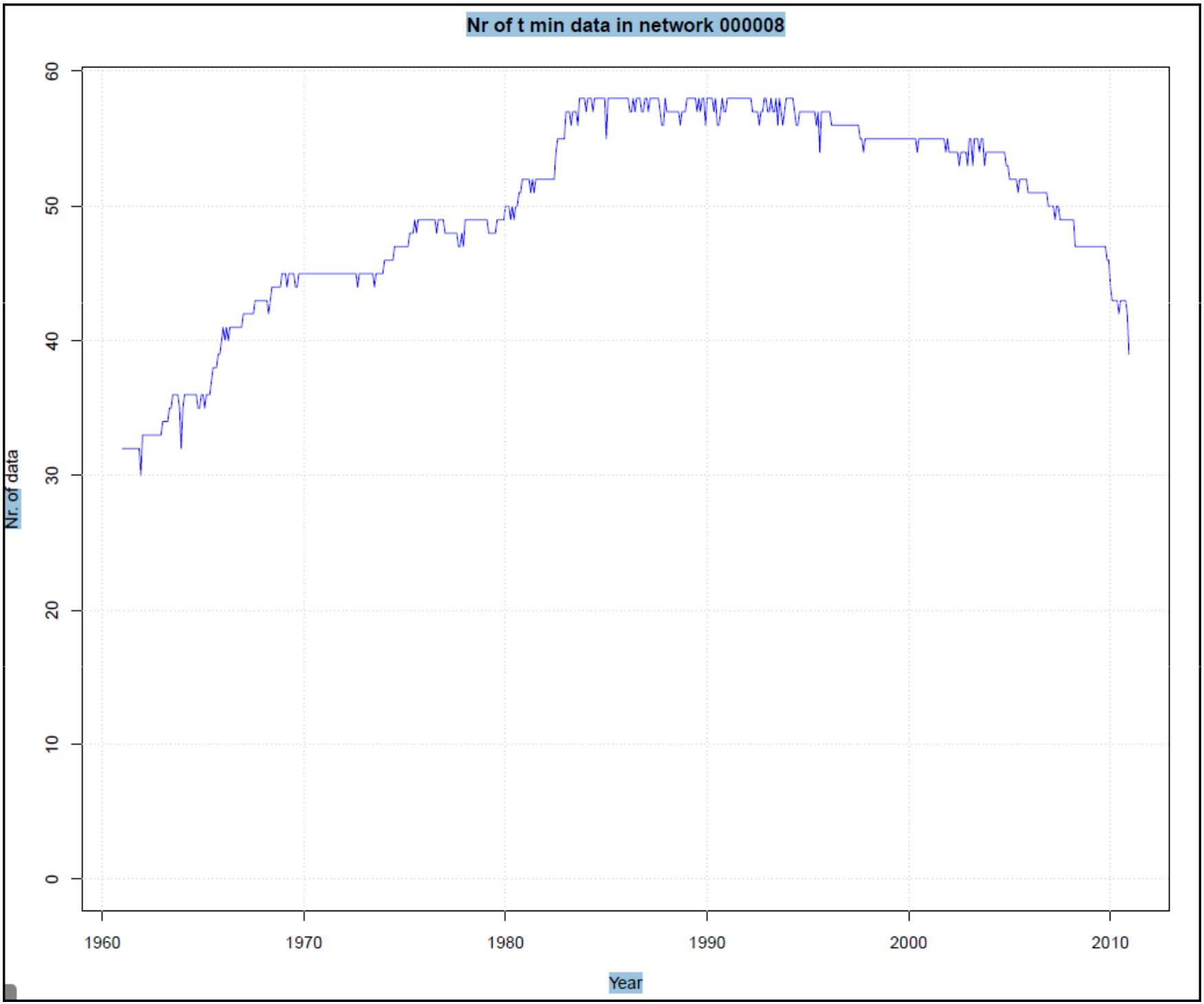
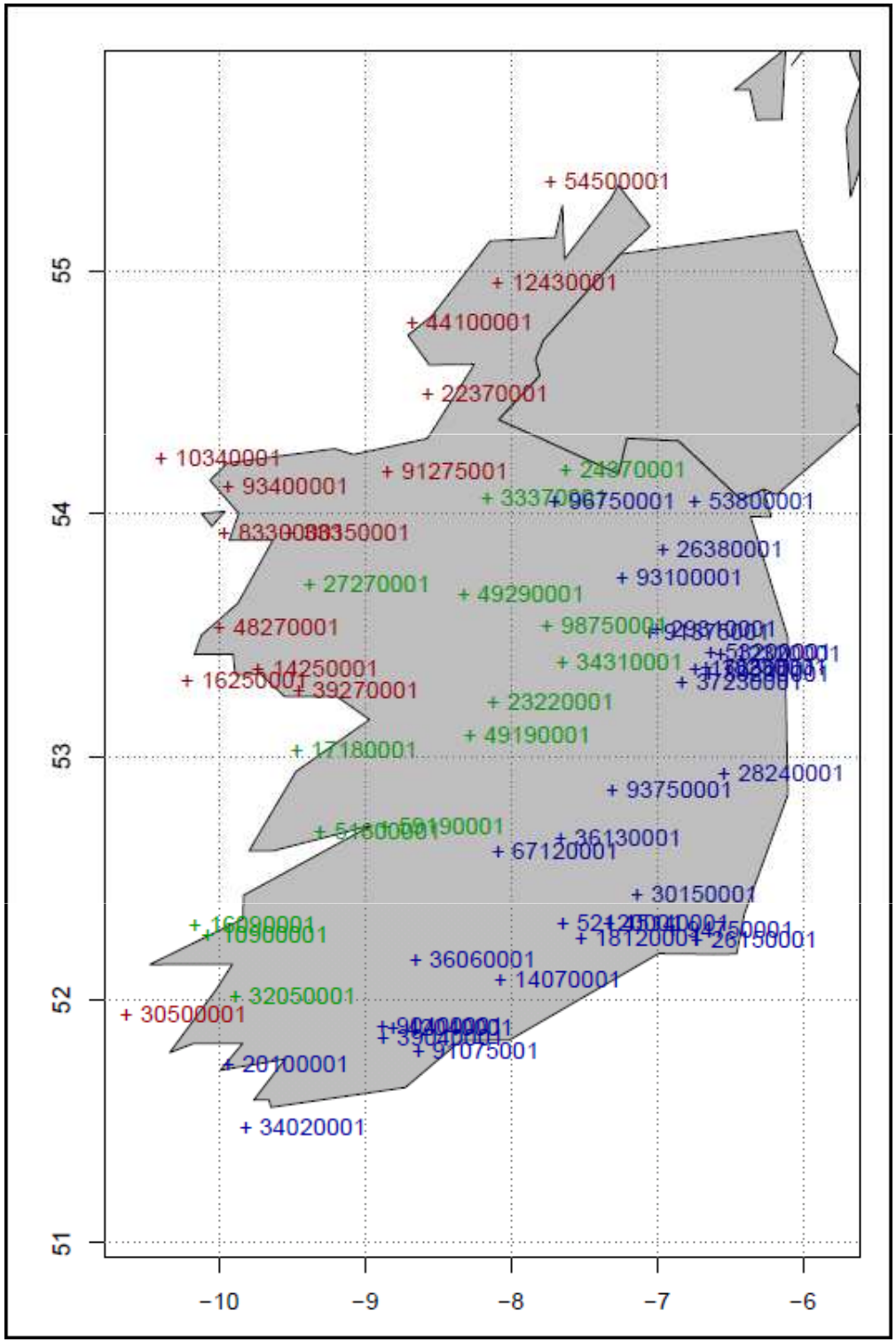
# Homogenisation of Monthly Maximum and Minimum Air Temperatures in Ireland.

