

# Station Records and Communicating Climate Change

Marc Los Huertos

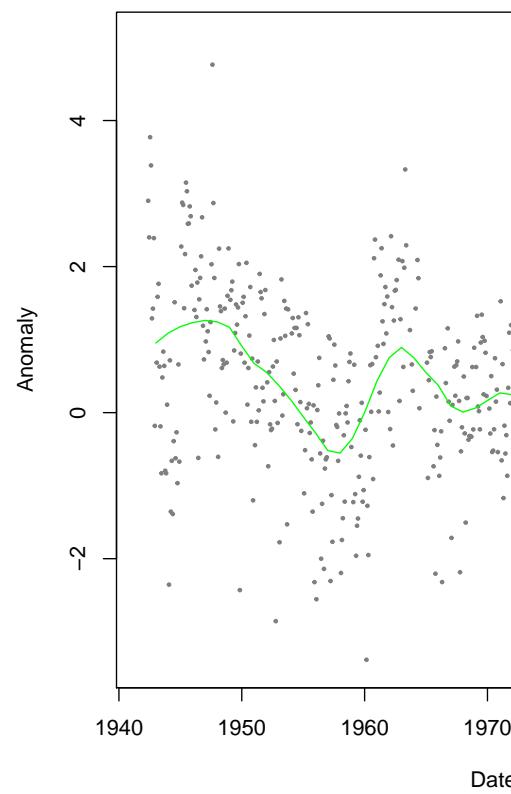
July 18, 2022

2.1.1 METADATA FORMAT (.inv file)  
Variable Columns Type ——————  
ID 1-11 Integer LATITUDE 13-20 Real LONGITUDE 22-30 Real STNELEV  
32-37 Real NAME 39-68 Character  
ID 1-11 Integer YEAR 12-15 Integer ELEMENT 16-19 Character VALUE1  
20-24 Integer DMFLAG1 25-25 Character QCFLAG1 26-26 Character DSFLAG1  
27-27 Character . . . . . VALUE12 108-112 Integer DMFLAG12 113-113  
Character QCFLAG12 114-114 Character DSFLAG12 115-115 Character

