High-Resolution Figures for

Modeling of Terabit Geostationary Terahertz Satellite Links from Globally Dry Locations

Jonathan Y. Suen, Michael T. Fang, Sean P. Denny, and P.M. Lubin

These supplemental figures include all of the maps from the original paper at a higher resolution.

Due to the large number of frequency bands, data presentation options, and scenarios it was impossible to reproduce all possible maps here. The size of the original images required downsampling and lossy compression. We encourage readers to contact the authors if there is a need for analysis of specific data or models.
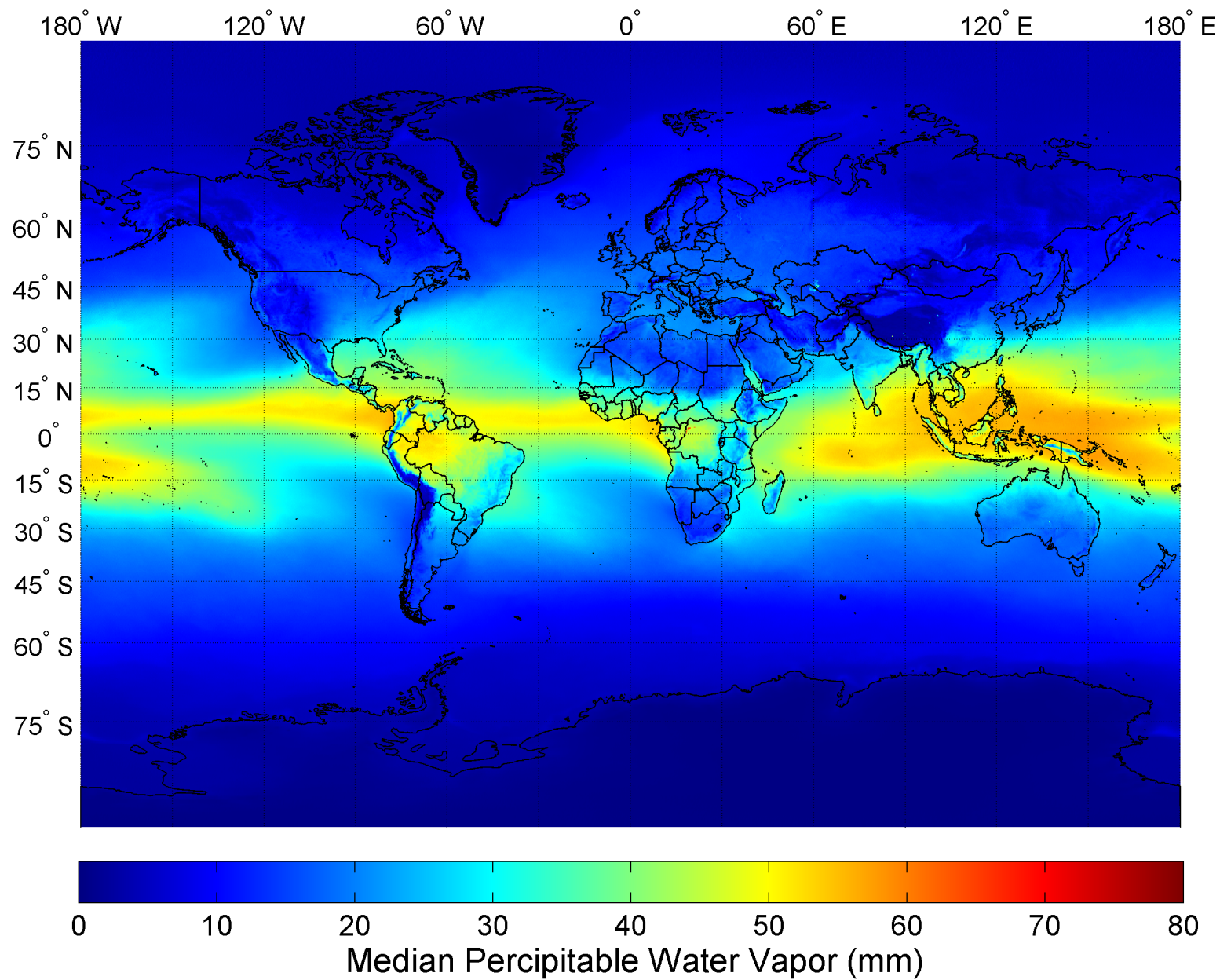
Preprint Version (Nov. 18, 2014)

Fig. 1. (a) Median all-weather PWV data used for locating ground sites. PWV was retrieved by MIRS code with NOAA 18 and MetOp A satellite data over the entire 2012 calendar year.
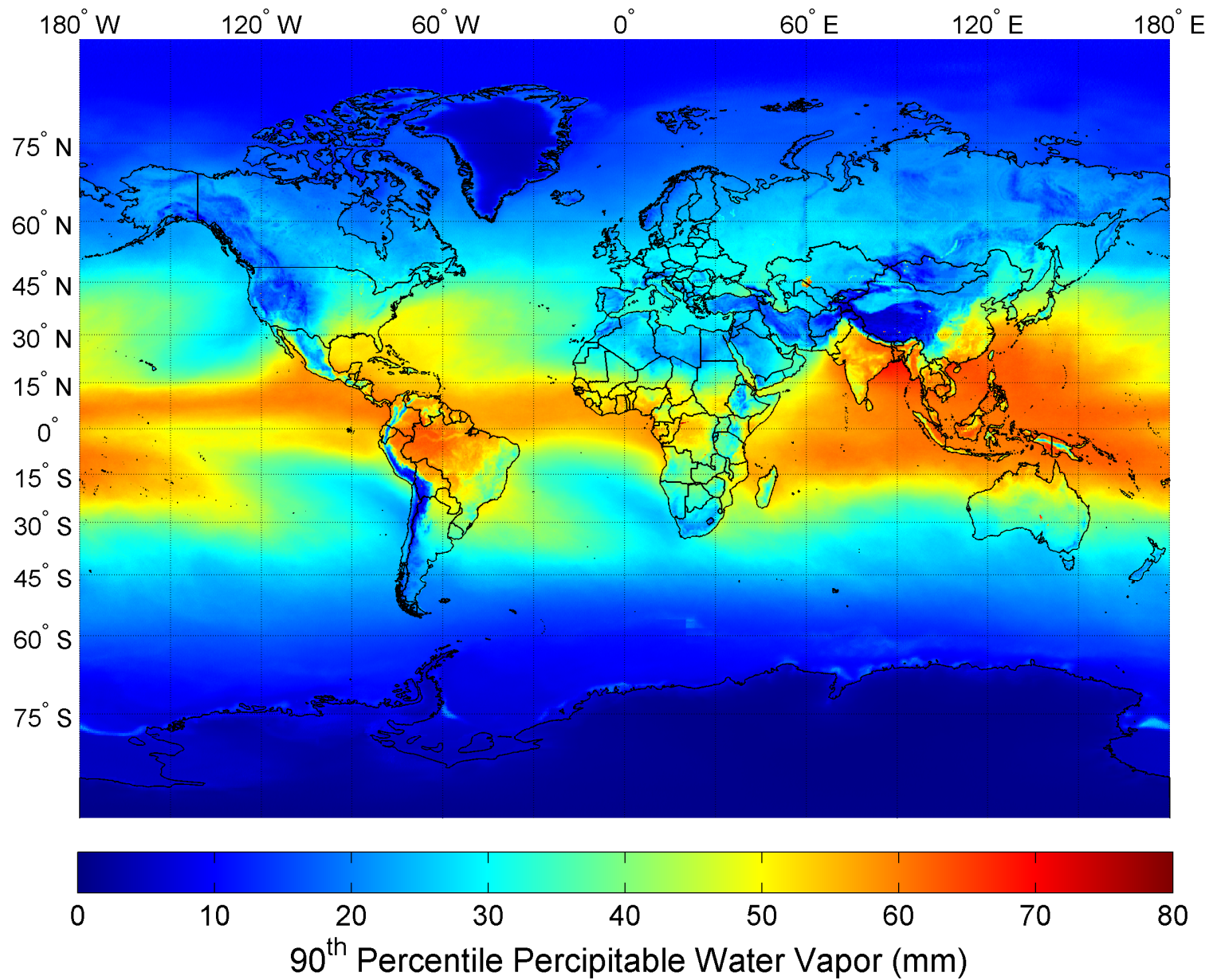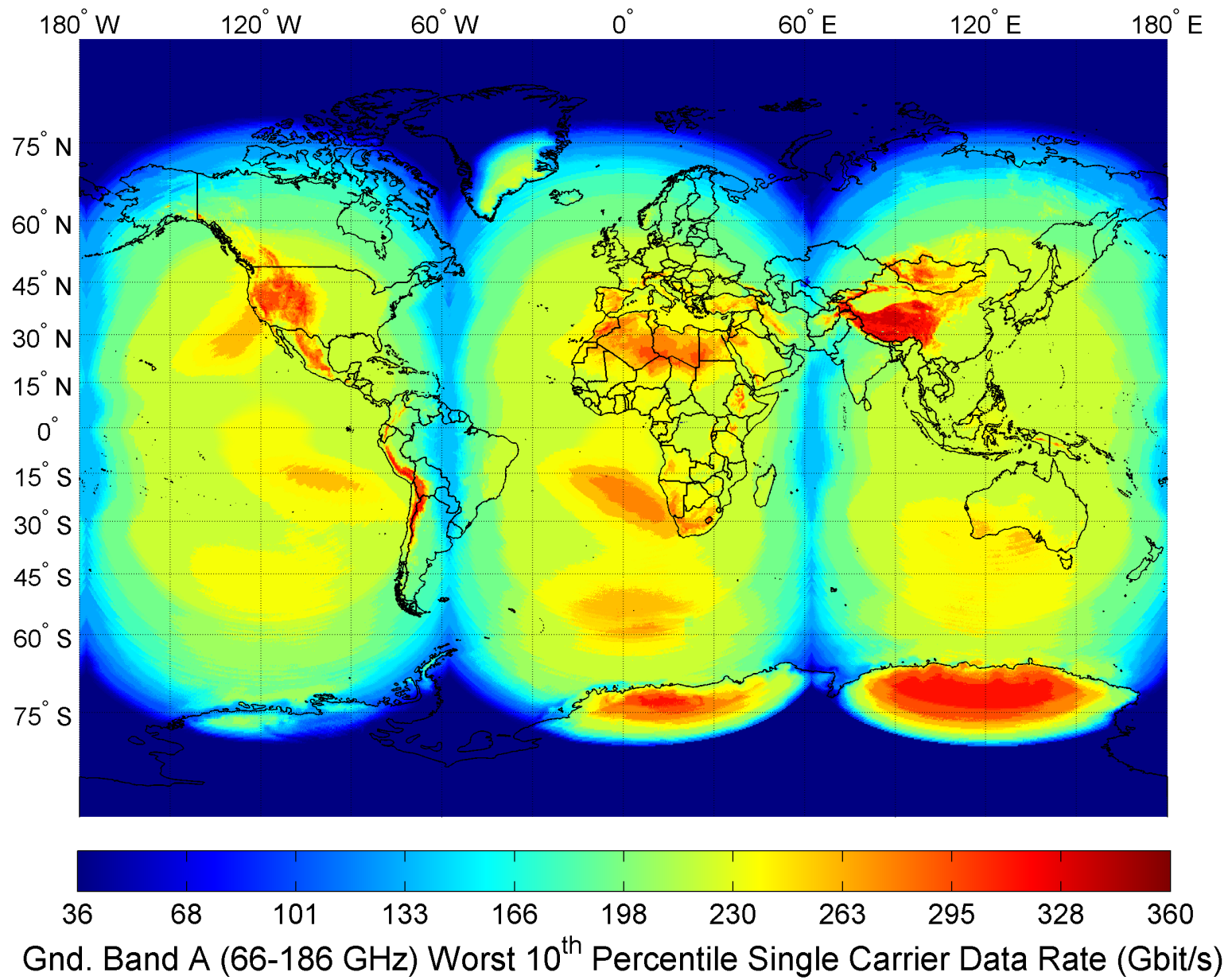
Fig. 1. (b) Wettest 90th percentile all-weather PWV data used for locating ground sites. PWV was retrieved by MIRS code with NOAA 18 and MetOp A satellite data over the entire 2012 calendar year.
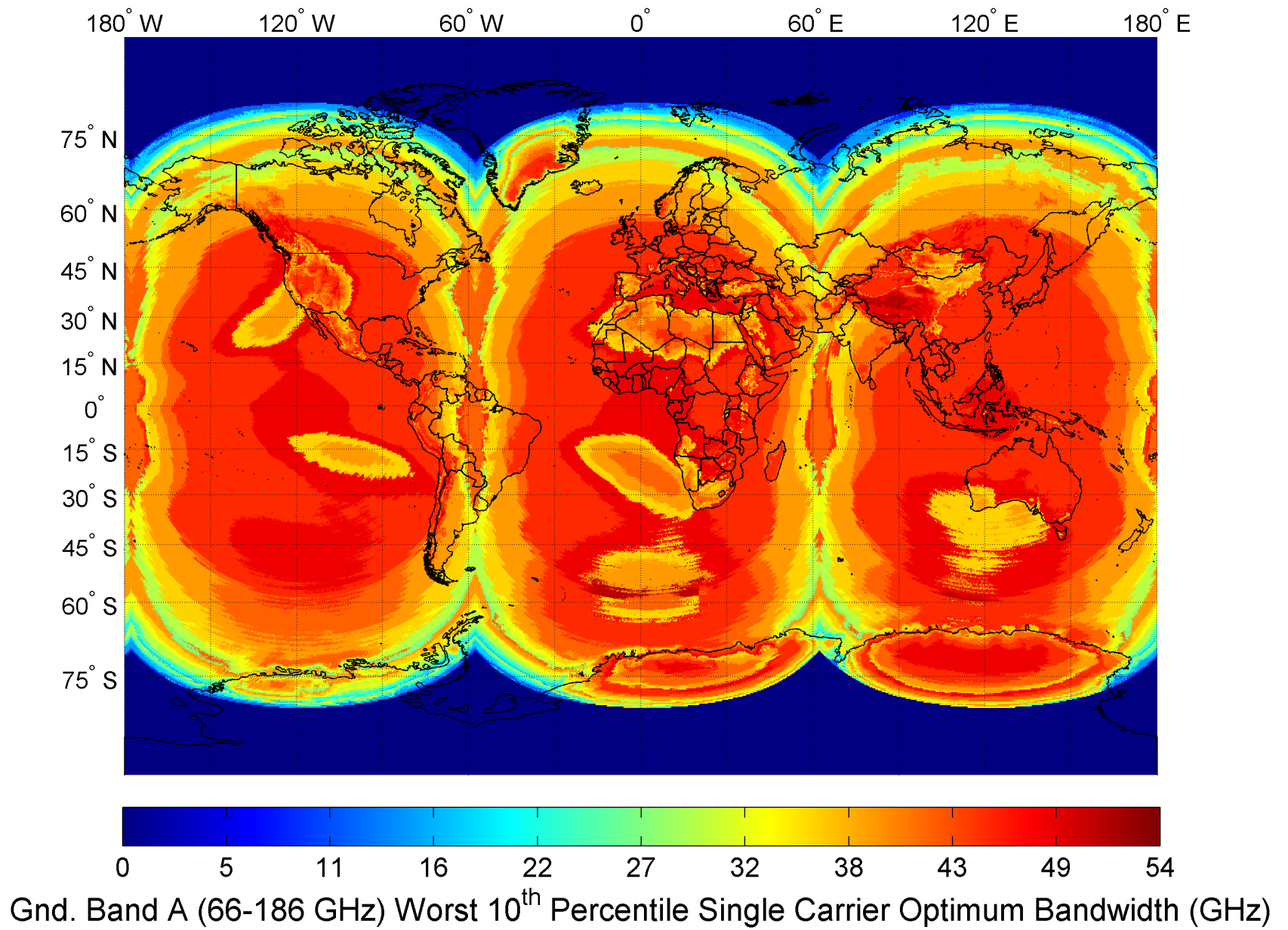
Fig. 6 (a) Band A data rate