Mary Curley and Seamus Walsh,

Climatology and Observations Division,
Met Éireann, Dublin 9, Ireland


Nr of t min data in network 000008
Nr. of data
0
10
20
30
40
50
60
1960
1970
1980
1990
2000
2010
Year


+ 54500001
+ 12430001
+ 44100001
+ 22370001
+ 10340001
+ 91275001
+ 24370001
+ 93400001
+ 96750001
+ 53800001
+ 26380001
+ 93100001
+ 27270001
+ 49290001
+ 48270001
+ 14250001
+ 16250001
+ 39270001
+ 23220001
+ 49190001
+ 17180001
+ 28240001
+ 93750001
+ 36130001
+ 67120001
+ 30150001
+ 36060001
+ 14070001
+ 32050001
+ 30500001
+ 91075001
+ 20100001
+ 34020001
55
54
53
52
51
−10
−9
−8
−7
−6

# Max and min long temperature series 1961-2010

**Min temperature series**

- Total number of stations: 58
- 38 stations had breaks
- Total number of breaks: 69
- Number of verified breaks: 20

**Max temperature series**

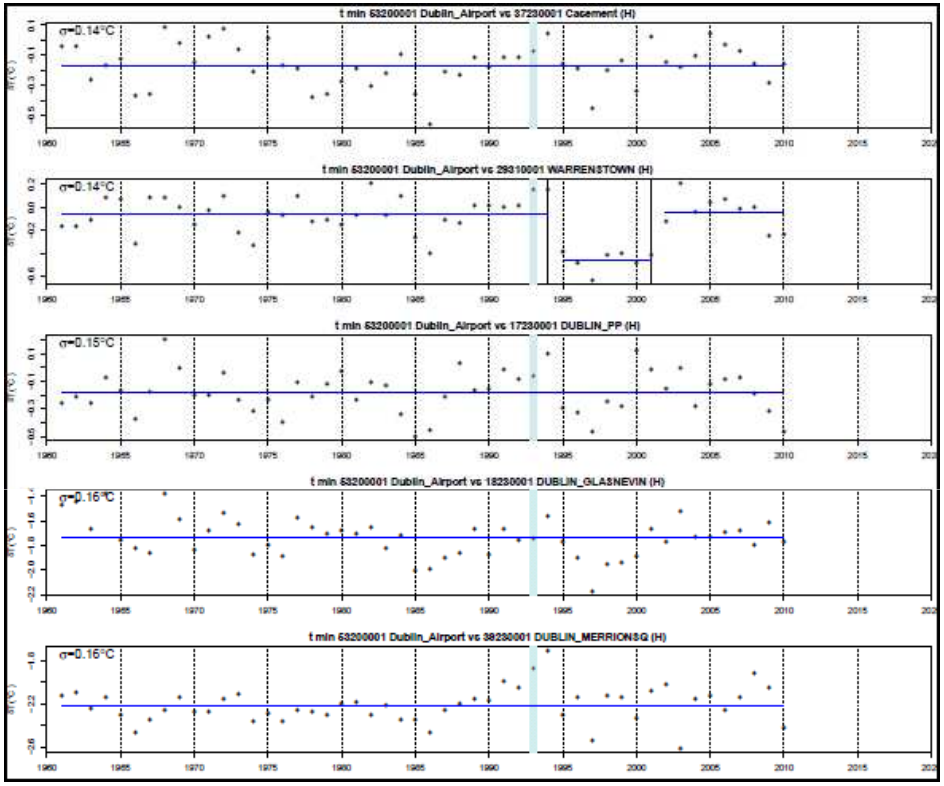
- Total number of stations: 58
- 41 stations had breaks
- Total number of breaks: 68
- Number of verified breaks: 19