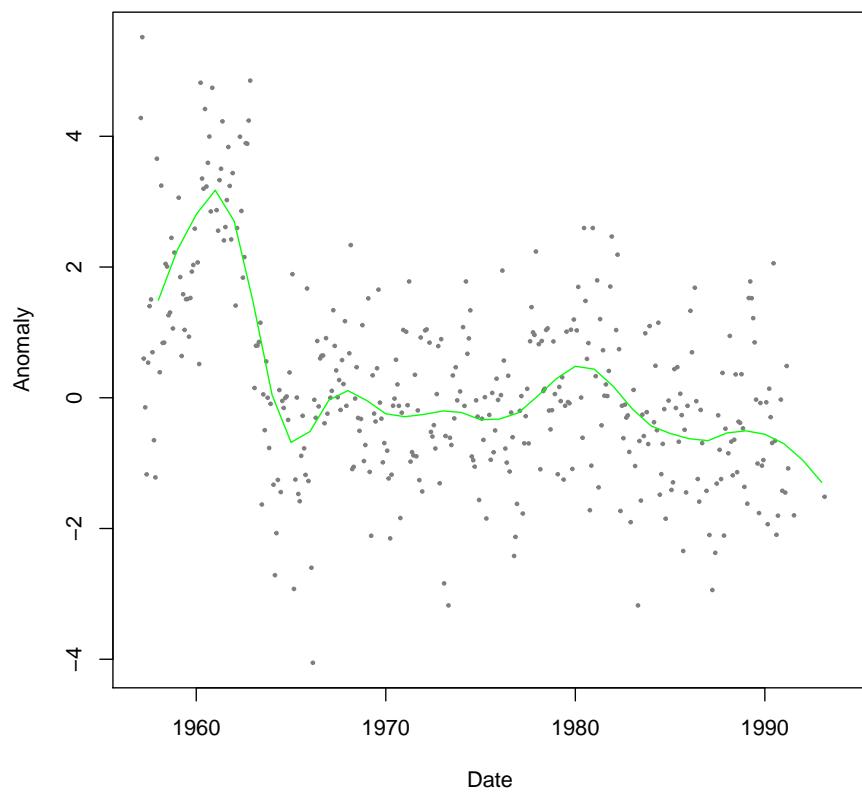
## 0.1 Clean Up Data

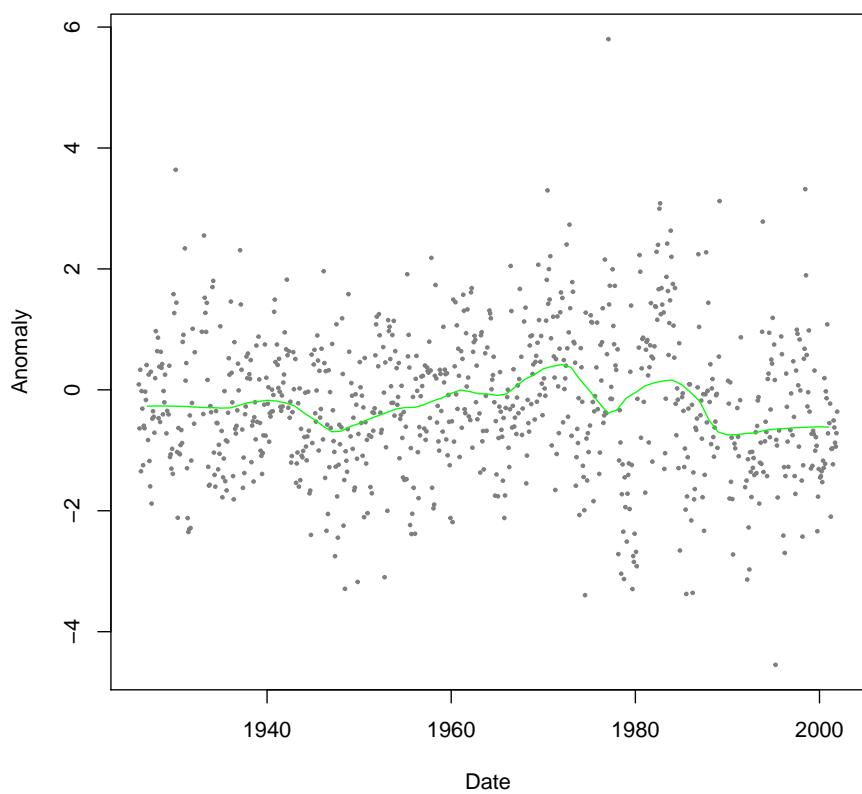
## 0.2 Cycle thru Countries

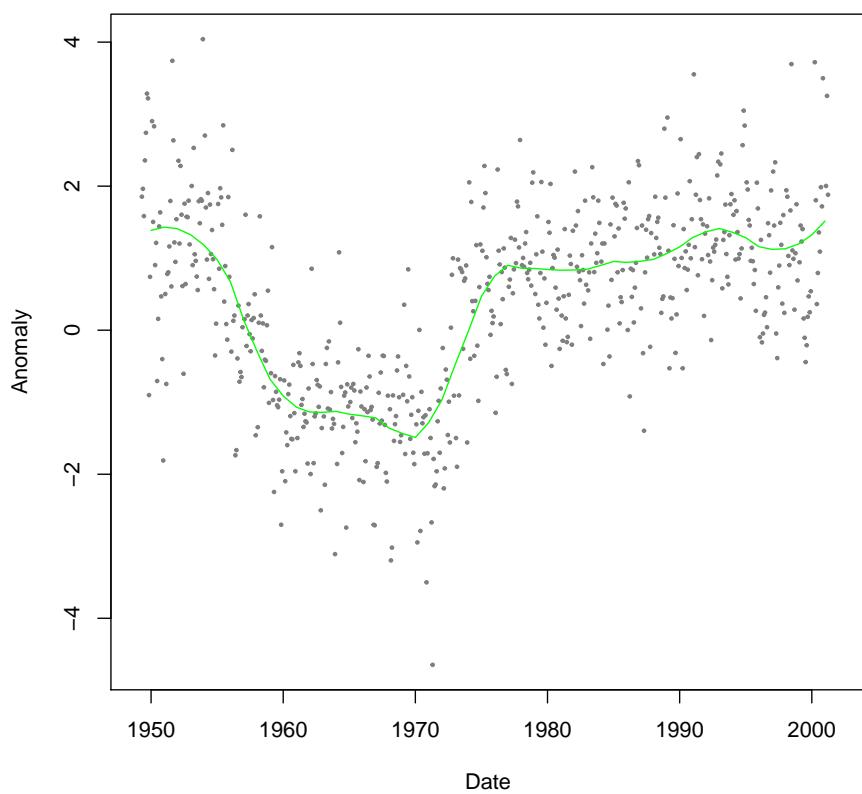
My goal for this section is to identify all the stations in the country, determine if there is a trend and then place symbols on a country map that document where significant temperature trends exists.

