Effort Estimation

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SHORT-TERM CONTRACT: A MODELING APPROACH TO ESTIMATE OVERALL ATLANTIC FISHING EFFORT BY TIME-AREA STRATA (EFFDIS)

Objectives

- Develop a robust statistical modeling approach to estimate overall Atlantic fishing effort stratified by flag/fleet, gear, area (5^{o}x5^{o} degree square grid), year and month (starting in 1950).
- Update the current EFFDIS estimations for longline gear (1950 to 2014) using the new approach, and then develop estimation procedures for baitboat and purse-seine with the appropriate effort units.

Outline

The SGECO Working group made a series of recommendations for improving EFFDIS, ie.to:

- Consider seasonal and spatial patterns and their interactions
- Understand how information from species composition can best be used in this context
- Combine bait boat and purse-seine estimates with long-line
- Estimate uncertainty/variance
- Exploit other relevant information where available, e.g. VMS data

Overall workplan

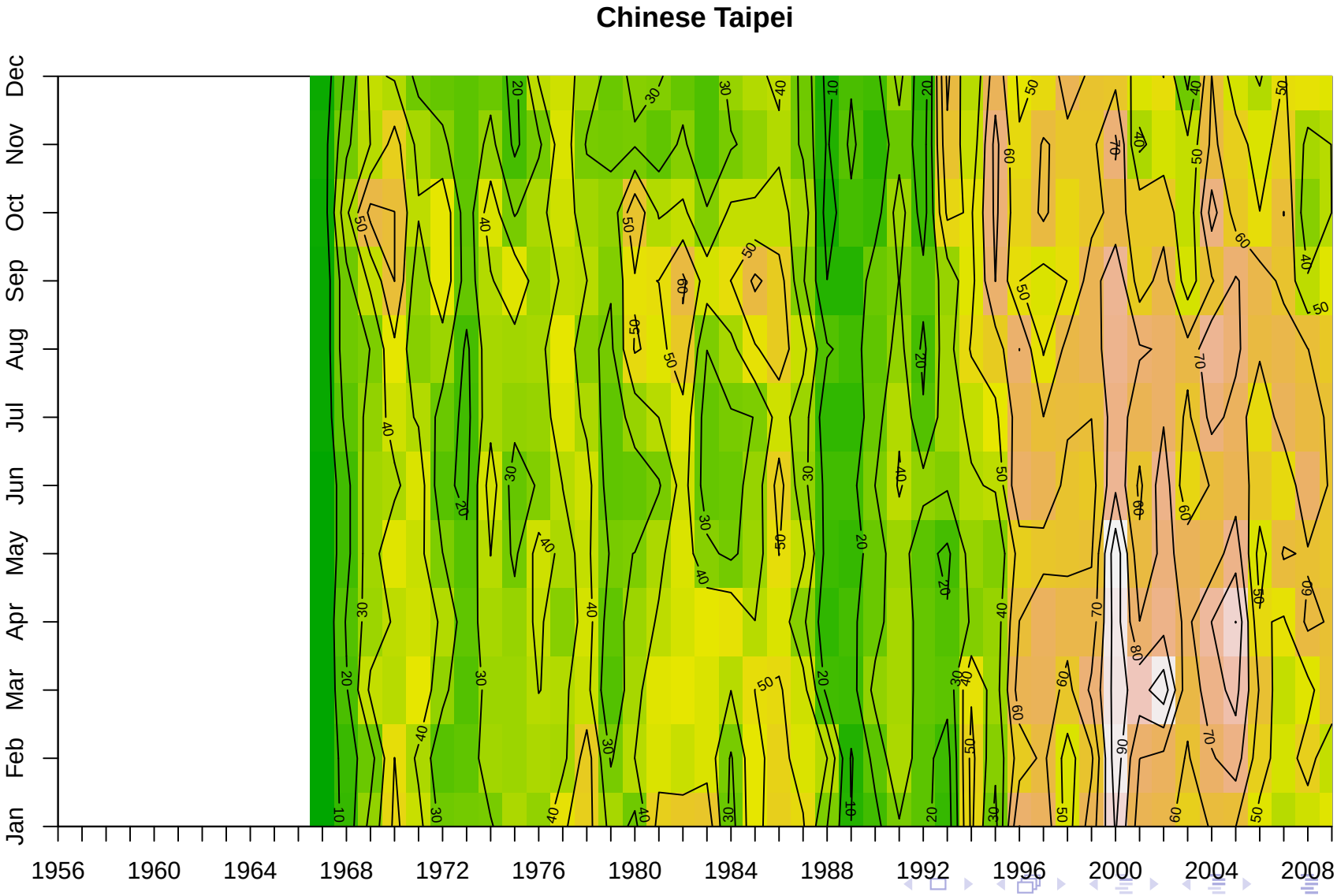
- Obtain all the relevant data and review the current methods for EFFDIS estimation
- Write documented R code to mimic the current procedure
- Develop 'strawman' methodologies for estimating fishing effort for a single fleet/flag country
- Once a method is approved for one fleet the Contractor will then adapt it to other fleets to produce global estimates
- Use an online SQL relational database linked to R-scripts