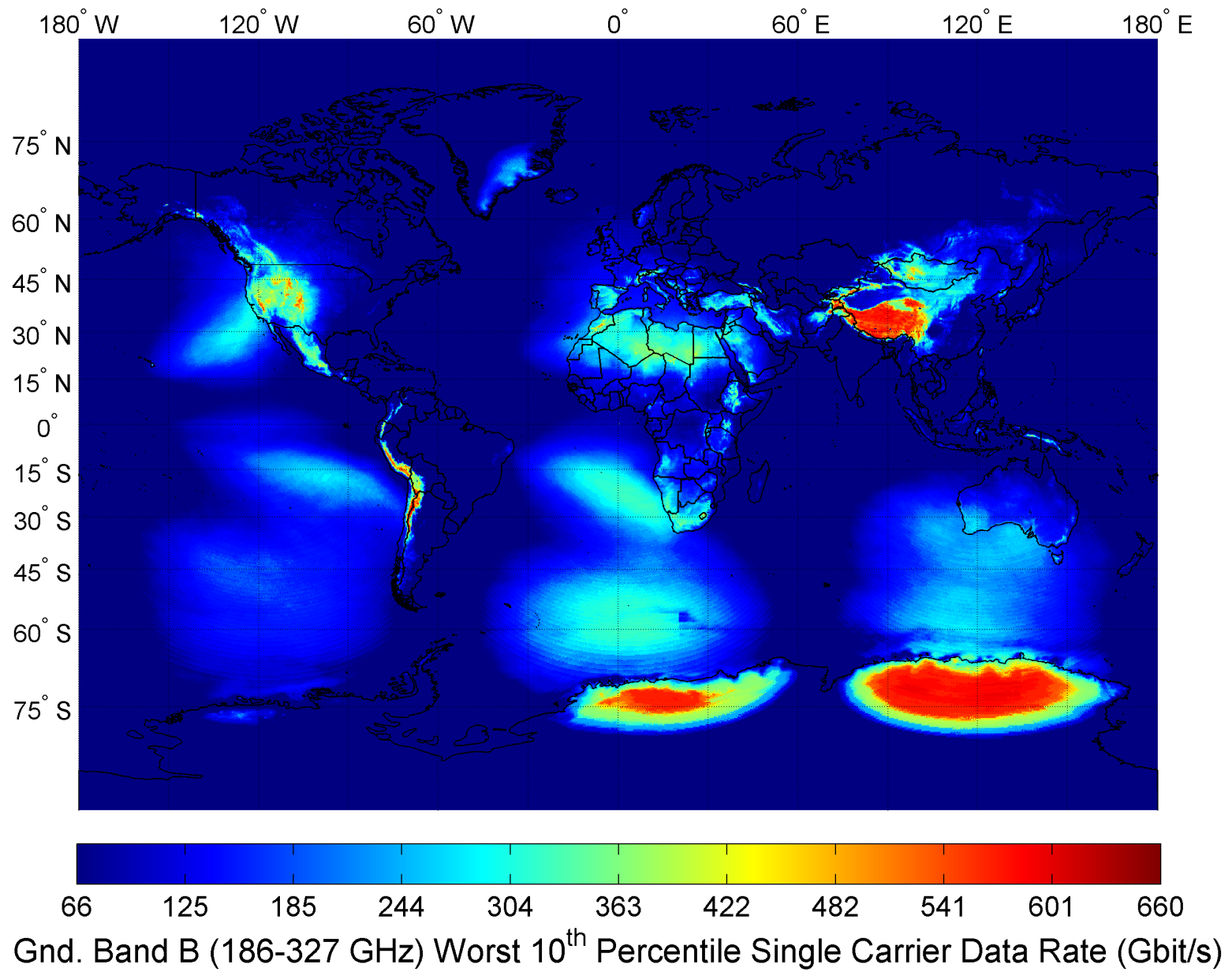Fig. 6 (b) Band A optimum usable bandwidth

Fig. 7(a) Worst 10th percentile Band B data rate shown for the world.