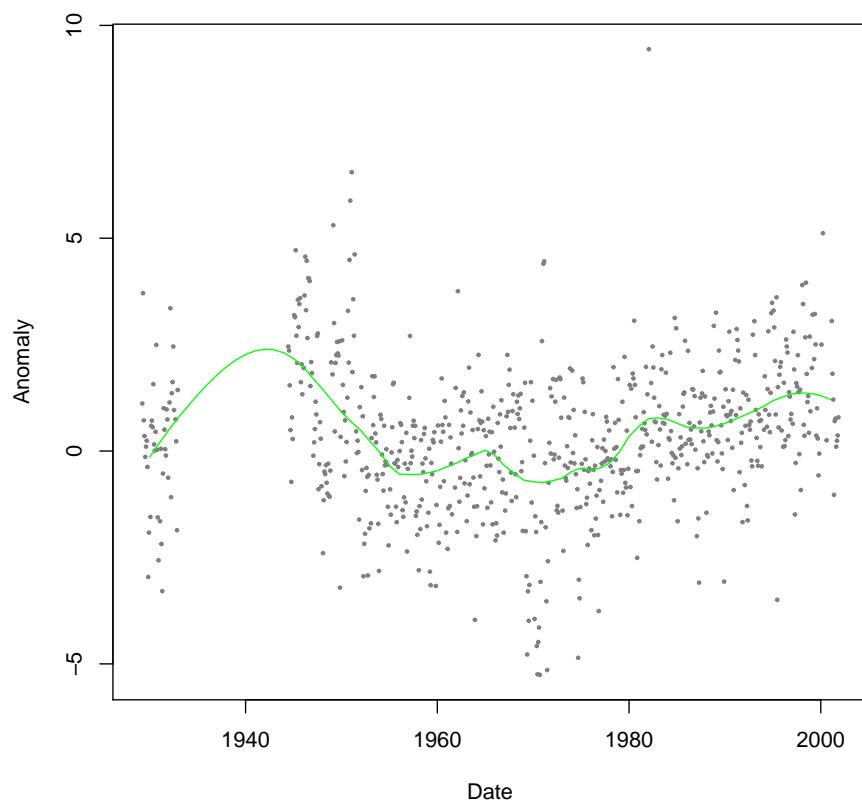


The map that includes some table information would be useful.