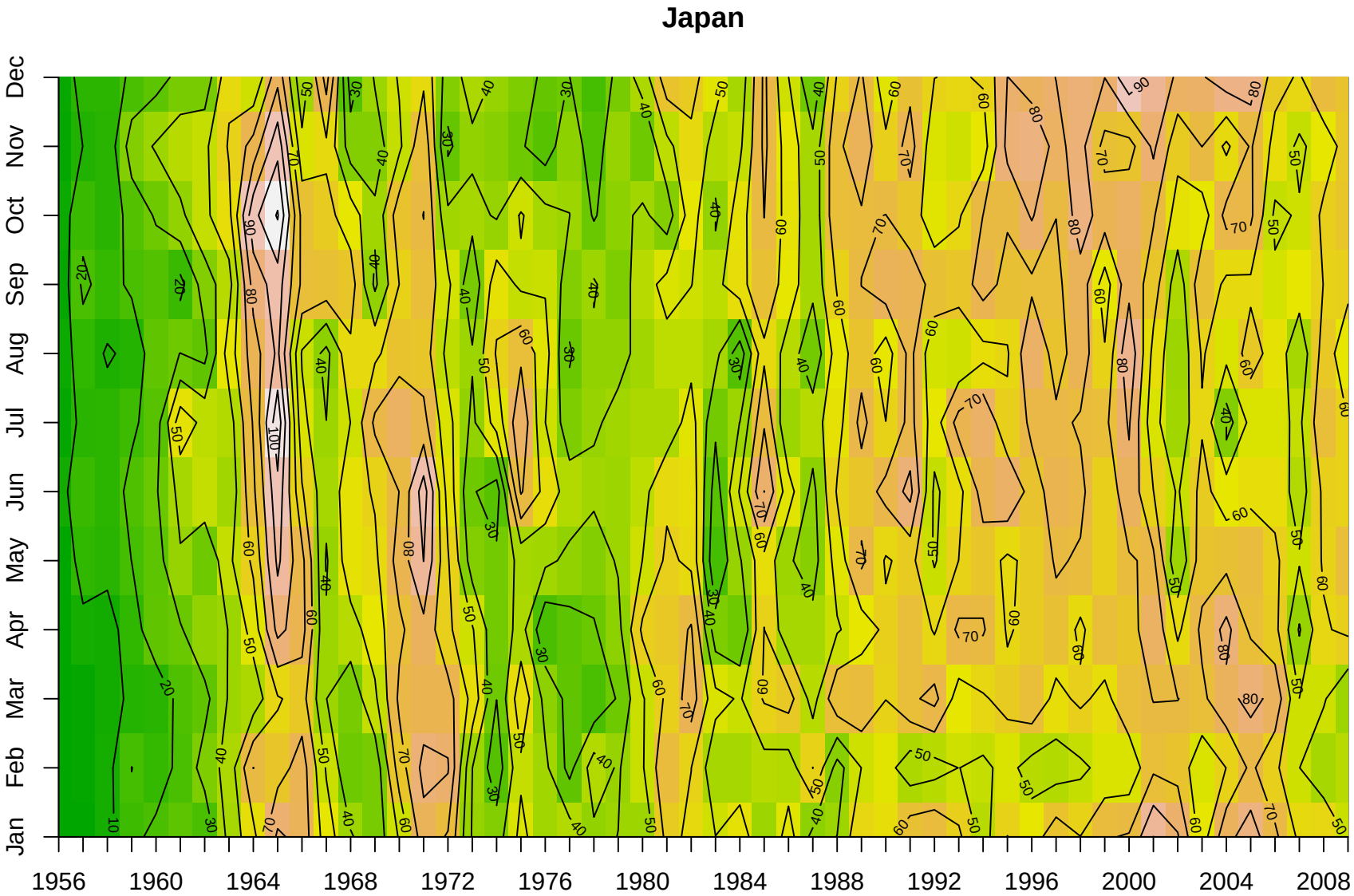
Detailed workplan

- Explore data for non-random, non-representative sampling (data catalogue)
- Investigate the relationship between Task 1 and Task 2 data (Sum of products) for fleet combinations
- Develop most appropriate multi-variate models (e.g. GLMs, GAMs) for interpoplation
- Estimate variance/bias with jack-knife
- Test predictions using cross-validation methodology