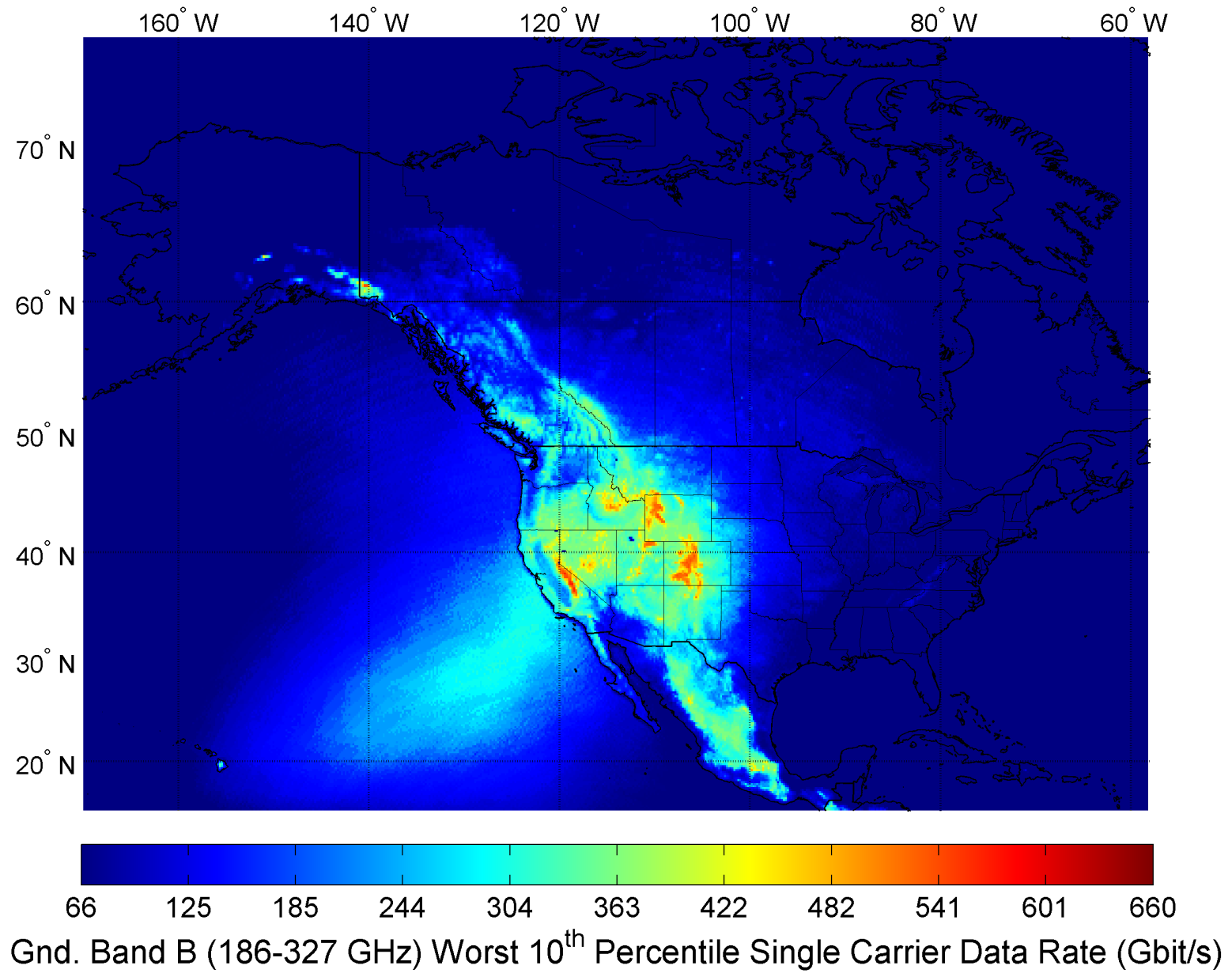Gnd. Band B (186-327 GHz) Worst 10th Percentile Single Carrier Data Rate (Gbit/s)

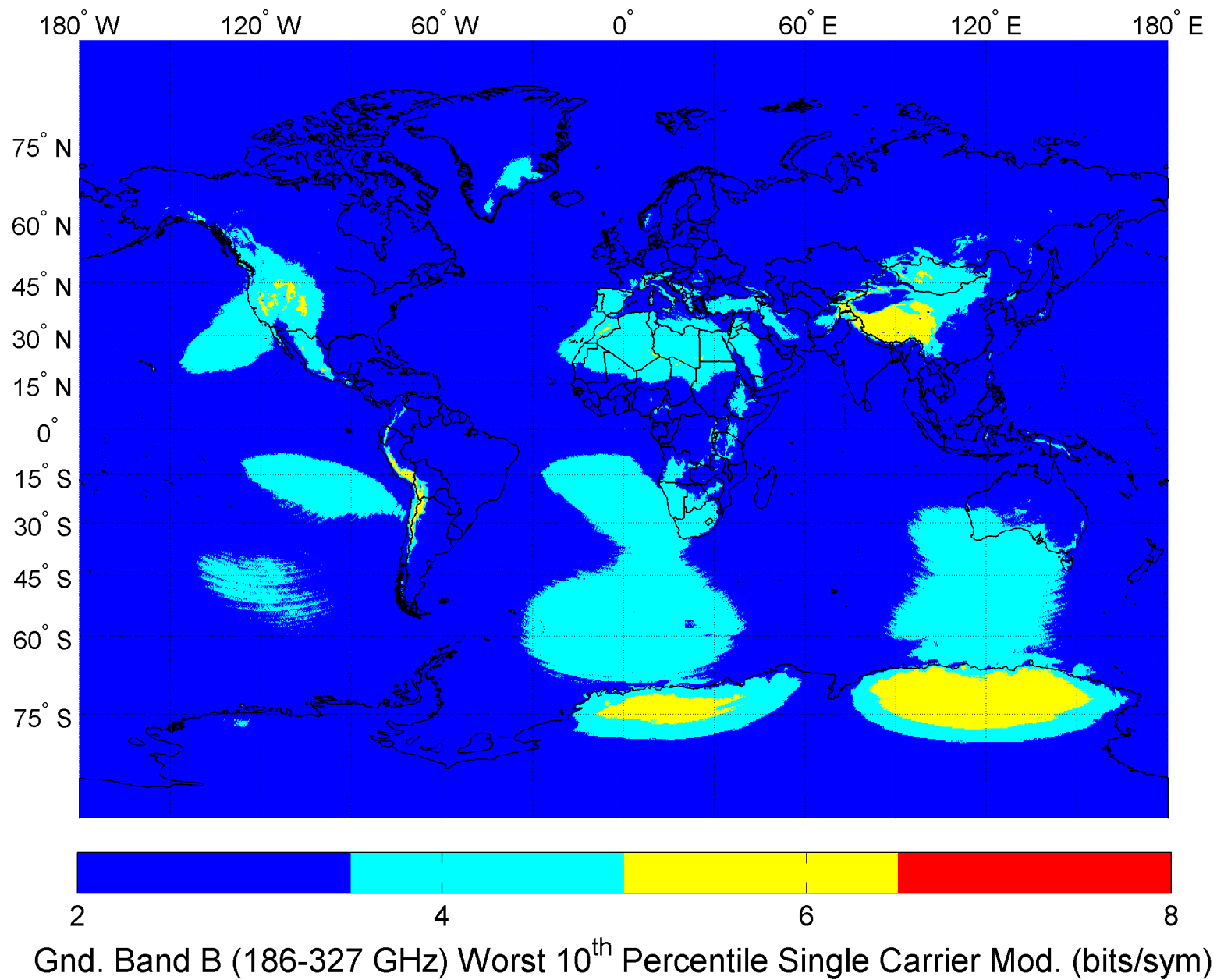Fig. 7(b) Worst 10th percentile Band B data rate shown over North America.

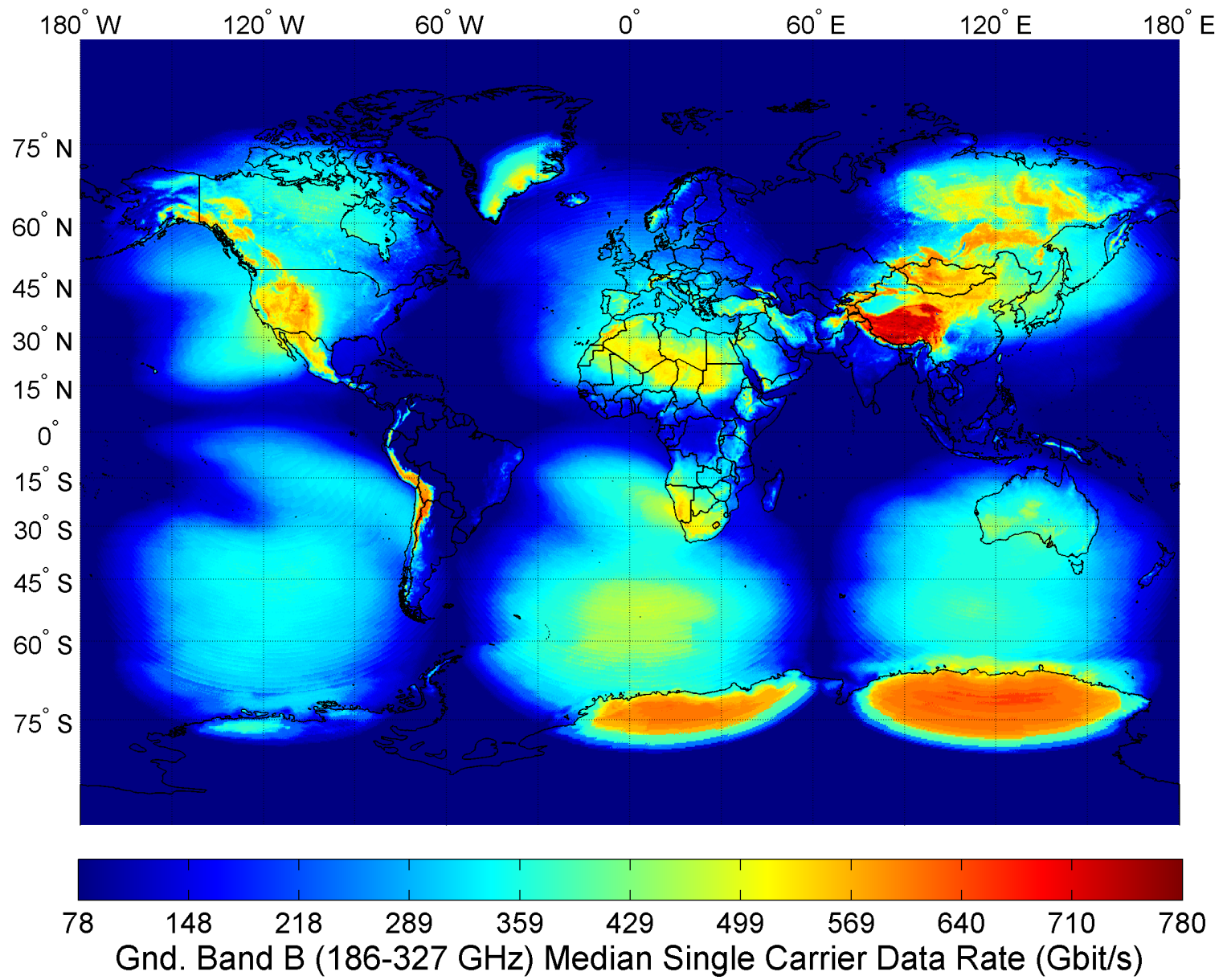Fig. 7(c) Worst 10th percentile Band B optimum modulation.