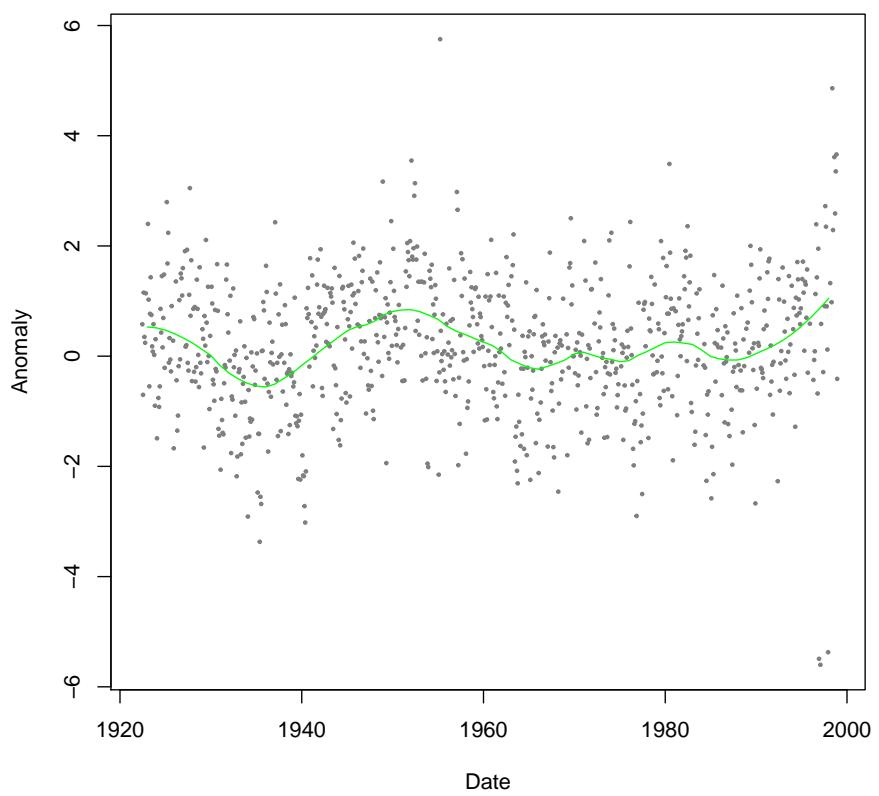


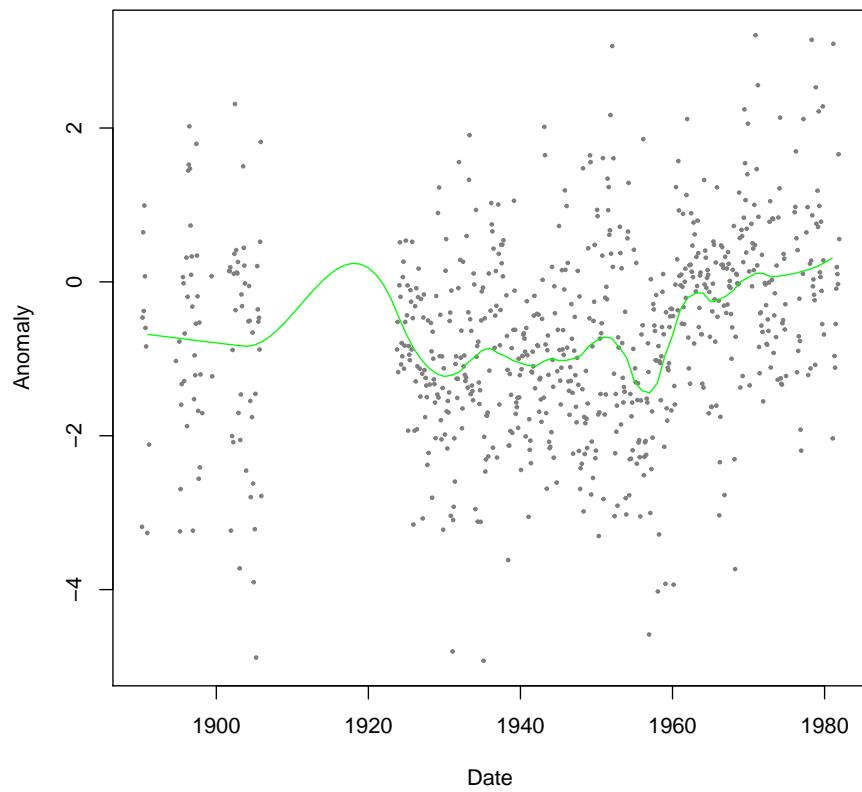


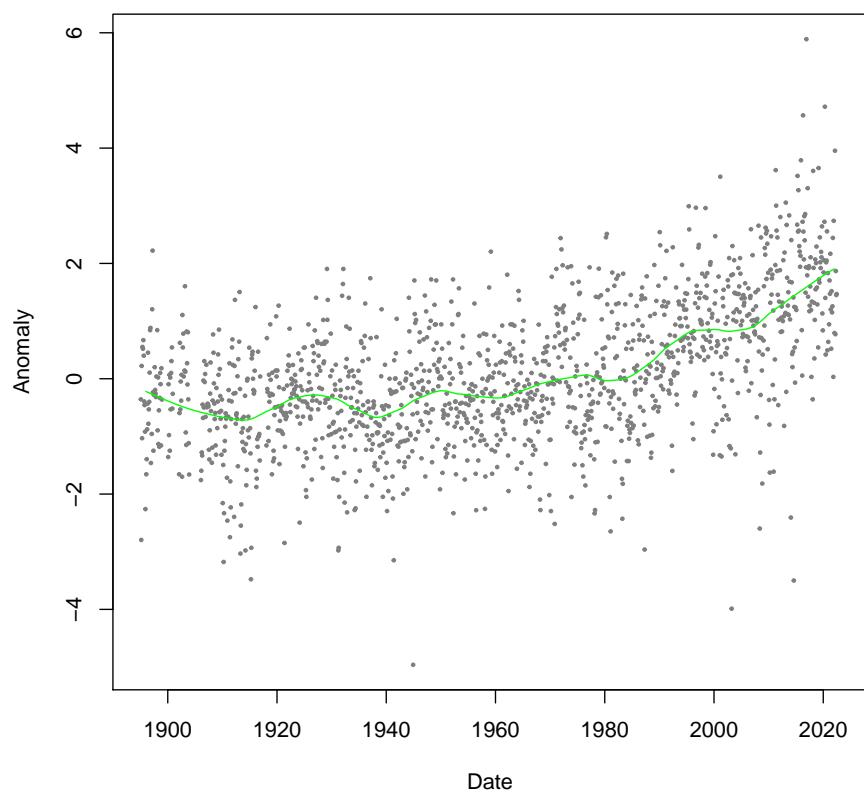