# Dublin Airport

Reason for break: relocation of station at airport

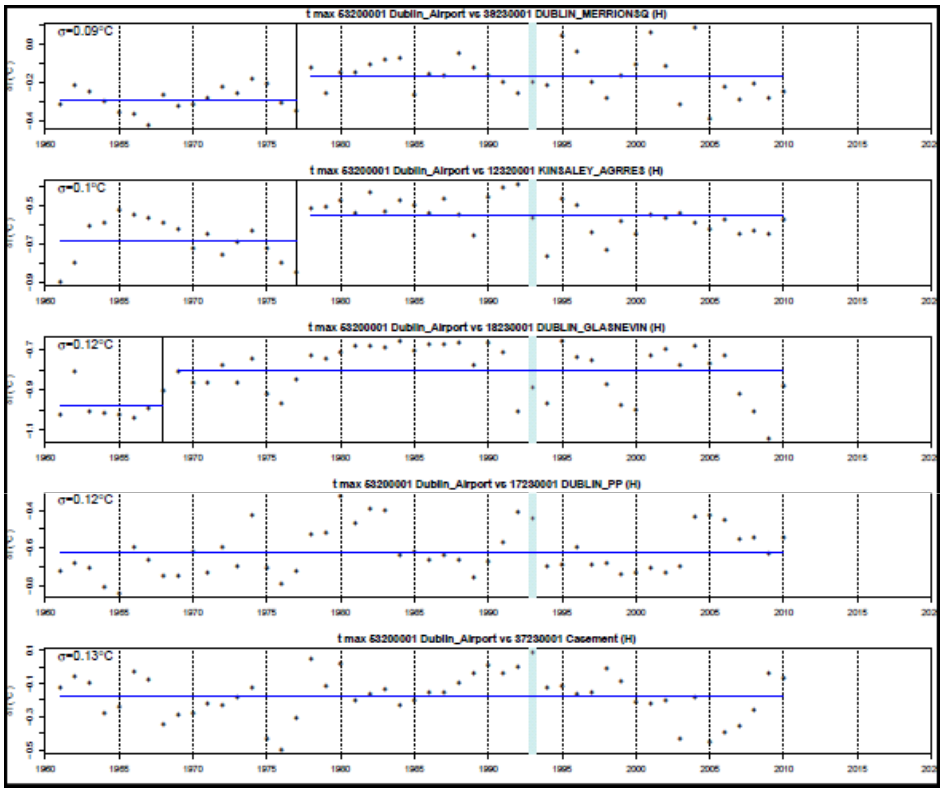
**Min temperature**

Break amplitude: -1.03




**Max temperature**

Break amplitude: -0.16



# Shannon Airport

Reason for break: relocation of station at airport

**Min temperature**

- Break amplitude: -0.38
- Approx. -0.55 in September

**Max temperature**

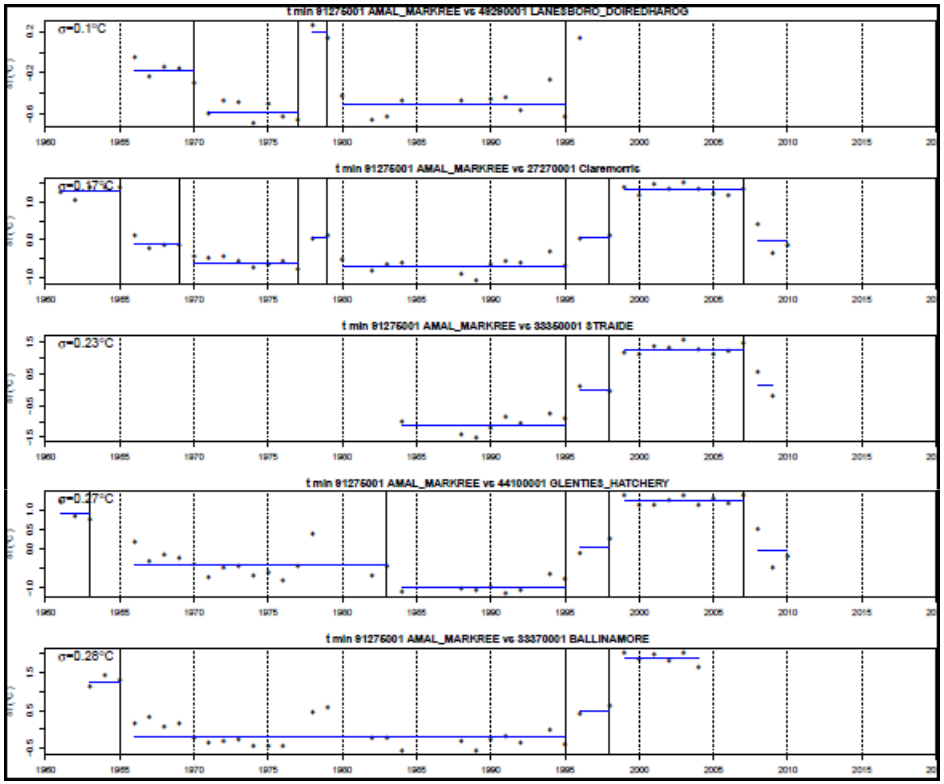
- Break amplitude: -0.60
- Approx. -0.8 in summer JJA