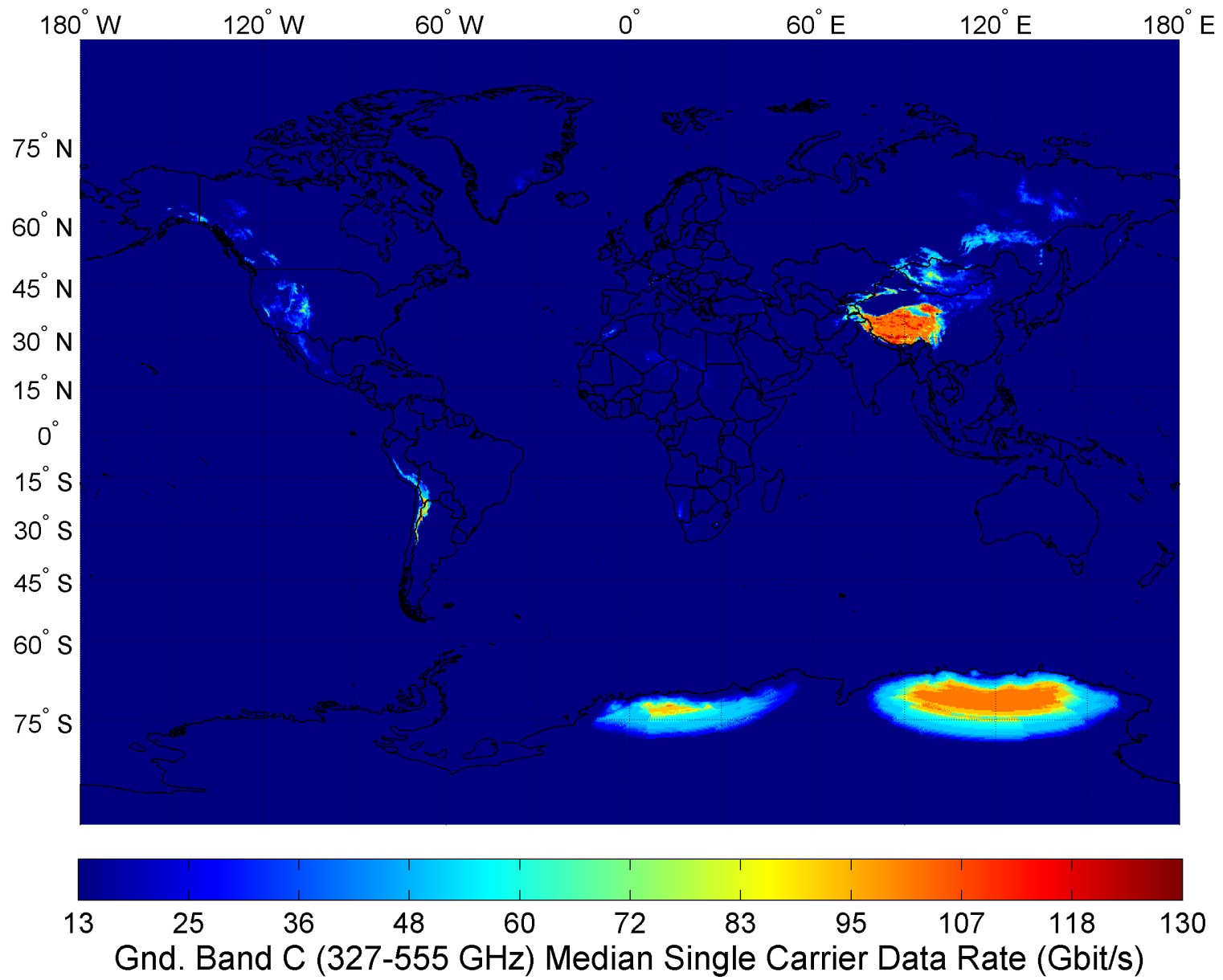Fig. 7(d) Worst 10th percentile Band B median data rate.

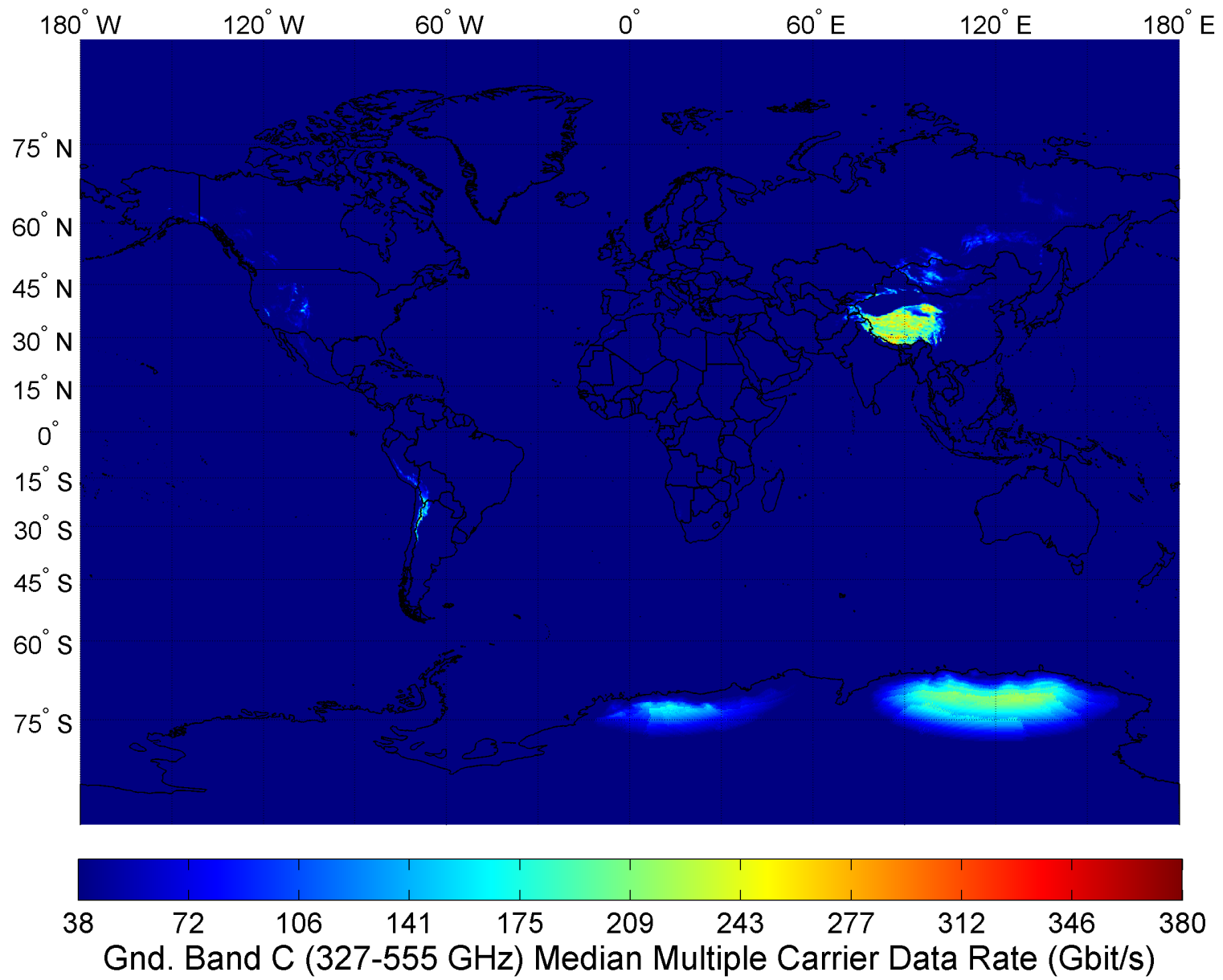Fig. 8(a) Median Band C data rate for single carrier model.

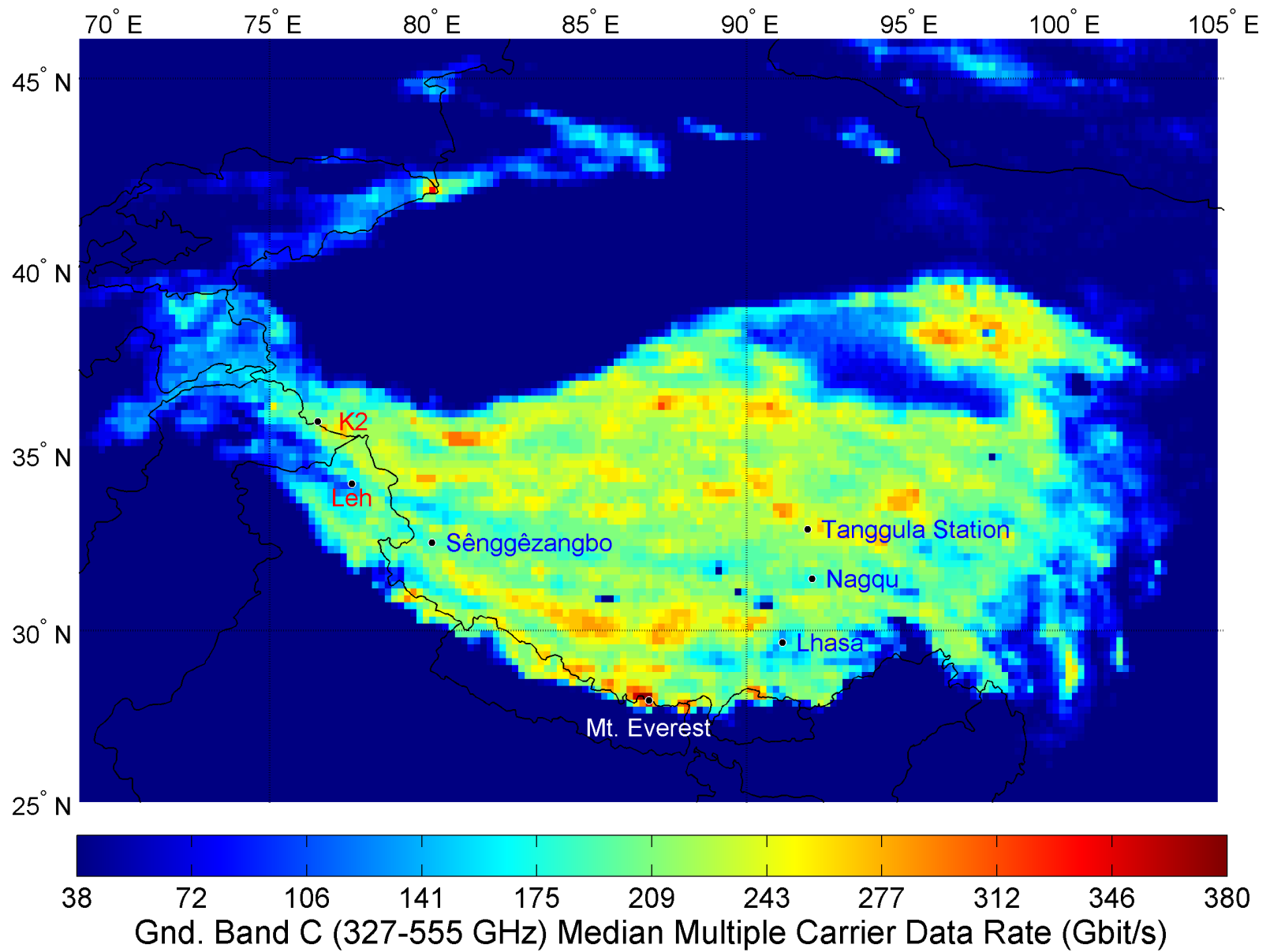Fig. 8(b) Median Band C data rate for multicarrier model.