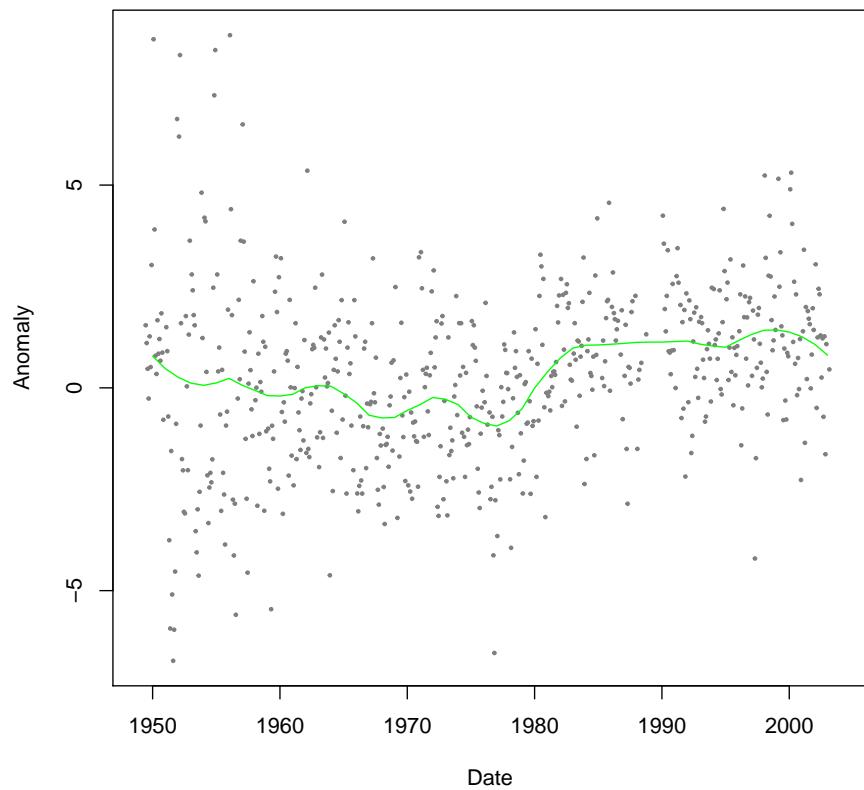


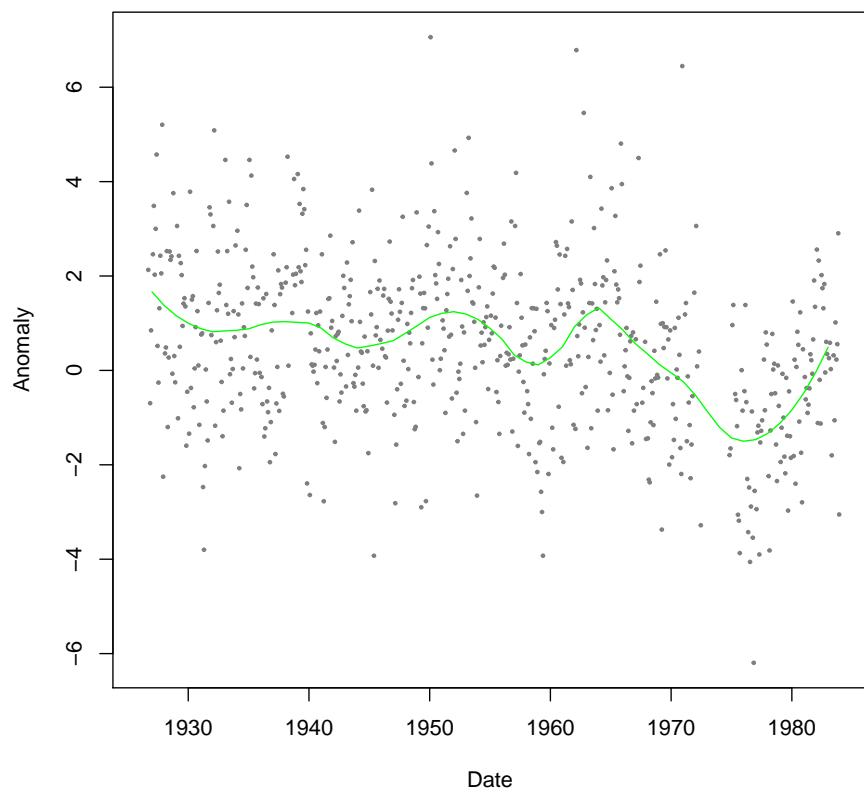


