The benefits of local regression for quantifying global warming

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Introduction

- Figures S1 to S3 are supplementary to Section 2.1.1 and provide additional information about the described observational GMST data series.
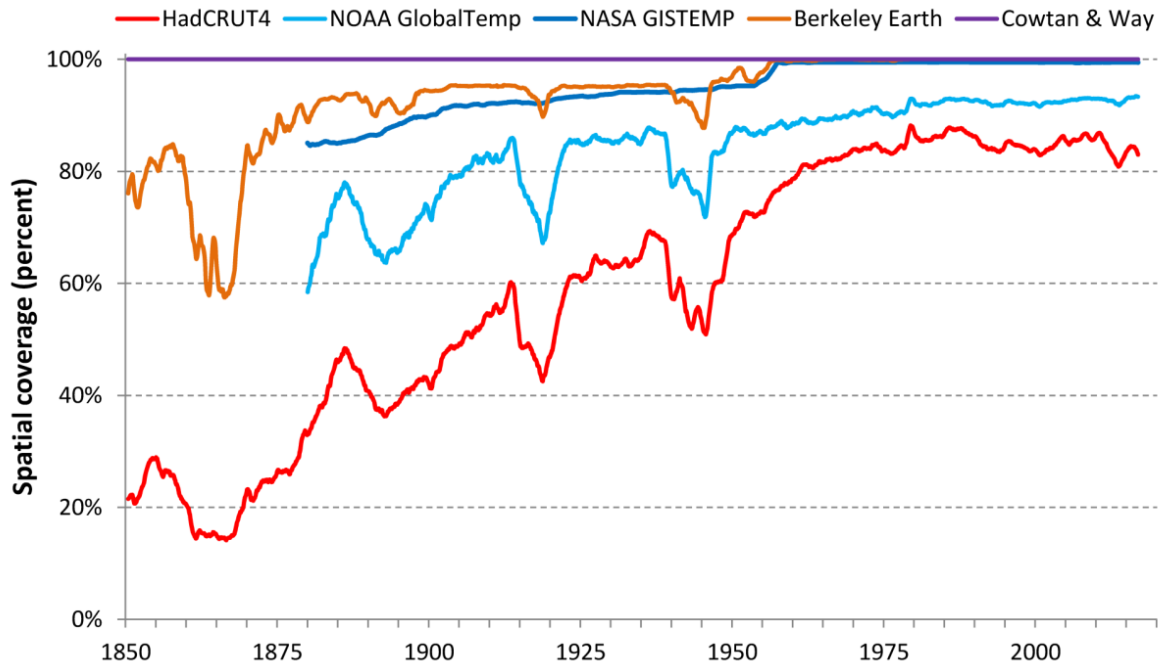
Figure S1: GMST spatial coverage 1850 – 2019. Monthly spatial coverage is shown for the five data series assessed in this study: HadCRUT4 (red), NOAA GlobalTemp (light blue), NASA GISTEMP (dark blue), Cowtan-Way (purple) and Berkeley Earth (orange).
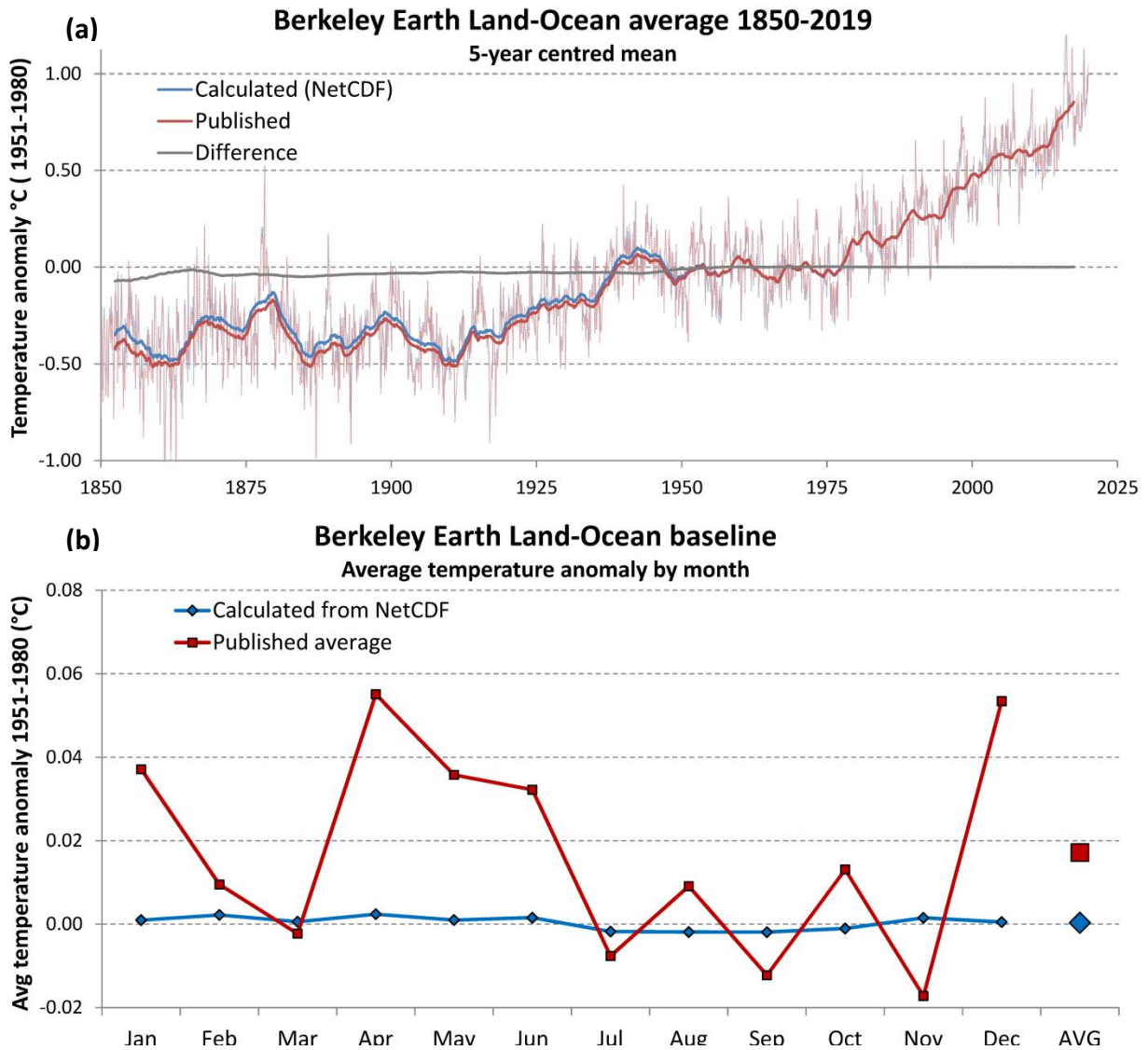
Figure S2: Berkeley Earth GMST 5-yr average and baseline annual cycle. (a) Shown are the published 5-year centred running average (red) and that calculated from area-weighted gridded average (blue). The difference series (gray) is 0 under full coverage