# Markree Castle

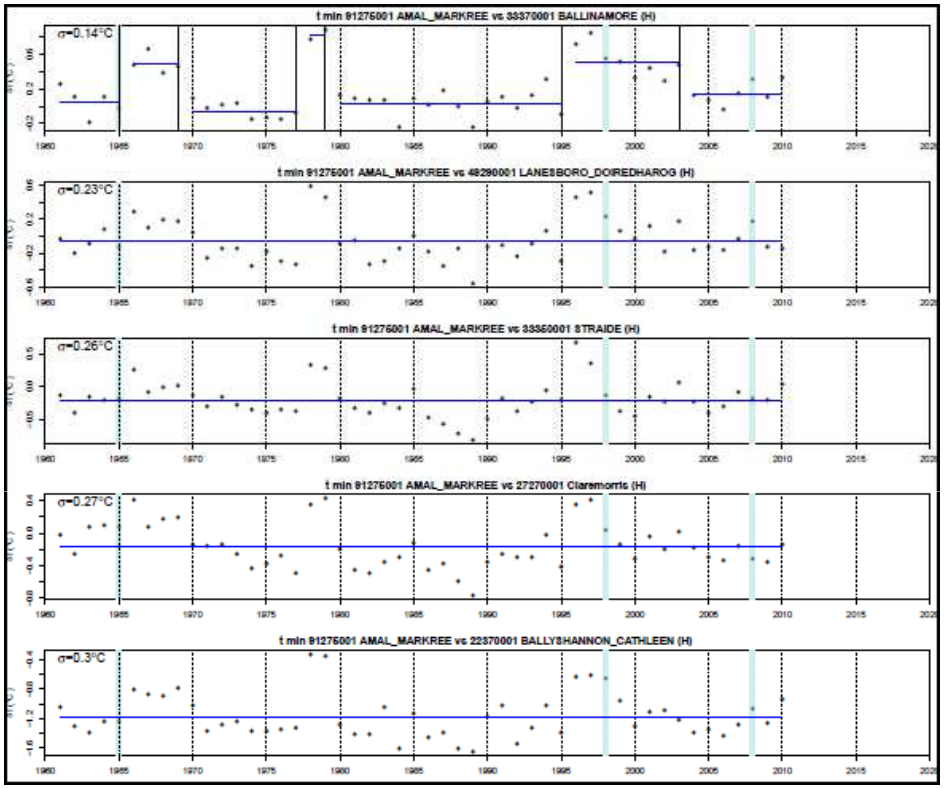
Station established in 1860

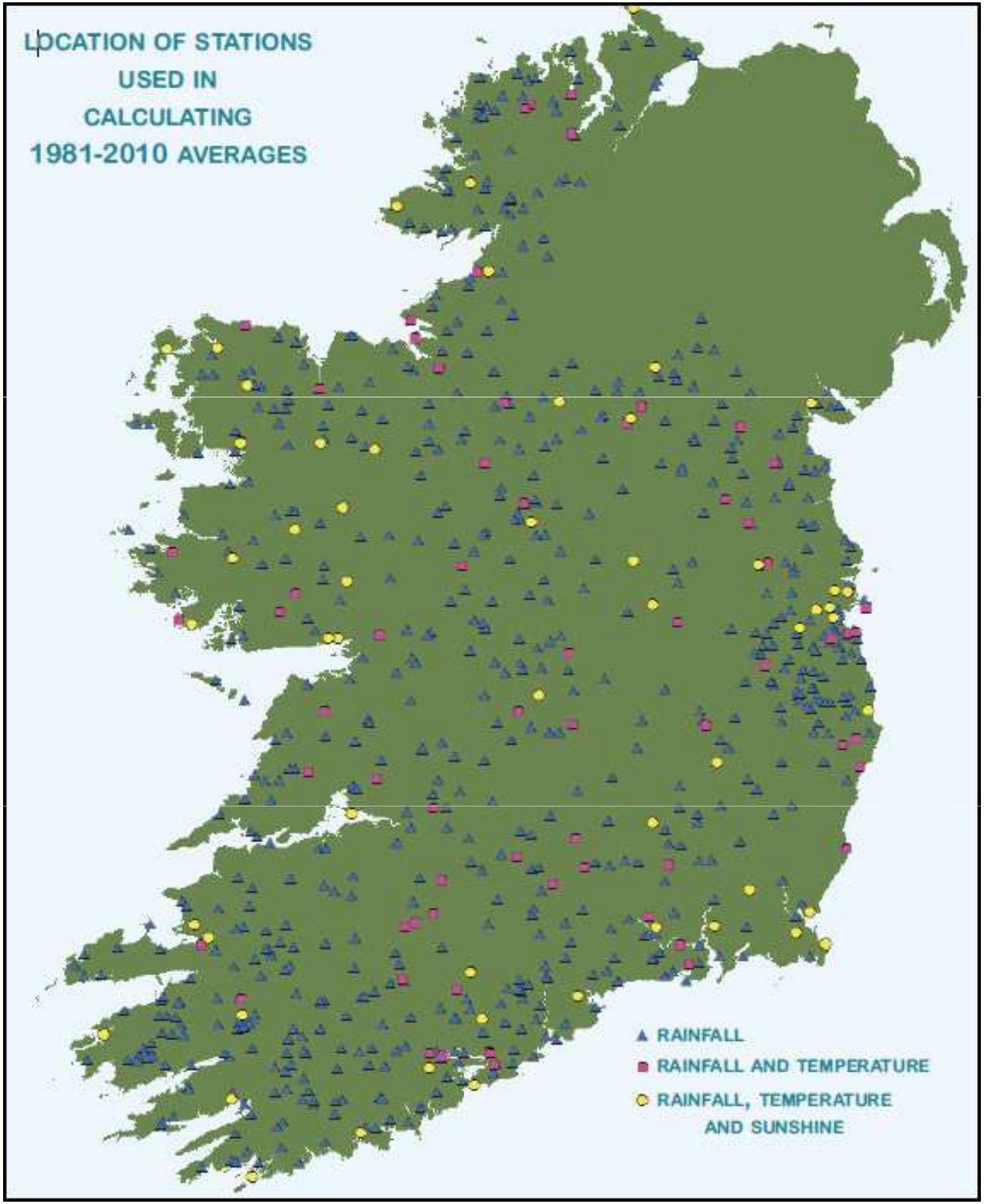
*None of the breaks verified. Max and min breaks in same years*

## Inital break detection




## Final homogenised series




LOCATION OF STATIONS
USED IN
CALCULATING
1981-2010 AVERAGES
RAINFALL
RAINFALL AND TEMPERATURE
RAINFALL, TEMPERATURE
AND SUNSHINE

# All max and min time series

- Used homogenised long time series and homogenised approximately 90 shorter series which had infilled data.
- ~ 100 breaks
- ~30 verified and another 30 in the infilled data