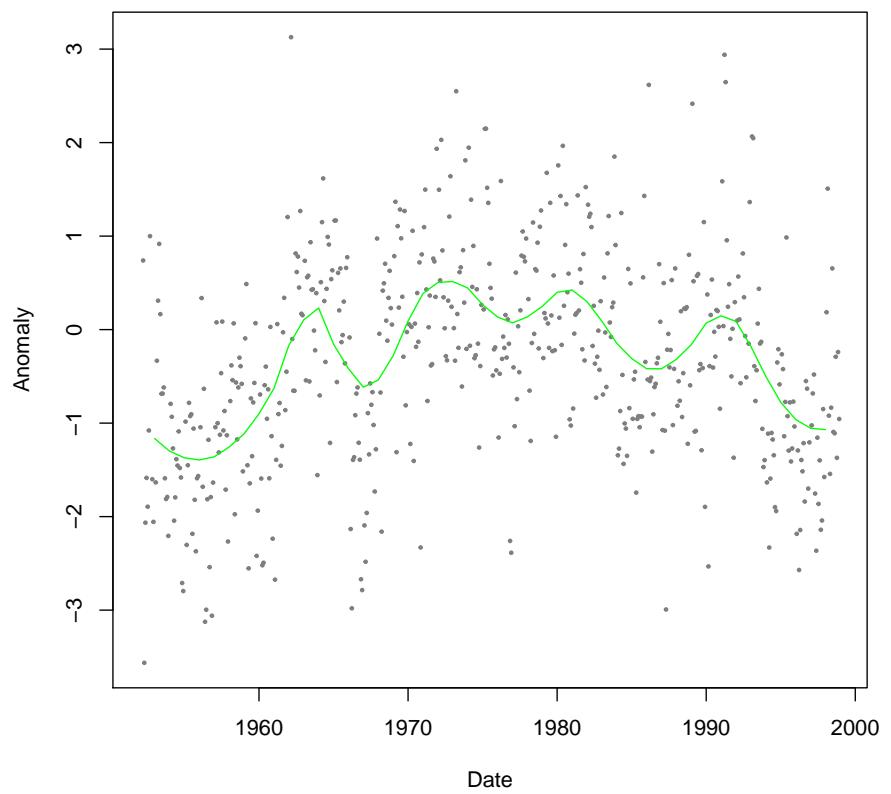


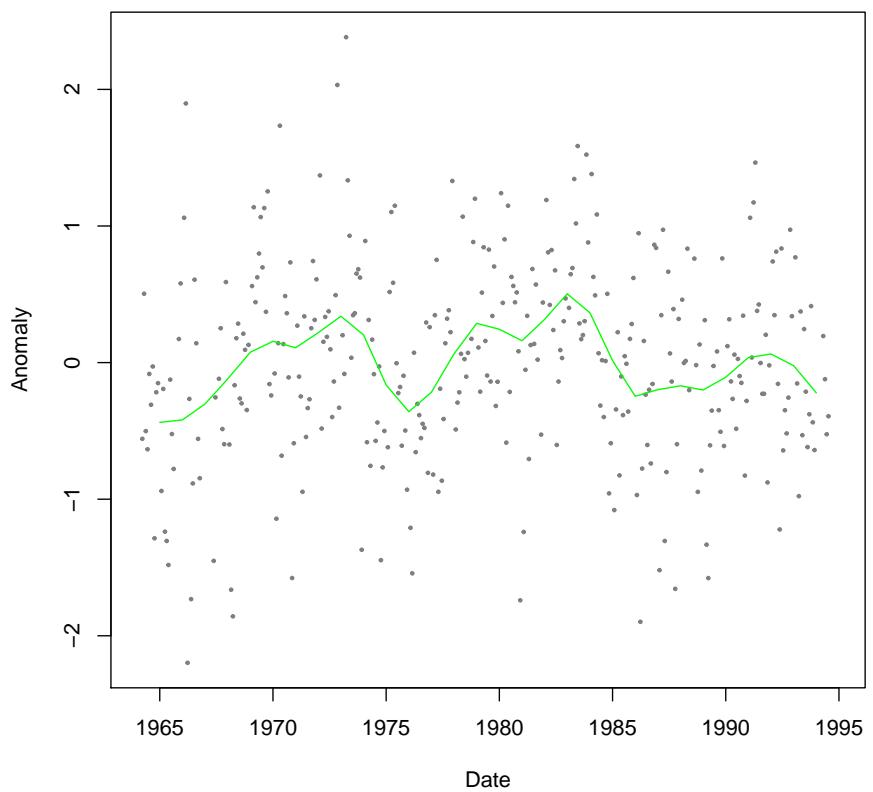


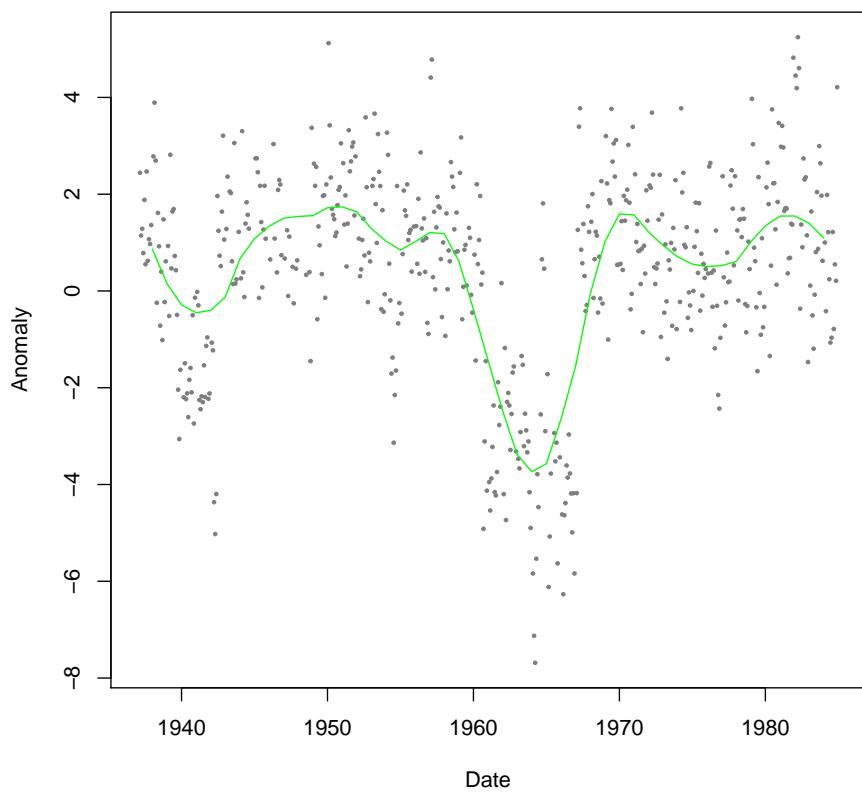