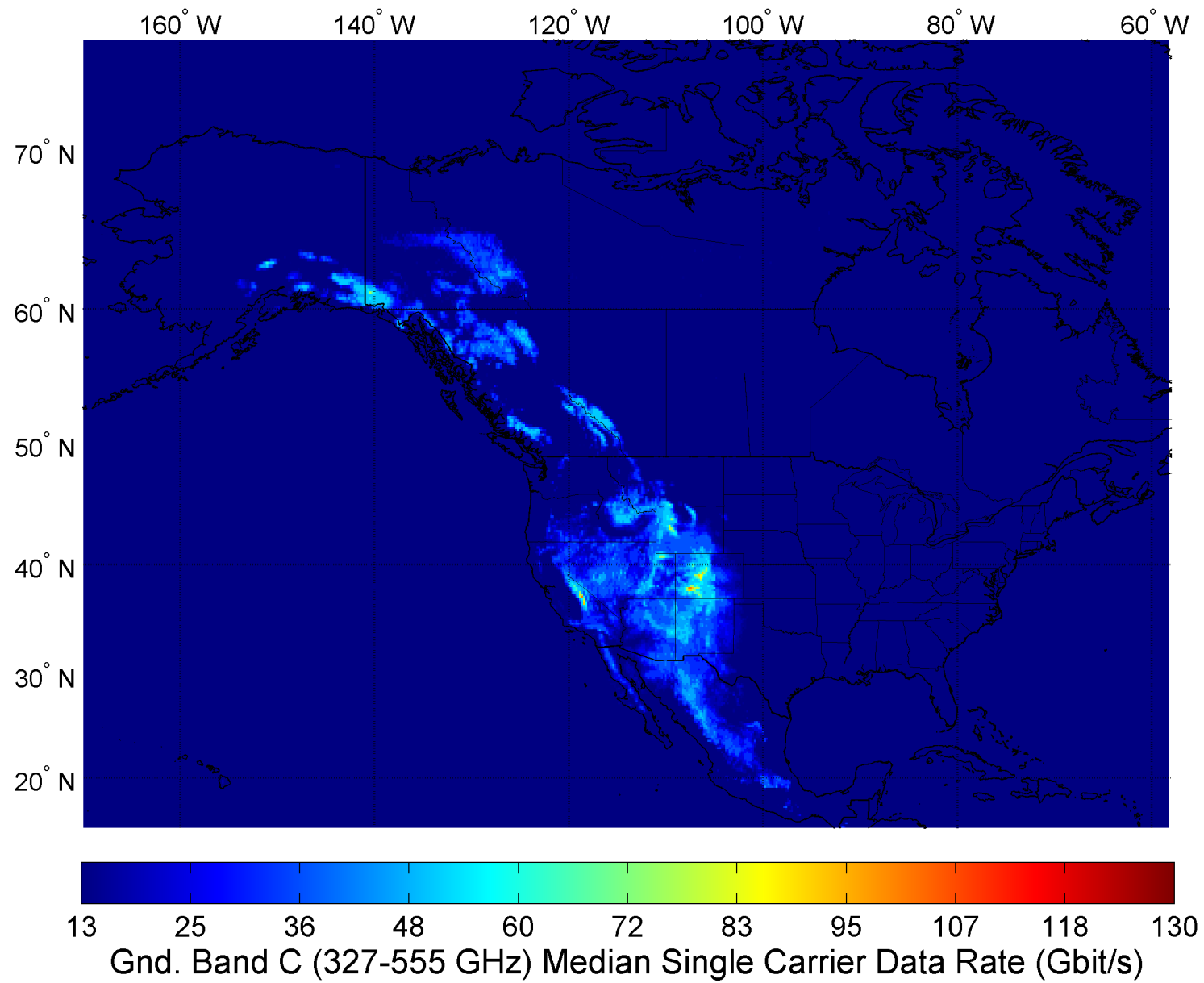Fig. 8(c) Median Band C data rate. Detail view of Tibet.

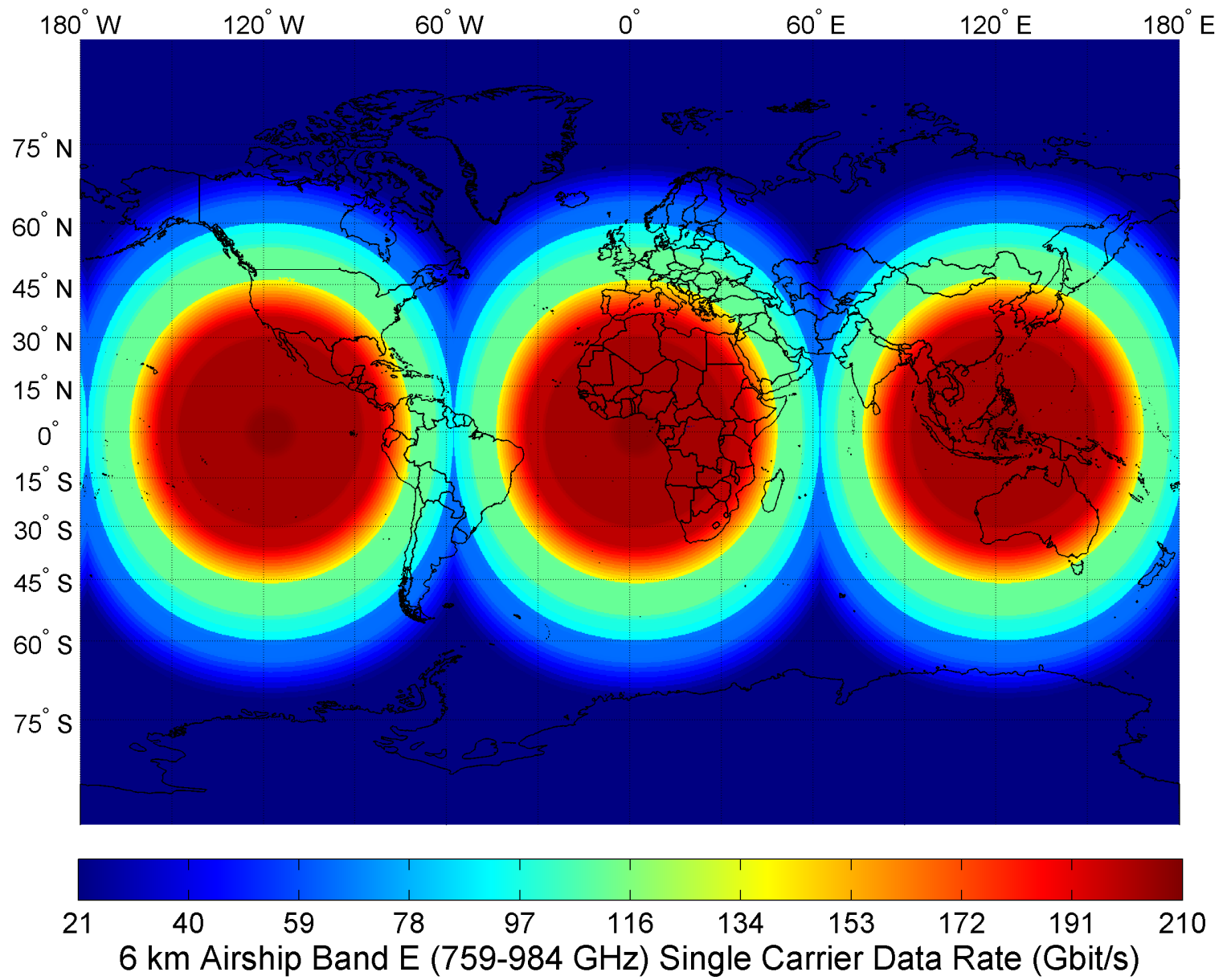Fig. 8(d) Median Band C data rate. Detail view of North America.

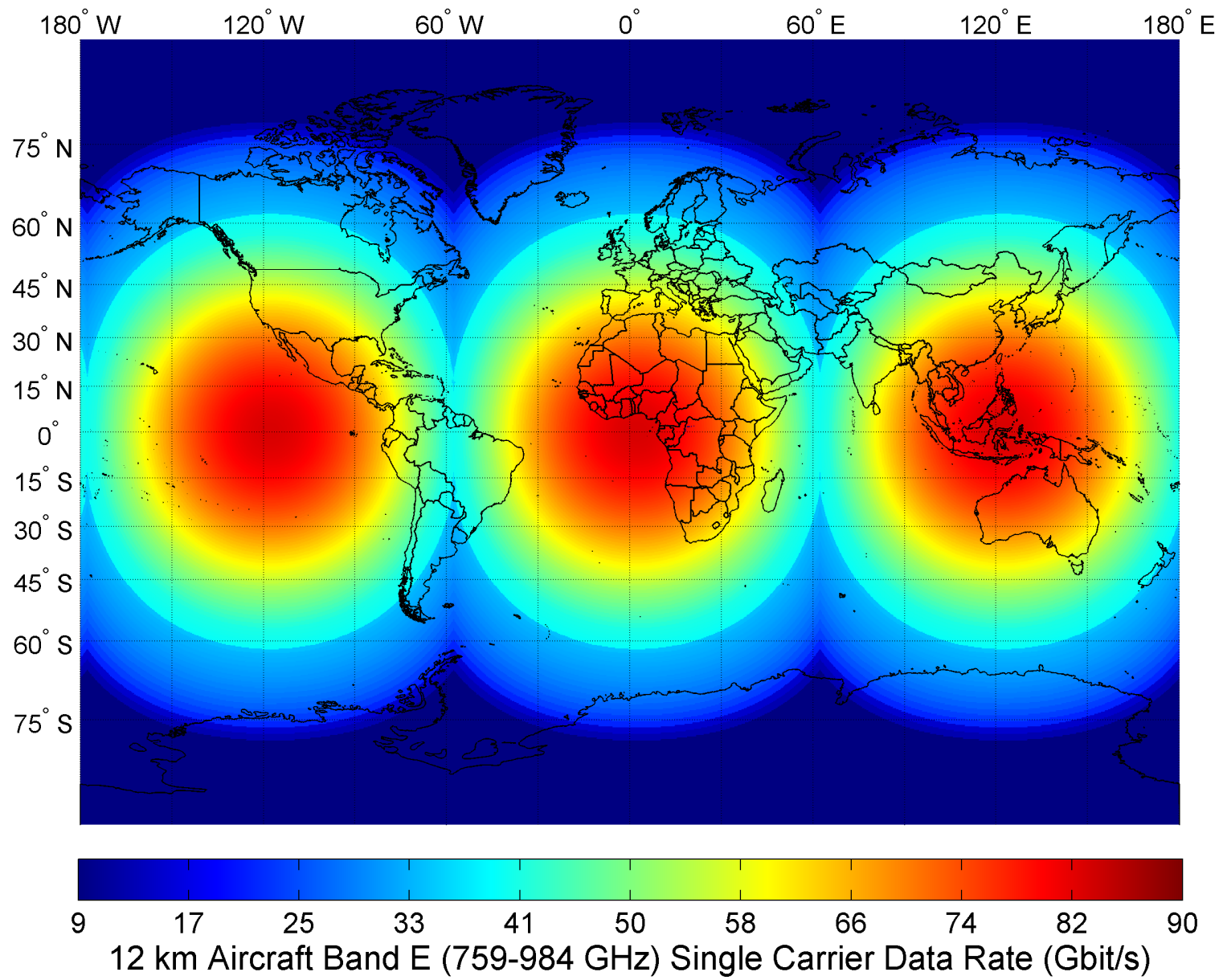Fig. 9(a) Airborne scenario at 6 km altitude.

