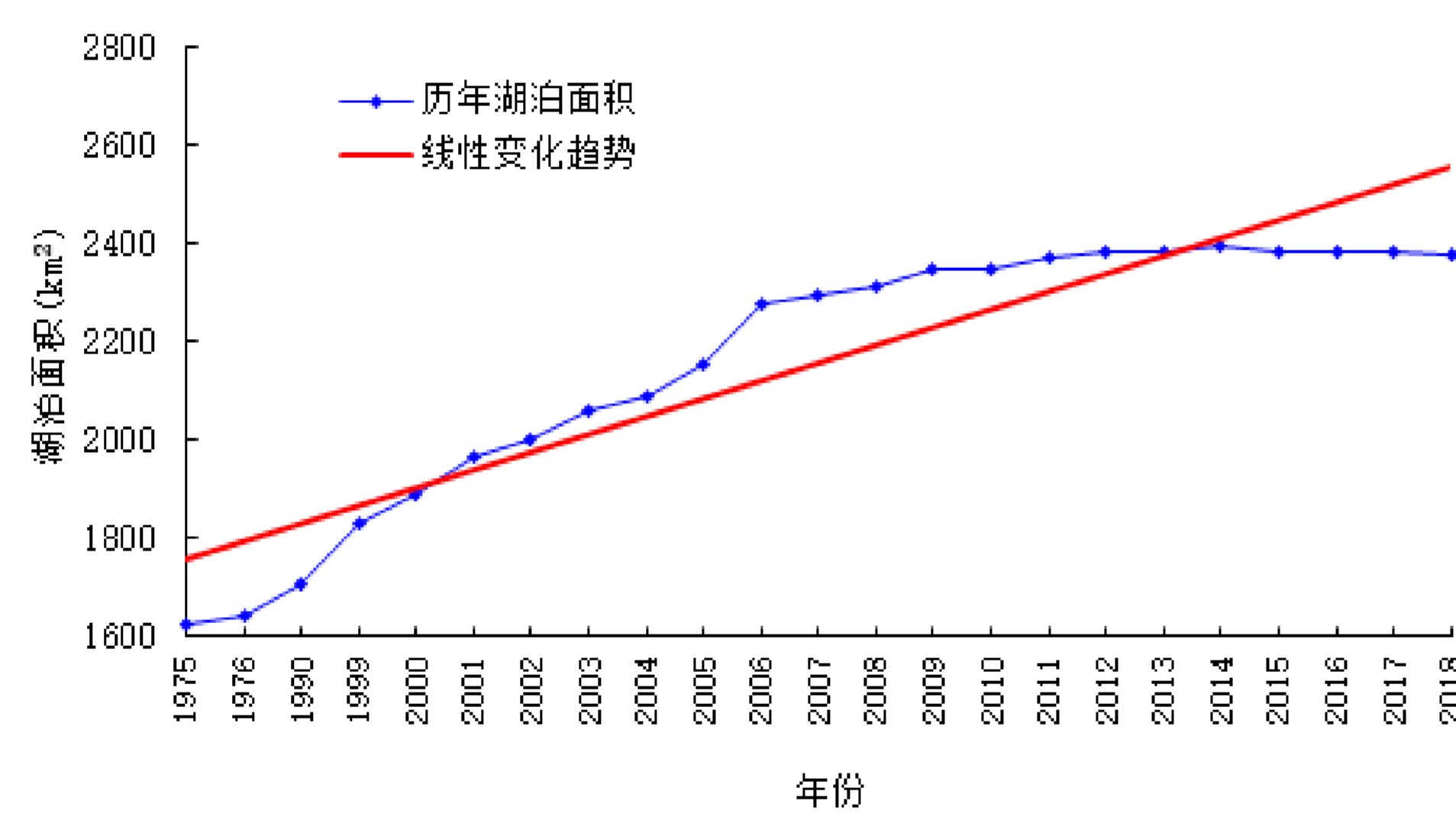
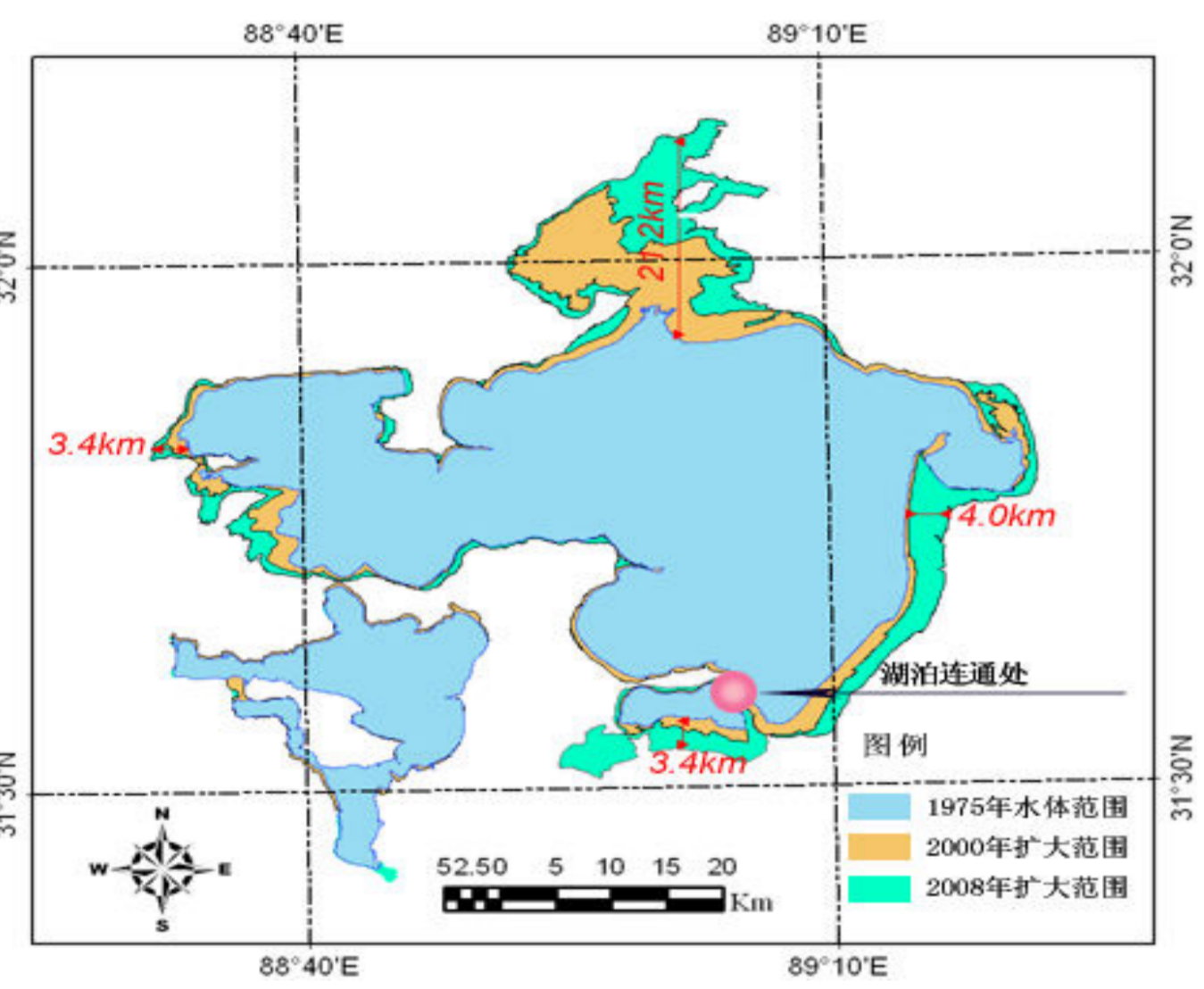
ba lha, dor Ben, ouzhu ZHA Xi

Several teams from the Climate Center of Tibet Autonomous Region participated in the implementation of the "Influence of Westerly and Monsoon Synergies on Water Tower Changes in Asia (2019QZKK0105)"; Westerly and Monsoon Synergies and their Environmental Effects (2019QZKK0106) Wetland Ecosystem and Hydrological Process Changes (2019QZKK0304); And three other thematic tasks. According to the requirements of the assignment book, on the one hand, the field investigation task was actively completed; Two aspects collect and collate data and form results.