after ~1955, but shows noticeable differences before then, especially over 1850-1900 (mean difference of ~0.04 °C). **(b)** Shown are the annual cycle in published baseline monthly averages (red squares) and that calculated from gridded data (blue diamonds).
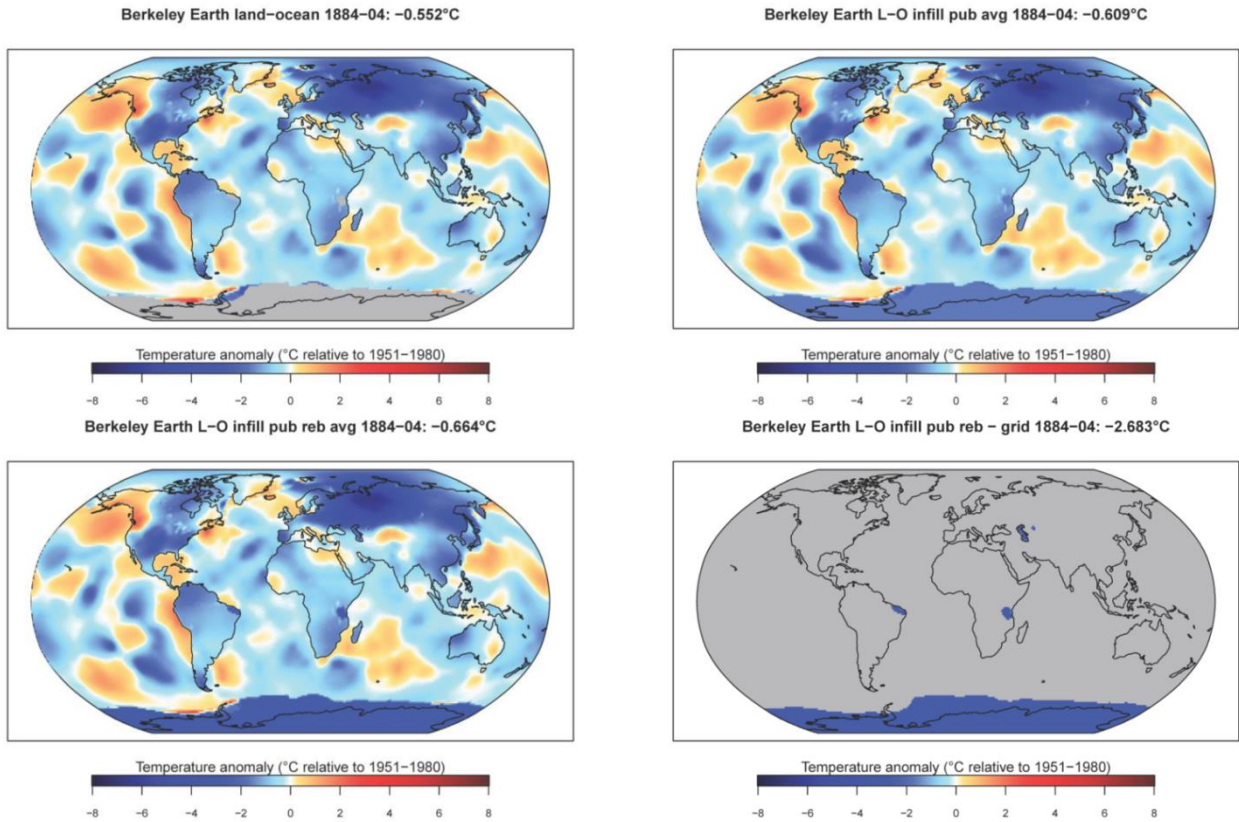
Figure S3: Berkeley Earth land-ocean 1884-04. (a) 1x1 gridded land-ocean anomaly data with area-weighted average**. (b)** Same as (a), except infilled so that resulting average matches Berkeley Earth published average. **(c)** Same as (a), except infilled so that resulting average matches Berkeley Earth rebaselined published average (i.e. April 1951-1980 average = 0).   **(d)** The difference between (a) and (c), demonstrating that missing areas must average ~-2.7**°C** in order for the overall weighted average to match the rebaselined published average.