

(Tikus Is coral cover)

The Tikus Island, Indonesia, data on % area cover of coral communities on 10 transects in the years 1981, 83, 84, 85, 87 and 88, were first met in Section 5, with data sheet **Tikus coral cover** in the directory C:\Examples v7\Tikus corals. It is discussed extensively in the context of resemblance choice for multivariate analysis in Chapter 16 of CiMC but here, as an illustration of *k*-dominance curve testing, we will use only the differences between two of the years: 1981 and 1983, before and after the major El Niño event of 1982/3.

Open **Tikus coral cover** in a new workspace and **Select>Samples>(•Factor levels)>(Factor name: Year)>Levels** and Include only **1** and **3**. **Plots>Dominance Plot**, with the defaults of (Mode•Single worksheet) and (Plot type•Cumulative), will generate the *k*-dominance curves for all the selected samples on a single plot. Show the group structure of 10 replicates from each of two years by **Graph>Sample Labels & Symbols**, switching on (Symbols:✓Plot>✓By factor: **Year**). To test for significance of the (rather obvious!) differences between the curves in the two years, run **Analyse>DOMDIS>(✓Log weighting of species ranks)** on **Tikus coral cover**. This generates a resemblance matrix **Resem1**, giving the distance between all pairs of curves, which is then input to **Analyse>ANOSIM>(Model: One way - A)>(Factors A: Year)>(Type: Unordered)**, with the other defaults taken. The *R* statistic is 0.46, easily larger than for any of the 999 random permutations under the hypothesis of no year difference, thus $p < 0.1\%$ (and the null histogram shows it would be a great deal smaller, for more simulations), signifying a clear change in dominance pattern between the years. The *R* value is depressed somewhat by one outlying replicate in 1981 which is much more dominated, and less species rich, than the other 9 transects, but there is no justification for leaving it out of the analysis. Close the workspace – it will not be needed again.



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