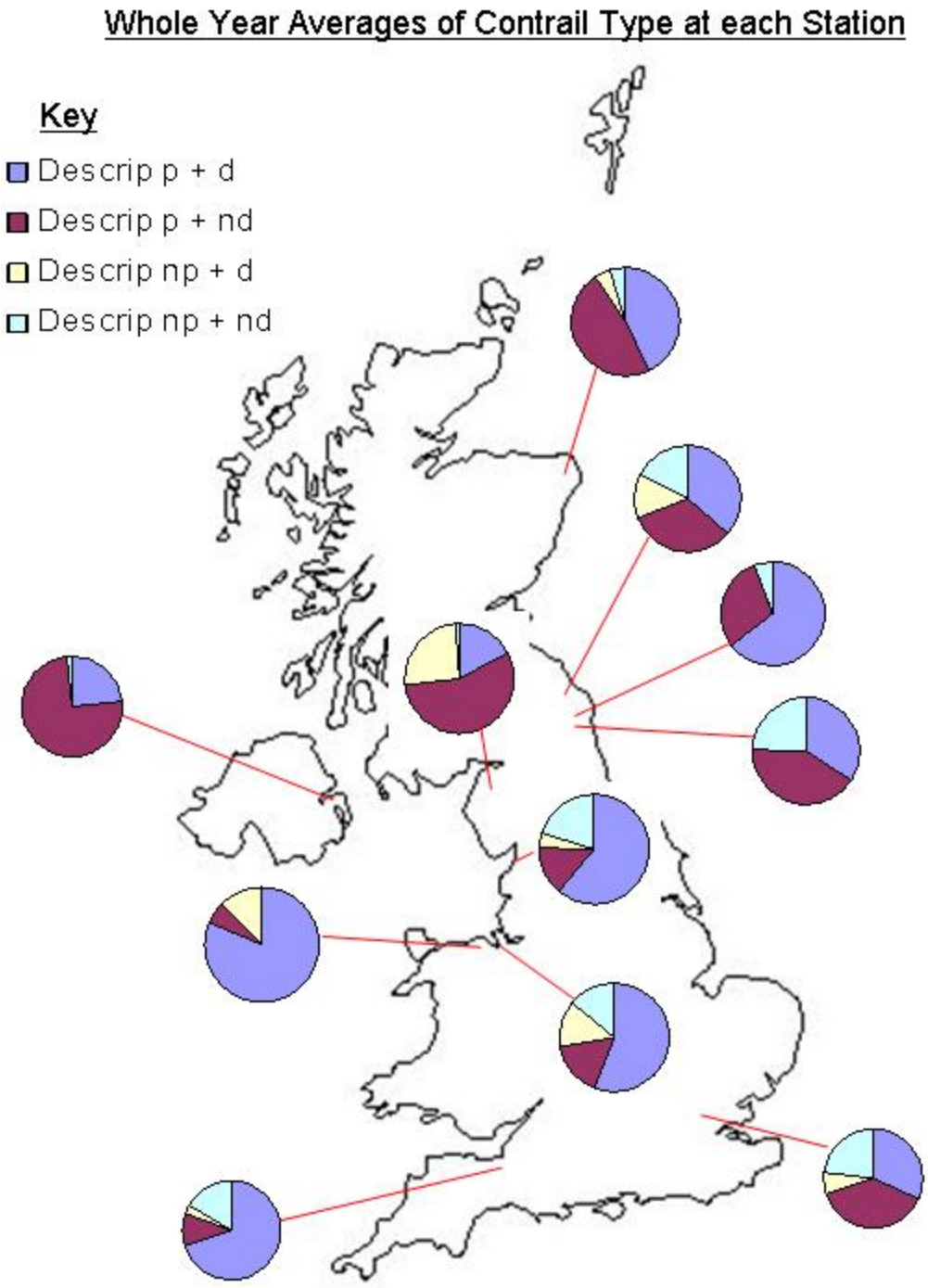
Analysis of Contrail Type

The following figure shows, geographically, a breakdown of the types of contrails observed at each station. The figures have been obtained by averaging the number of each type of contrail, over the whole observation period (from August 2003), observed at each station, when observations have been taken. Therefore any days when observations have not been taken have been omitted from the averages.



The most important type of contrail in relation to the effects on climate are the persistent and dispersed (p+d) types and although there is some wide variation across the UK it can be seen that this p+d type does account for quite a high proportion of the contrails observed. Therefore if there is an increase in the aviation industry over the next few years, as is expected, then it is also likely that the number of p+d contrails over the UK will also increase and this will have quite major implications for climate.

One surprising observation that can be made from this figure is that there appear to be in some places (e.g. Workington, Neston and Moel Y Crio especially) a large number of non persistent and dispersed (np+d) contrails observed. This is surprising for the fact that a non persistent contrail is classified as a contrail that does not persist for longer than 5 minutes, in which time it is unlikely that a contrail will have spread out to the extent at which it can be called dispersed. This therefore seems to suggest that there is some discrepancy in the classification system so far used, either that the classifications themselves have fuzzy boundaries or that the instructions given, by Lancaster, to the other stations participating in the observations, are not clear and that there needs to be some clarification so that all the stations are working to the same standard. This idea is backed up by the fact that there are large variations in the proportion of each type of contrail observed at the stations, even when the stations are located close together. For example Workington shows a vastly different pattern to Lancaster, and Consett and Stokesley are different from Bishop Auckland. Although you would not expect the same pattern at nearby stations you would expect more association than there is, unless the formation of contrails is a much more regional phenomenon/process than it is believed to be.

For a further analysis of regional patterns of contrail formation click here.

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