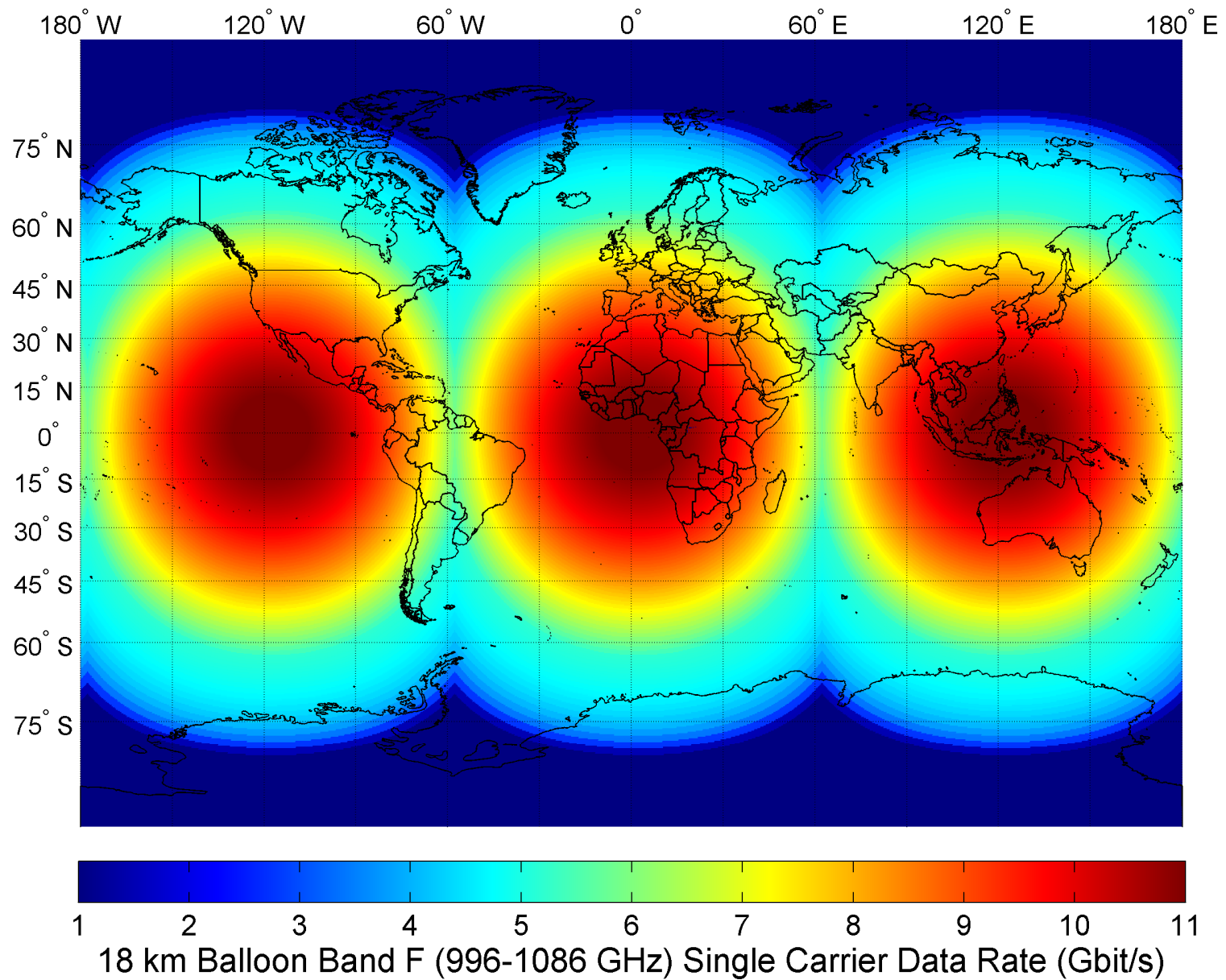Fig. 9(b) Airborne scenario at 12 km altitude.