# Experience of using HOMER

# ‘geographical distance’ for reference stations in HOMER.

# Computation of lat/lon in degree and 1/100th of degree

##########################################################

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lat.station <<- station$V2+station$V3/60.+station$V4/3600

lon.station <<- station$V5+station$V6/60.+station$V7/3600

Stations table

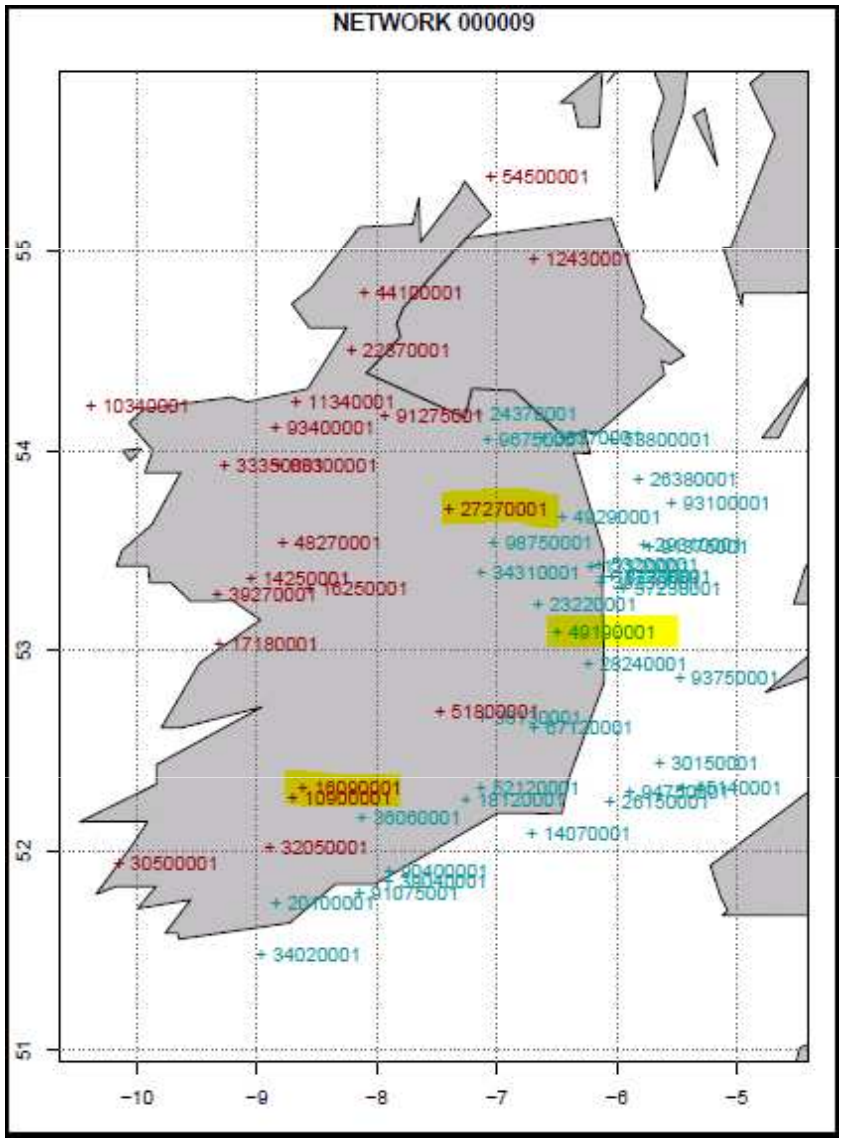
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| qctnm48270001d.txt | 53 | 32 | 10 | -9 | 36 | 23 | 58 | MAAM_VALLEY |
| qctnm49190001d.txt | 53 | 5 | 25 | -7 | 53 | 25 | 72 | Birr |
| qctnm49290001d.txt | 53 | 40 | 10 | -7 | 56 | 0 | 49 | LANESBORO_DOIREDHAROG |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| qctnm48270001d.txt | 53 | 32 | 10 | -9 | -36 | -23 | 58 | MAAM_VALLEY |
| qctnm49190001d.txt | 53 | 5 | 25 | -7 | -53 | -25 | 72 | Birr |
| qctnm49290001d.txt | 53 | 40 | 10 | -7 | -56 | 0 | 49 | LANESBORO_DOIREDHAROG |