Exploring data for non-random, non-representative sampling (data catalogue)

Spatio-temporal sampling - Chinese Taipei

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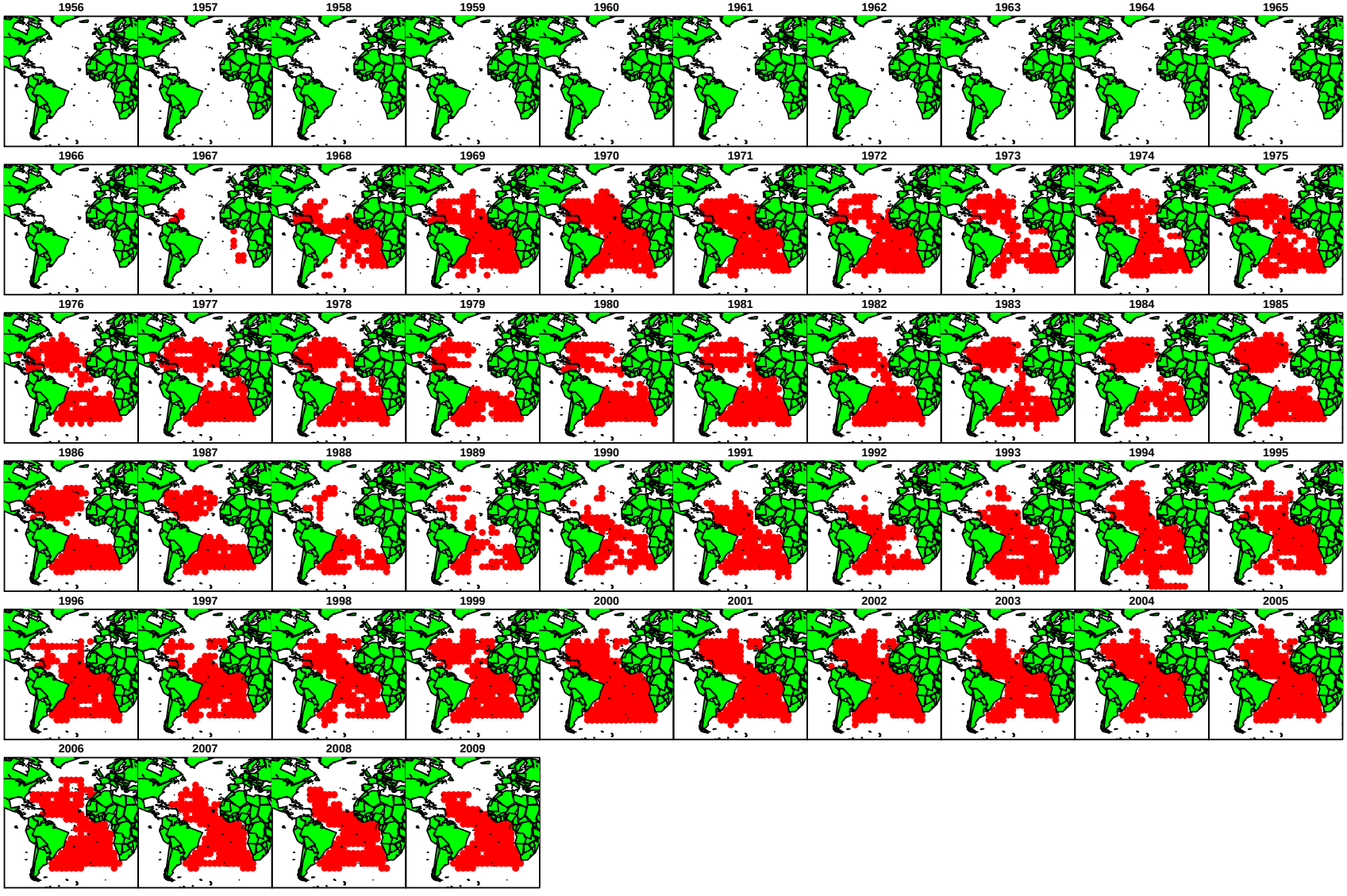
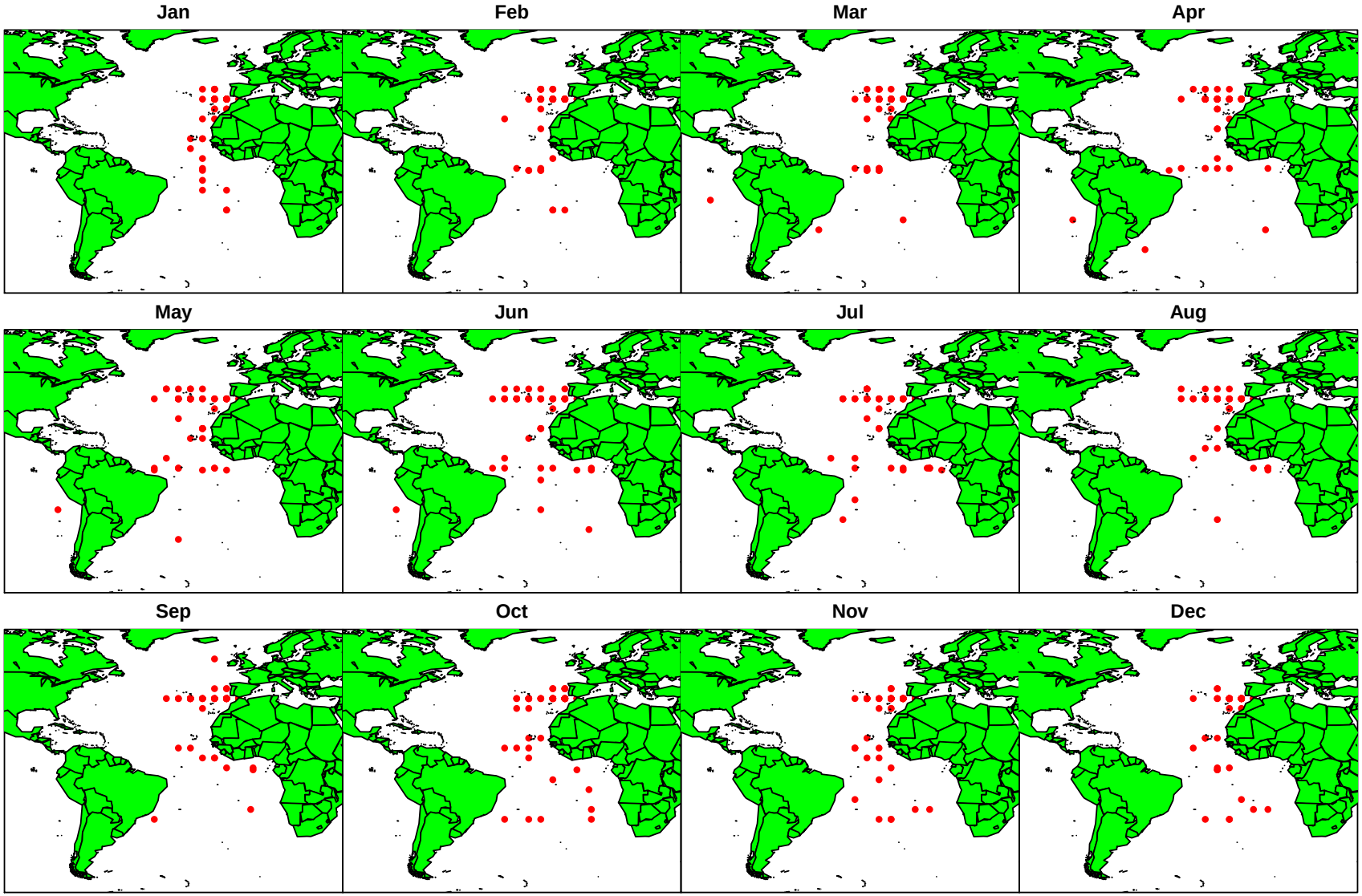
Chinese Taipei