Fig. 9(c) Airborne scenario at 18 km altitude. Oxygen lines limit Band F performance, as can be seen by the comparison of the 18 km single carrier (c) and multicarrier (d) cases.
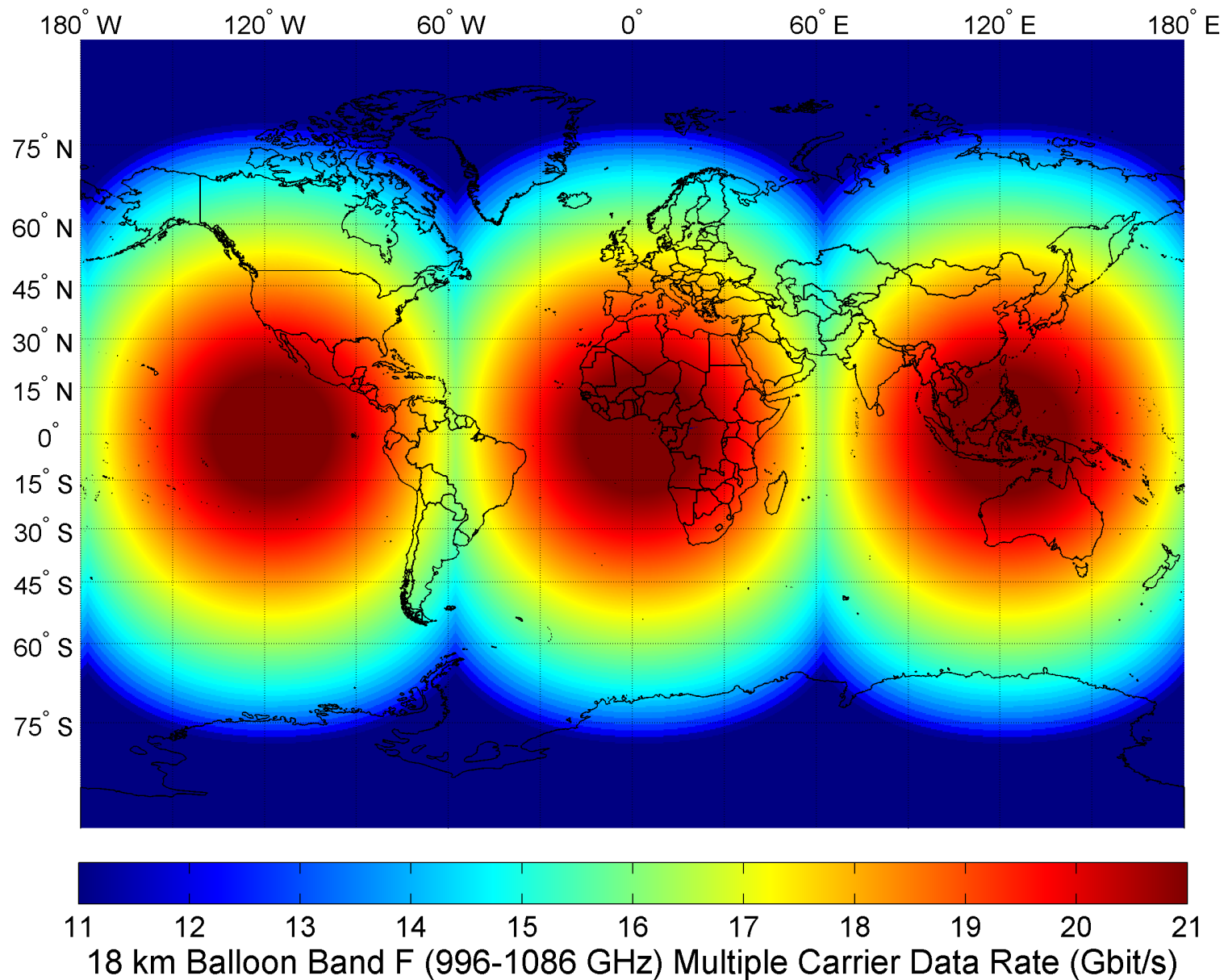
Fig. 9(d) Airborne scenario at 18 km altitude. Oxygen lines limit Band F performance, as can be seen by the comparison of the 18 km single carrier (c) and multicarrier (d) cases.
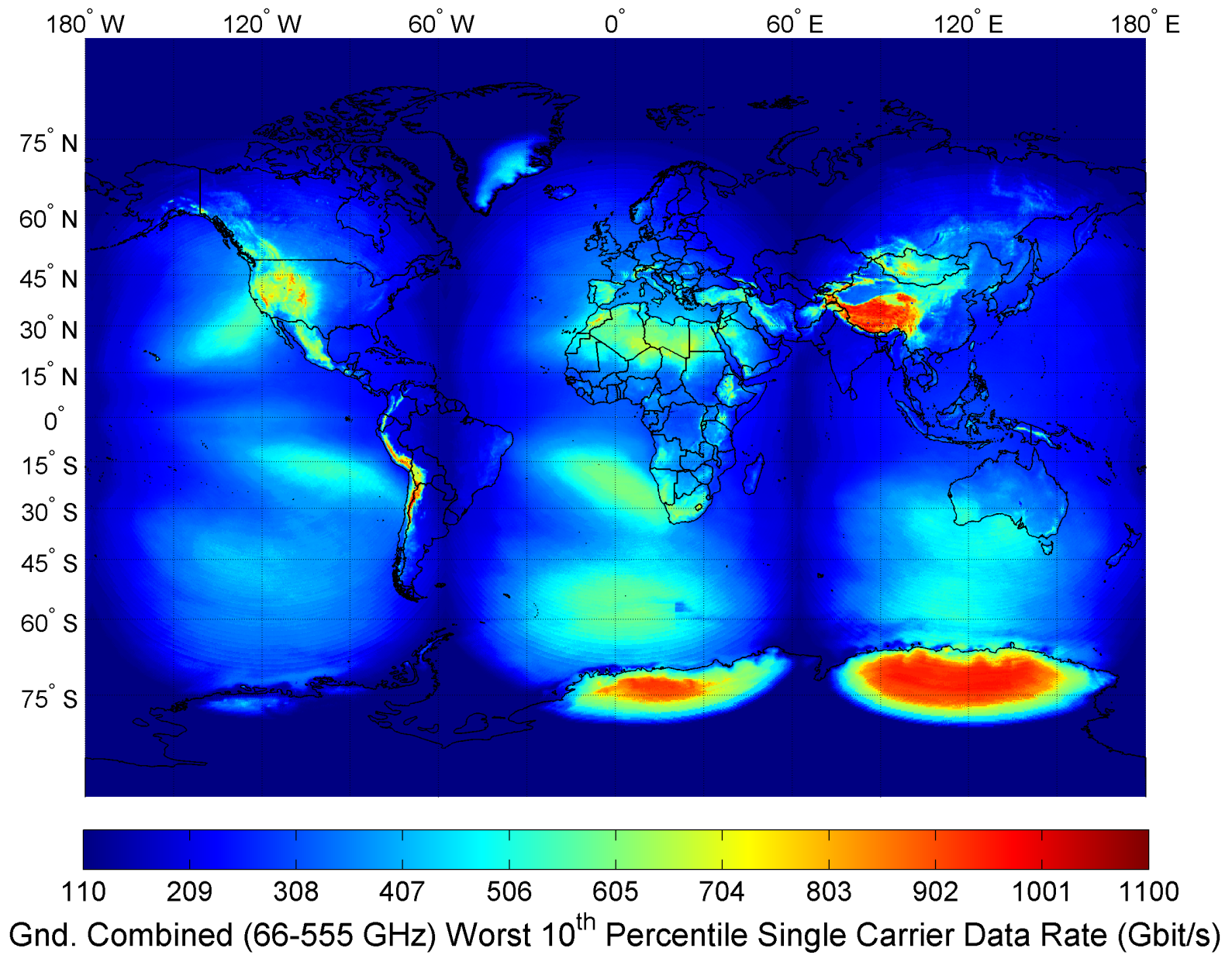
Fig. 10(a) Data rates achieved by combining multiple bands. Ground scenarios utilize bands A-C. Single carrier worst 10th percentile performance is shown.
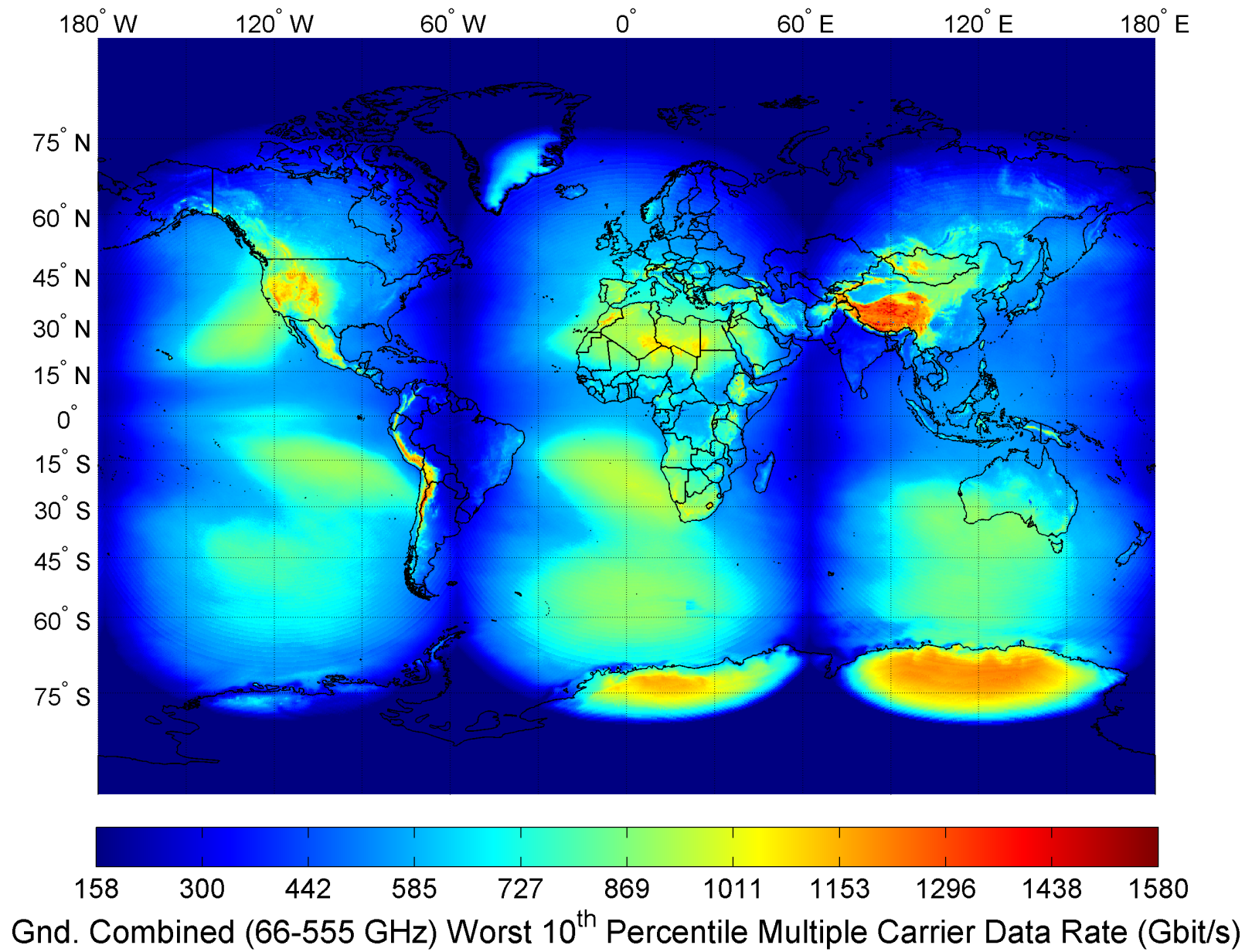
Fig. 10(b) Data rates achieved by combining multiple bands. Ground scenarios utilize bands A-C. Multicarrier worst 10th percentile performance is shown.