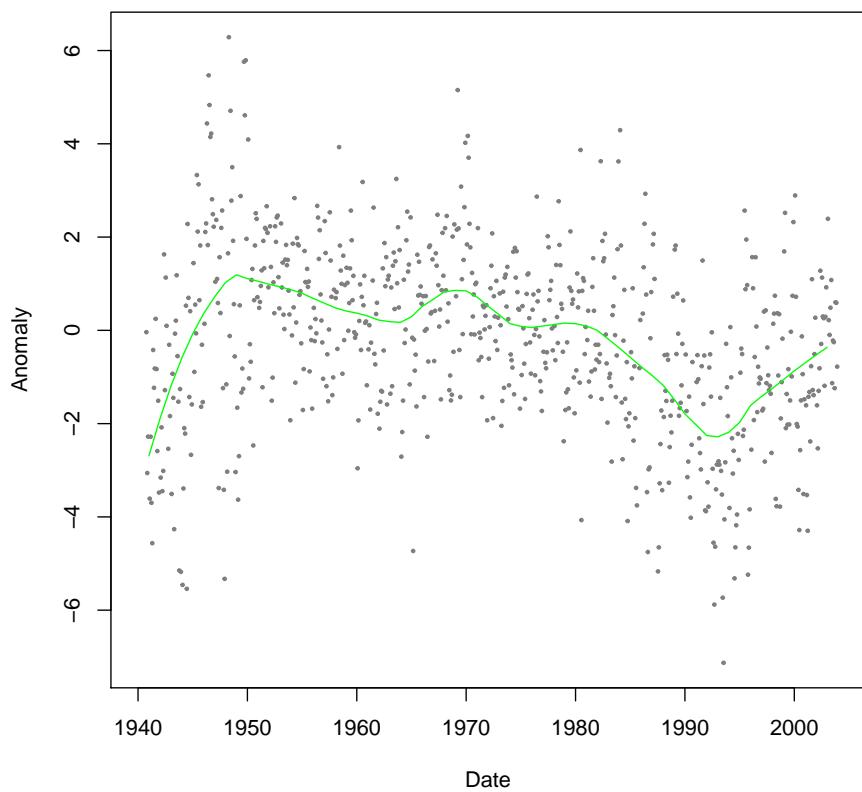


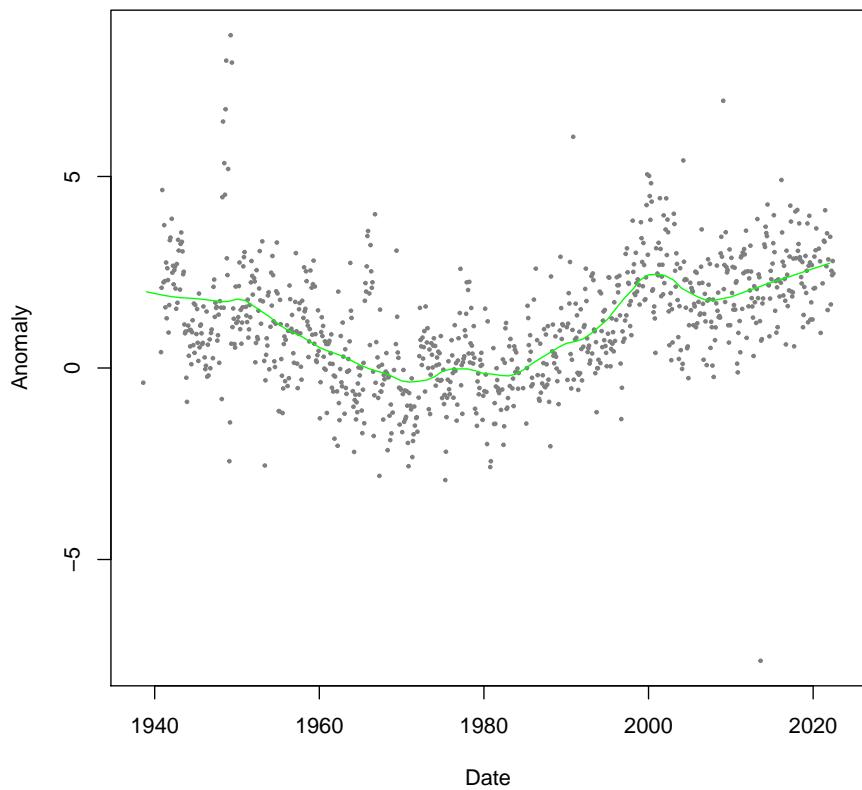