EU.Portugal



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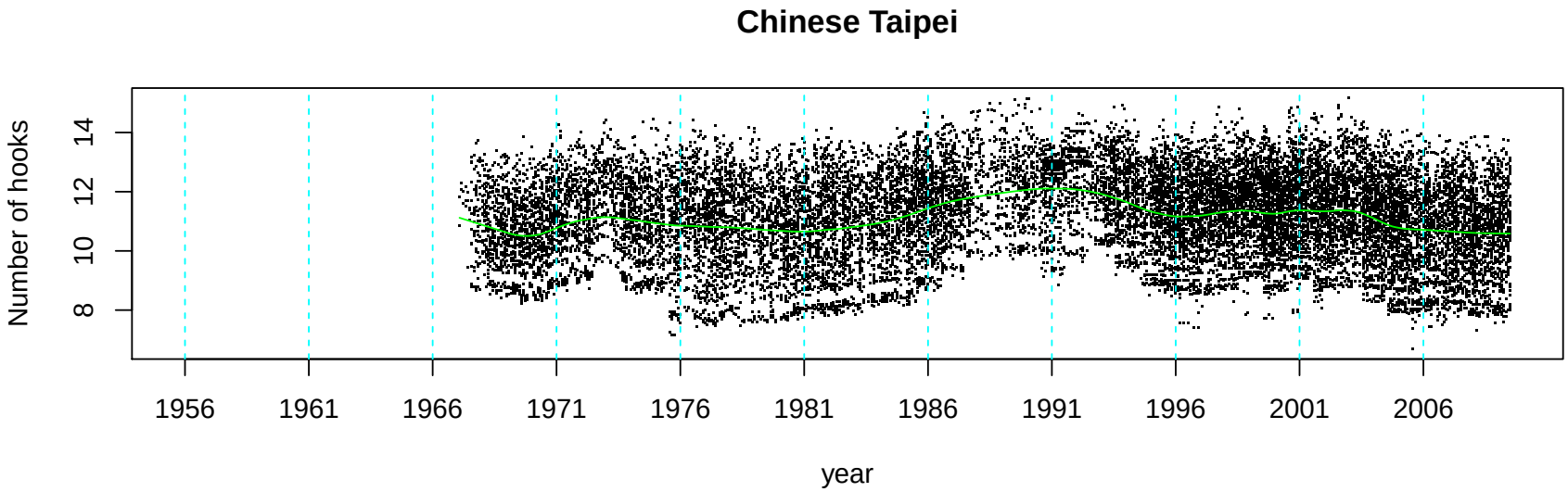

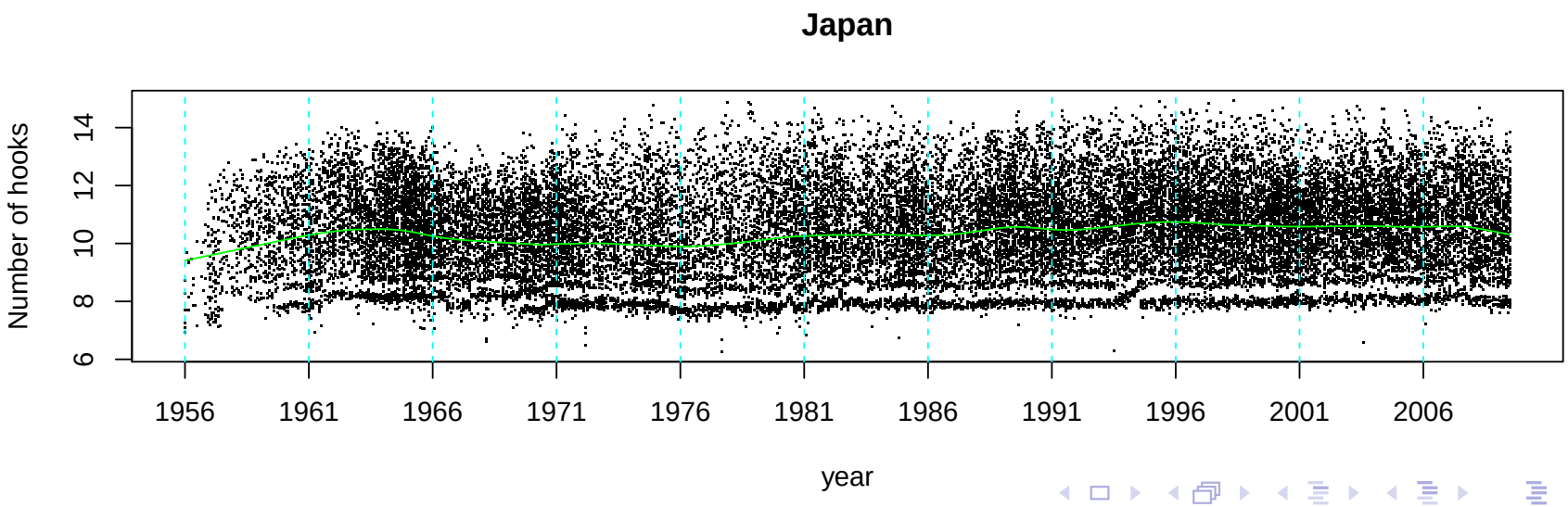

Investigating the relationship between Task 1 and Task 2 data (Sum of products) for fleet combinations