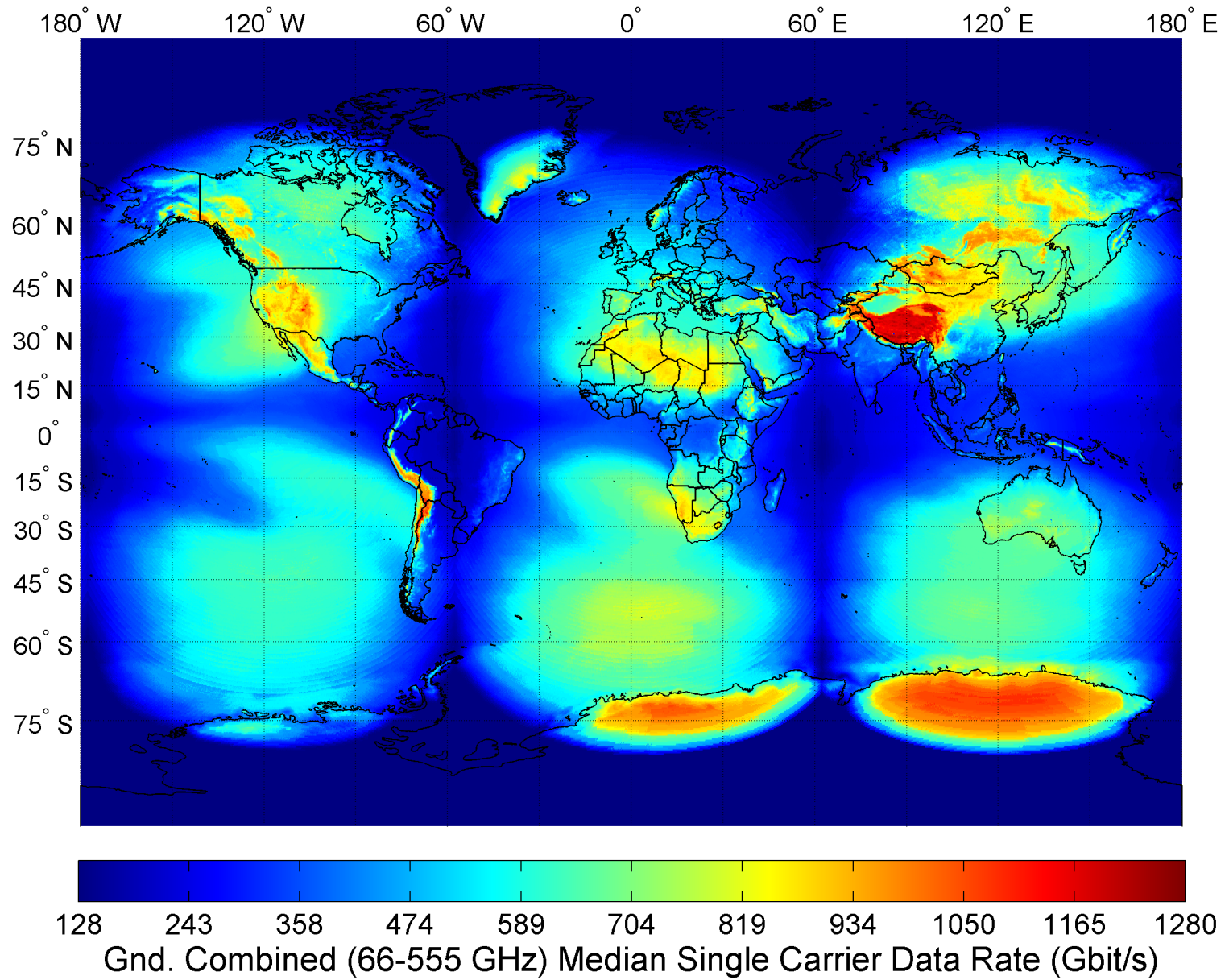
Fig. 10(c) Data rates achieved by combining multiple bands. Ground scenarios utilize bands A-C. Single-carrier median performance is shown.
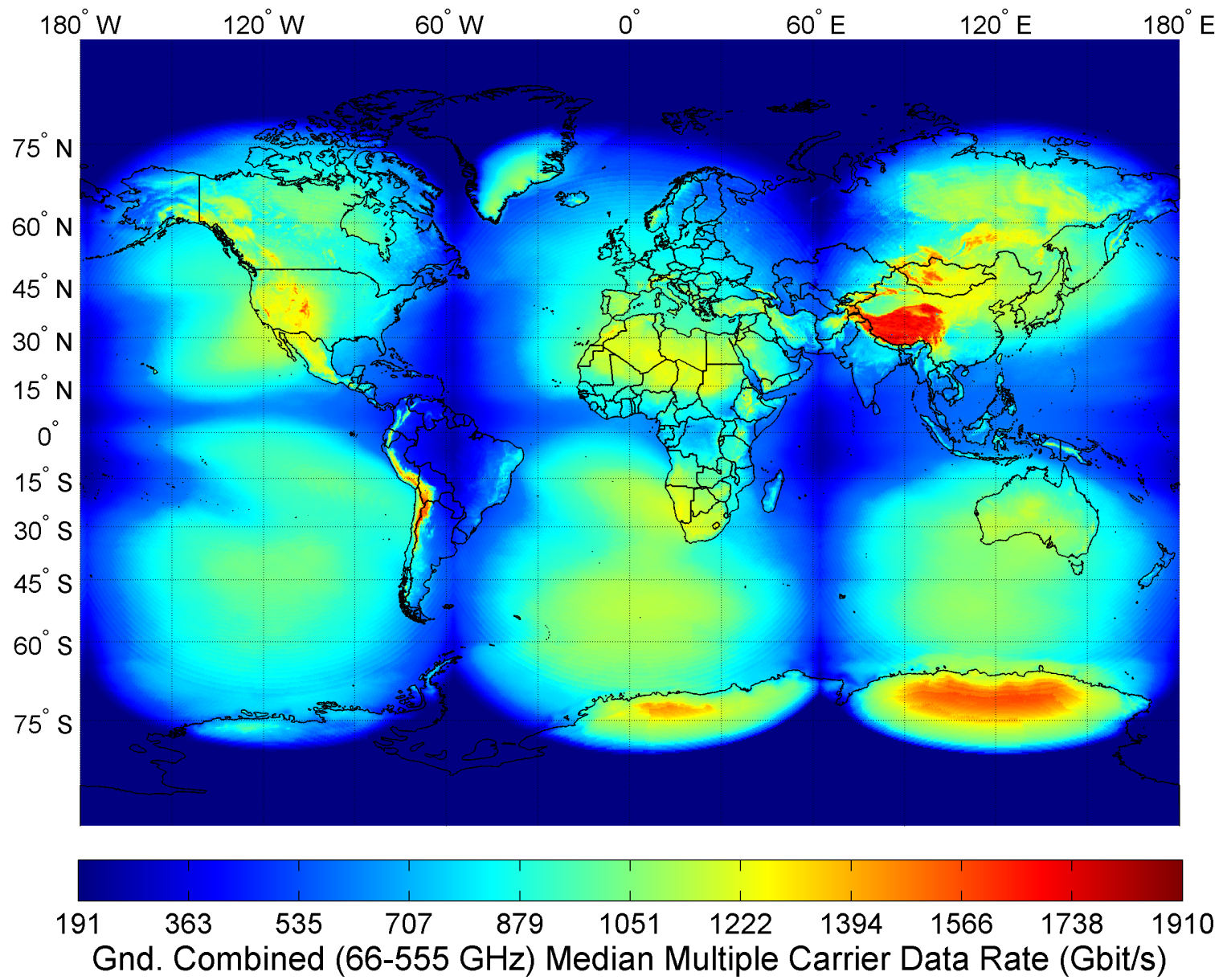
Fig. 10(d) Data rates achieved by combining multiple bands. Ground scenarios utilize bands A-C. Multicarrier median performance is shown.
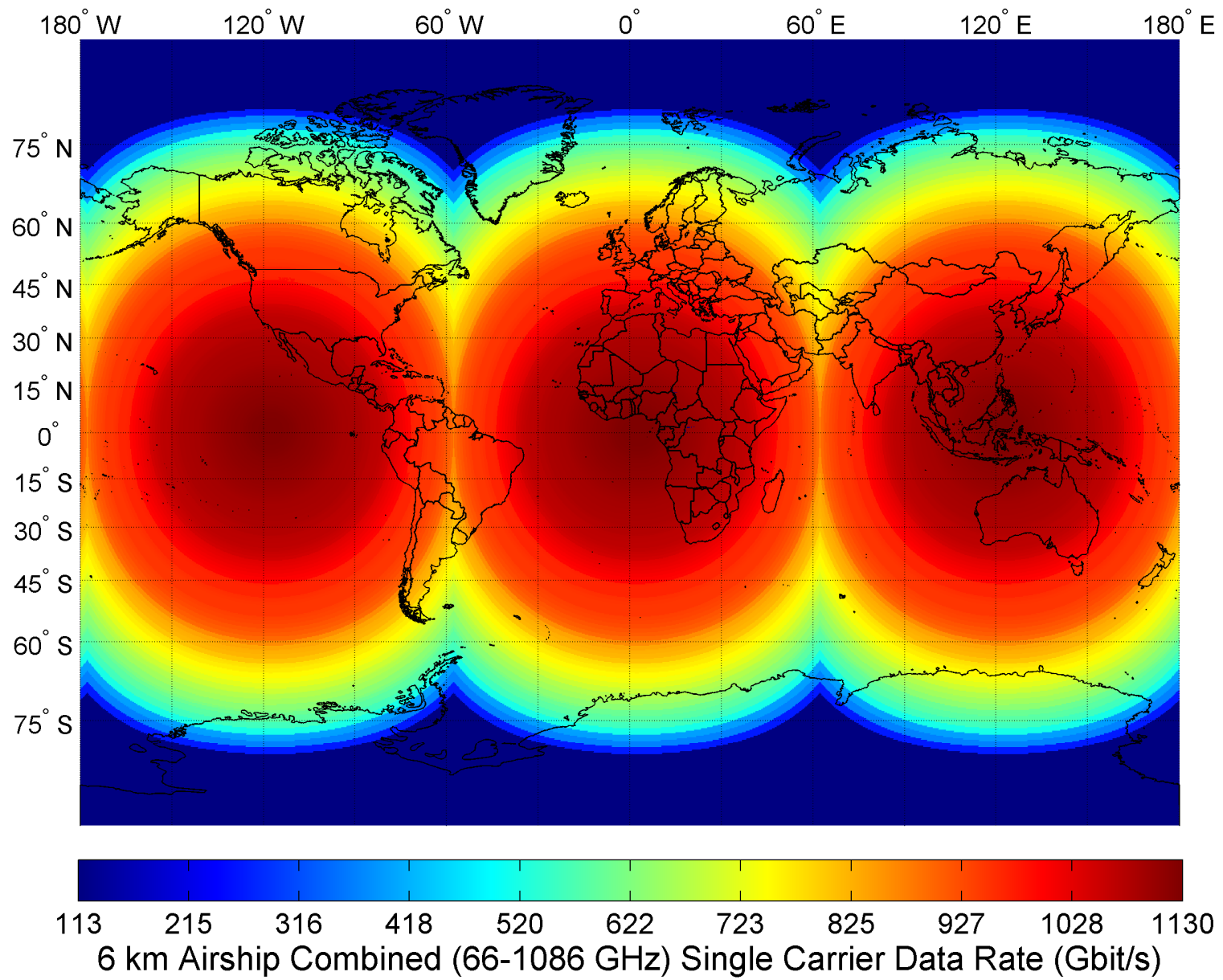
Fig. 10(e) Data rates achieved by combining multiple bands. 6 km airship scenario utilizes Bands A-F. Single carrier performance is shown.
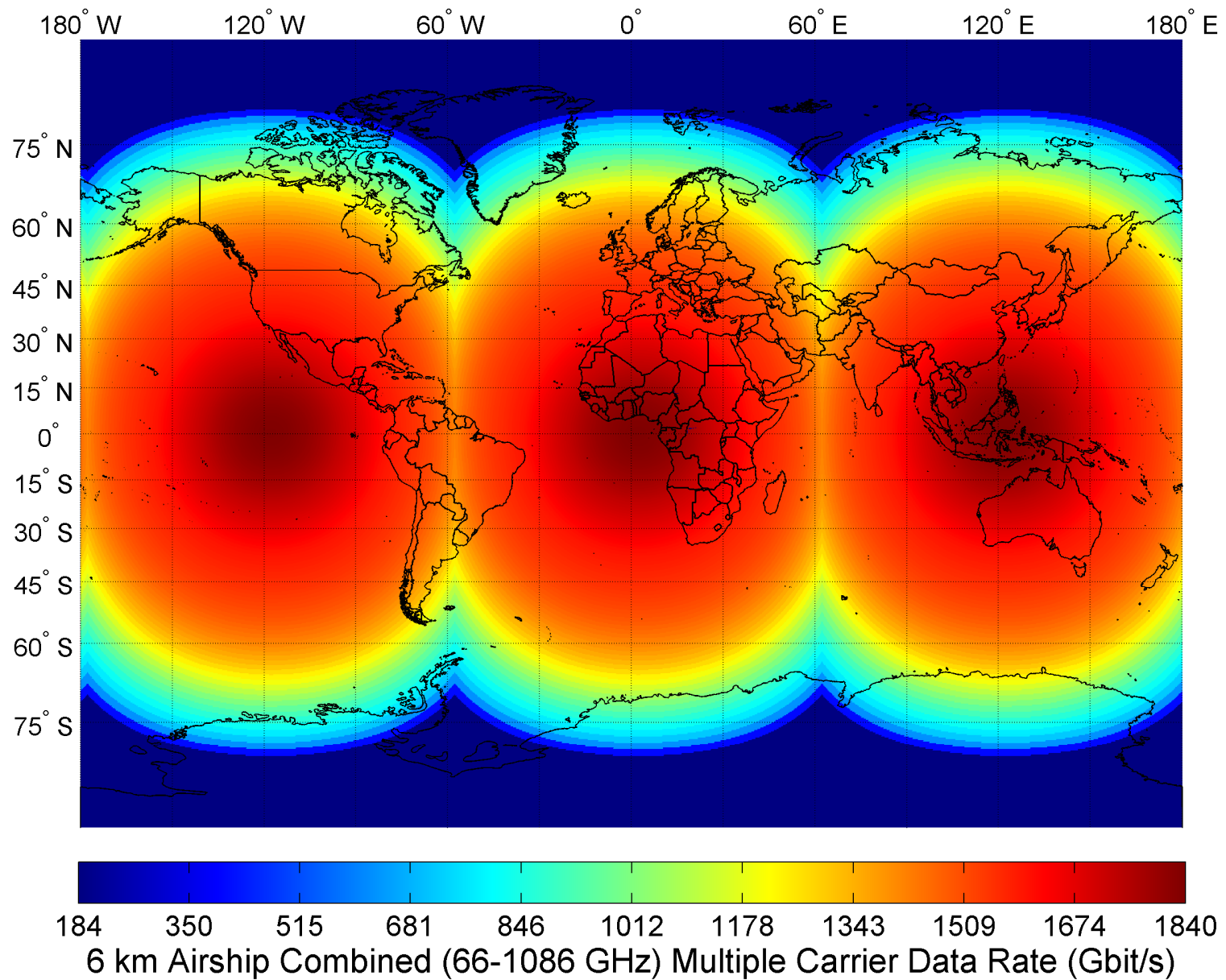
Fig. 10(f) Data rates achieved by combining multiple bands. 6 km airship scenario utilizes Bands A-F. Multicarrier performance is shown.