

Ecography

**ECOG-01366**

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**Supplementary material**

## **Appendix 1**

### **Detailed Methods**

Information about International Biogeography Society (IBS) meeting locations and attendees' home countries were obtained through requests to the IBS. For each attendee, we georeferenced the centroid of the home country or in the case of the USA and Australia, both large countries with many attendees, we georeferenced the home city of each attendee. Using these data we estimated the travel distance to the respective meeting as the shortest possible great circle distance. This is a conservative estimate as it assumes direct flights between each attendee's "home" and the meeting location. Actual travel distances are likely to be longer due to indirect routes and layovers. Using guideline set by the USA EPA (United States Environmental Protection Agency, 2008), we then estimated the per capita CO<sub>2</sub>-equivalent emissions (based on emissions of carbon, methane and NO<sub>2</sub>) that are incurred by flying these distances. Carbon equivalent emissions were then doubled to account for return flights. Based on this information, we estimated the average CO<sub>2</sub>-equivalent emission per attendee of each meeting and the total CO<sub>2</sub>-equivalent emissions associated with each meeting (only accounting for travel).

Next, we calculated the CO<sub>2</sub>-equivalent emissions that would have been incurred by the same attendee pool but for different meeting locations. For this analysis we considered the home location of any meeting attendee (across all years) as possible meeting locations. This selection criterion restricts possible meeting locations to sites where there is at least one member of the IBS who has shown interest in the meetings and thus could potentially serve as a meeting host. We then compared the estimated CO<sub>2</sub>-equivalent emissions associated with

the actual meeting location to randomly selected locations and with the optimal location (i.e., the location with the lowest total carbon emissions for that pool of attendees).

To guide the selection of future meeting sites, we pooled all attendees across all meeting years and estimated the potential CO<sub>2</sub>-equivalent emissions for this combined pool attending all of the possible meeting locations (meeting locations restricted as above). Since the data provided by IBS did not include names or individual identifying information, we could not account for the fact that some attendees attended more than one year – i.e., if someone from location  $x$  attended 4 of the past meetings, the final analysis considered that there were 4 attendees coming from location  $x$ . By counting individuals more than once if they attended multiple meetings, the combined attendee pool can be considered to be weighted based on attendee interest. Finally, we determined the potential meeting location with the lowest possible carbon emissions for the overall attendee pool and compared this with the site of the IBS' 2015 meeting in Bayreuth, Germany.

All analyses were conducted in R (R Core Team, 2014) using the “raster” (Hijmans and van Etten 2011), “fields” (Furrer et al. 2010) and “geosphere” (Hijmans et al. 2010) packages.

### **References cited in the online supplemental material**

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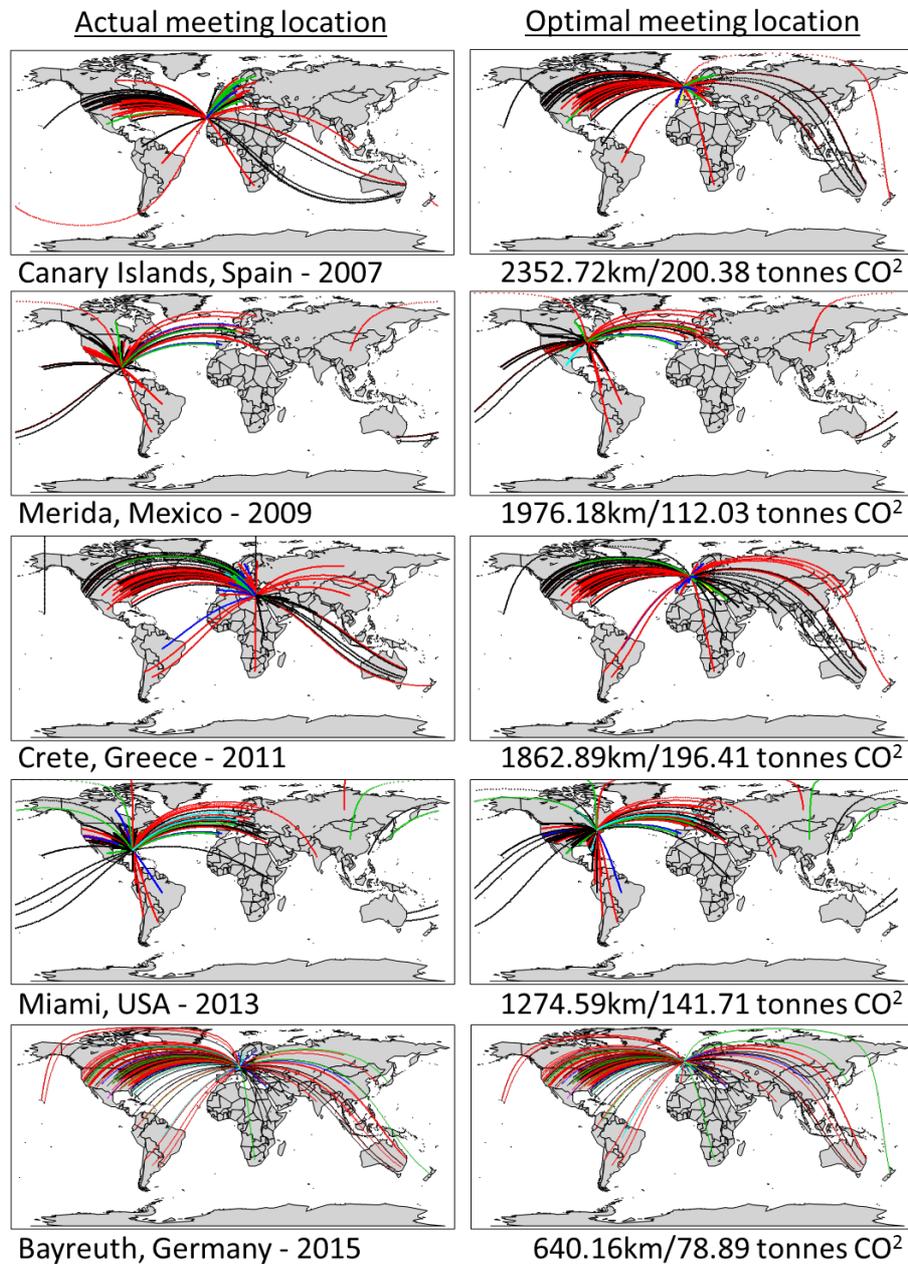
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**Figure A1.** Air travel routes of attendees to (left) actual meeting locations, and (right) the respective optimal (i.e., lowest possible total Greenhouse Gas emissions) meeting locations of the biennial conferences of the International Biogeography Society. Line colours indicate number of attendees per travel route; Black = 1, Red = 2-5, Green = 6-10, Blue = 11-20, Turquoise = 21-40, Purple = 41-60, Yellow = 61-120, Gray = 121-200. Average per person round-trip air travel distances and meeting-total GHG emissions that would have been saved if meetings were held in their respective optimal locations are indicated below the panels on the right.