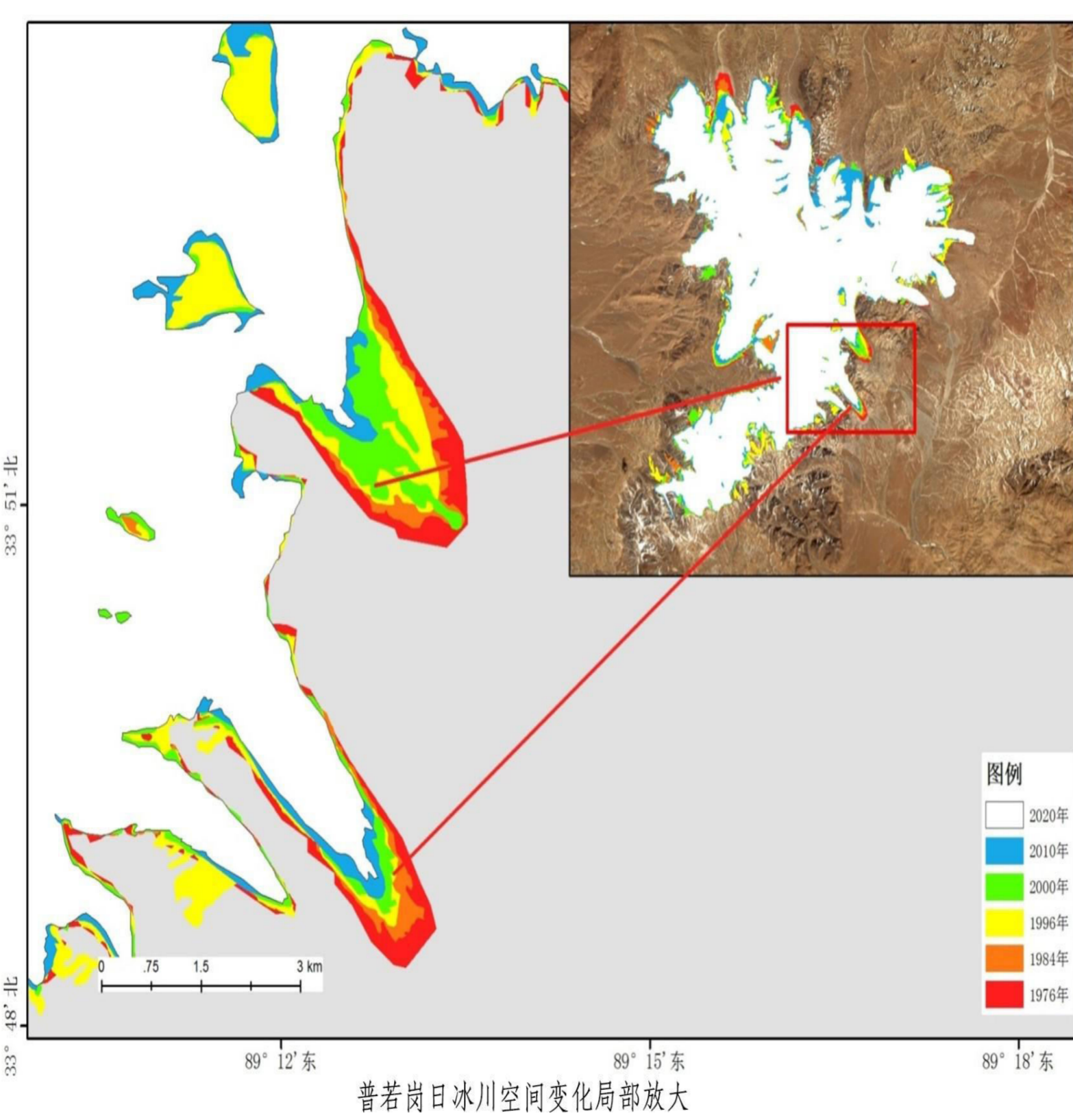
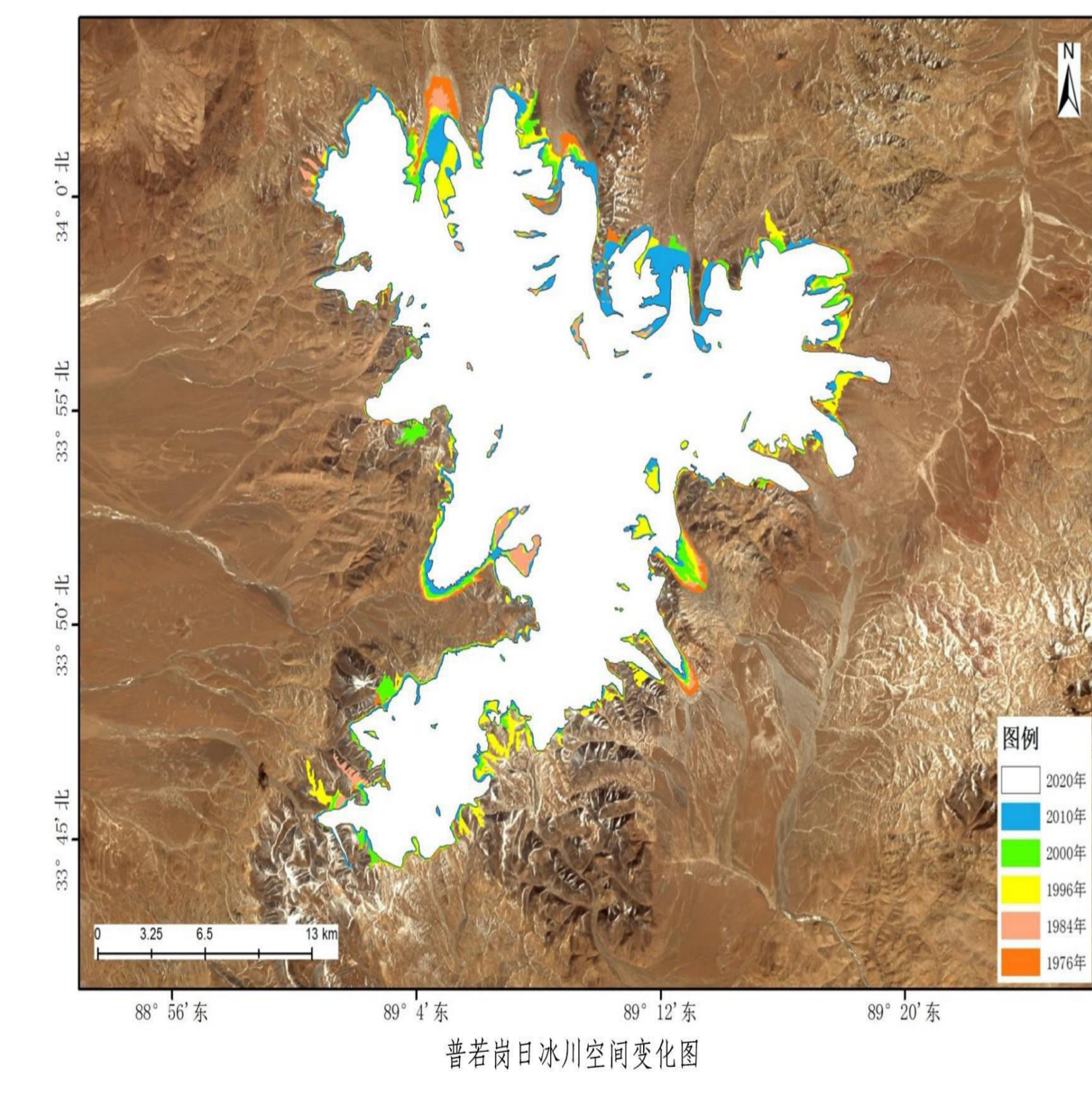
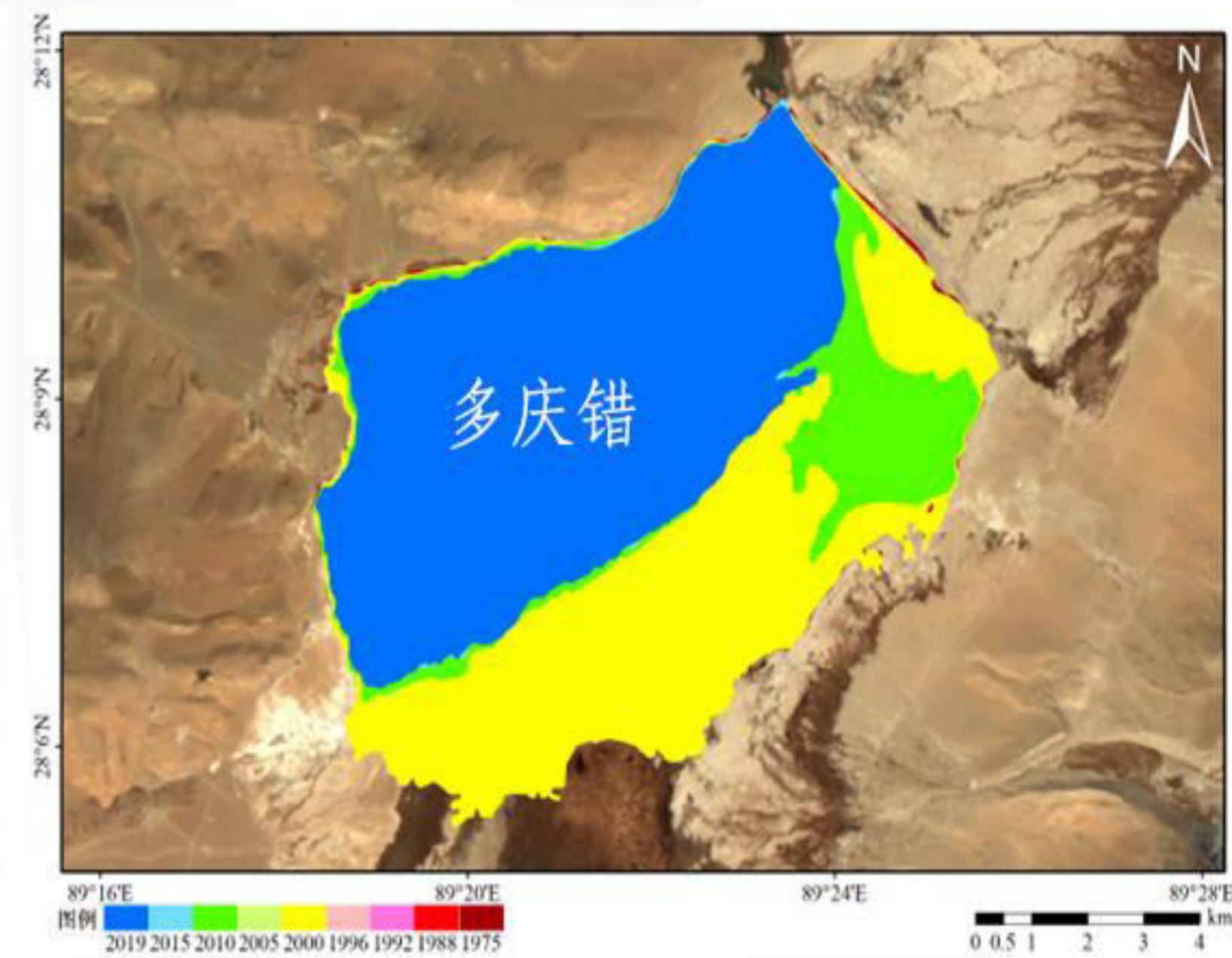
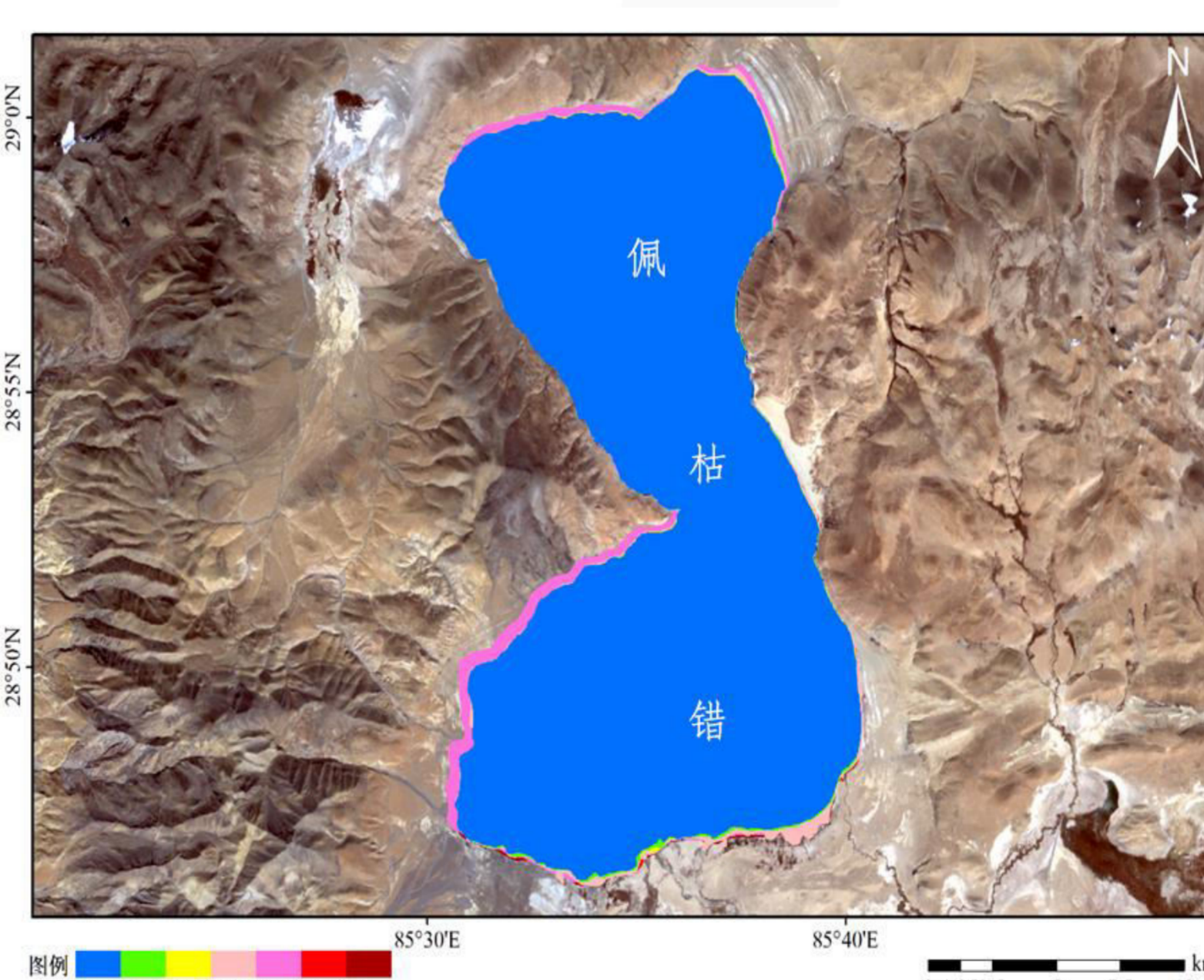


Supported by the Second Comprehensive Scientific Research Project on the Qinghai-Tibet Plateau (2019QZKK0105-06), Using 1972-2019 Landsat (including MSS, TM and ETM+ sensors), 1975 1:100,000 electronic topographic maps, high-resolution Earth Observation System satellites and other data, Namtso, Serin, Tangyakar, Manasarovar, Laang Tso, Zari Namtso, Pangong Tso, Yamdrok, Pumo Tso, Pekku Dynamic monitoring and remote sensing mapping have been carried out in 15 lakes, including Cuo, Taluo Cuo, Sangwang Cuo, Duoqingcuo, Mang Cuo and Ranwu Lake, and a Remote Sensing Monitoring Atlas of Lakes in Tibet