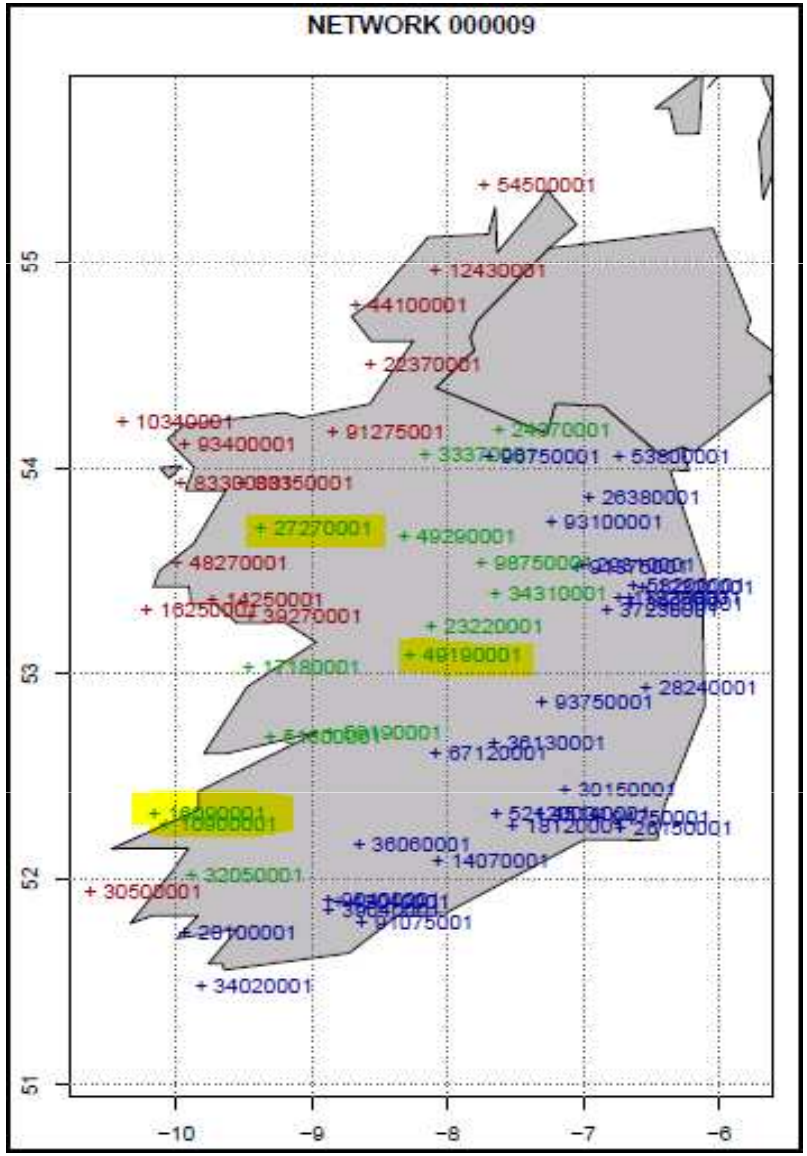
```
if(station$V5 < 0) {
    lon.station   <<- station$V5 - station$V6/60. - station$V7/3600.
} else lon.station   <<- station$V5+station$V6/60.+station$V7/3600
```

José A. Guijarro

## Some stations in incorrect position




## Stations in correct position



# Support

- Version of R
- User training
- Bug reports/updates/fixes

# Future work

- MASH
- Reanalysis, normals
- Data rescue; digitisation of data and metadata prior to 1961 and homogenisation of the data