has been published. The atlas shows the characteristics and basic facts of water area fluctuation of plateau lakes, which is of great significance for understanding the impact of global climate change on lake fluctuation of Tibet Plateau, carrying out lake water resources investigation and protection, and coping with climate change.

In 2010, which officially put forward the conclusion for the first time that the lake area of Selinco has surpassed Namco and become the largest saltwater lake in Tibet. Based on the analysis of multi-source satellite remote sensing data from 1972 to 2019, the results show that the lake surface of Serincuo has shown a significant expansion trend in recent 48 years, with an average annual expansion of 21.39km². In 2019, the surface area of Selinco Lake was 2413.10km², an expansion of 779.07km² (47.68%) compared with that of 1972 (1634.03km²). Compared with 2018, the expansion rate was 8.14 km², with an expansion rate of 0.34%.



At the same time, under the background of global climate change, the area of individual lakes in southwest Tibet is decreasing. For example, according to multi-source satellite remote sensing data, the lake Pekucuo showed an overall shrinking trend from 1988 to 2019, shrinking by an average of 0.25km² per year. Based on the analysis of multi-source satellite remote sensing data from 1975 to 2019, the results show that the lake surface of Duqingcuo has a shrinking trend in the past 45 years, with an average annual shrinking of 1.11 km².



Conclusion: The average value of the total glacier area from 2000 to 2020 is 1625.12km², the maximum value in 2000 is 1690.62km², and the minimum value appears in 2020 is 1563.39km². The glacier area changes through three periods, and the glacier area shows a significant decreasing trend from 2000 to 2006. The decrease rate was 10.82km²/a, and the glacier area showed an increasing trend during 2007-2013, and recovered a decreasing trend during 2014-2020. According to the analysis of satellite remote sensing data from 1976 to 2020, the glacier area of Puruogangri presents a trend of fluctuation reduction. In 2020, the glacier area will reach the lowest value of 393.73 km², which is 41.84 km² less than that in 1976 (435.57 km²), and the average annual decrease is 1.74 km².