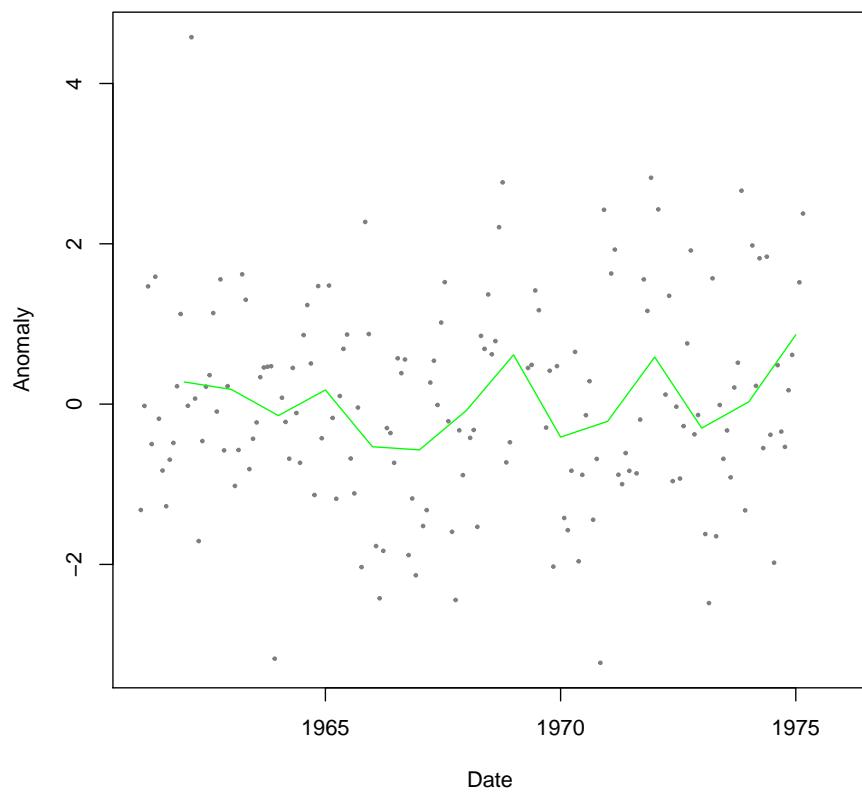


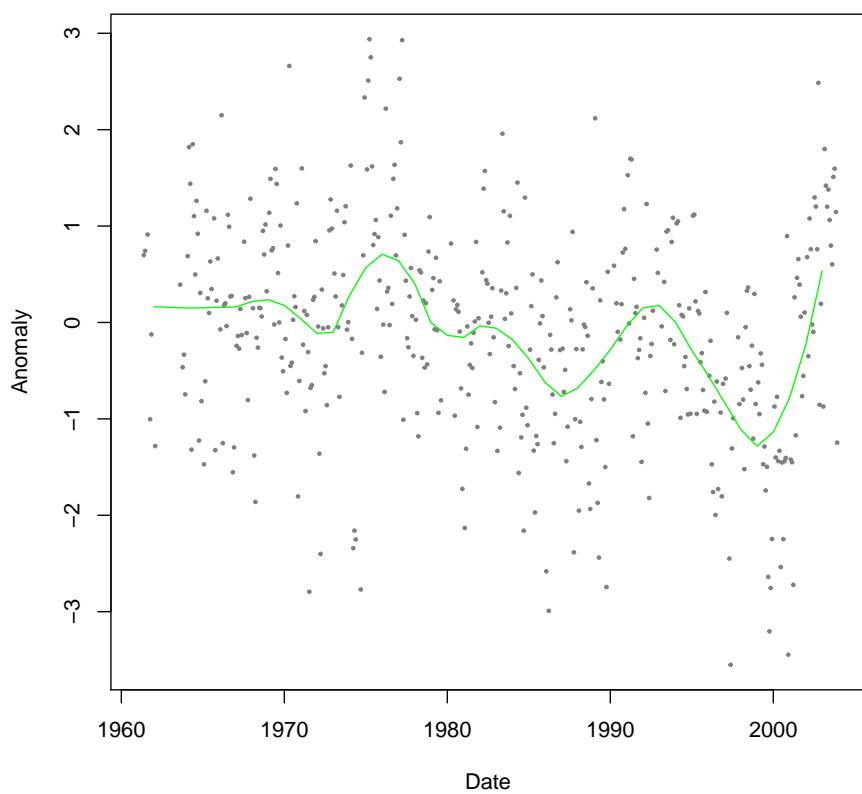


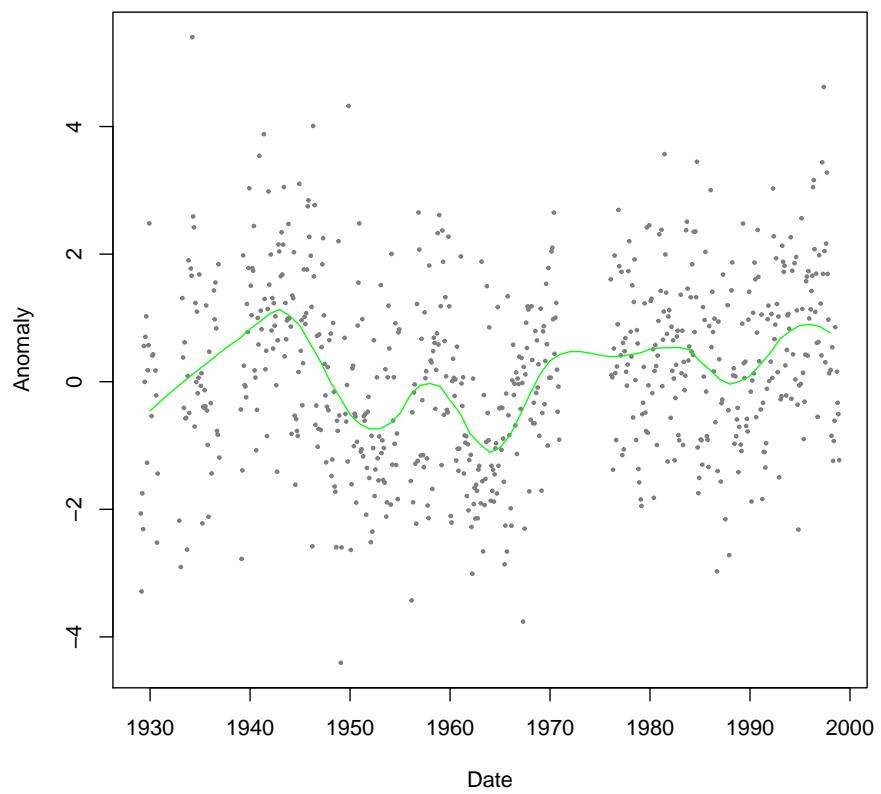


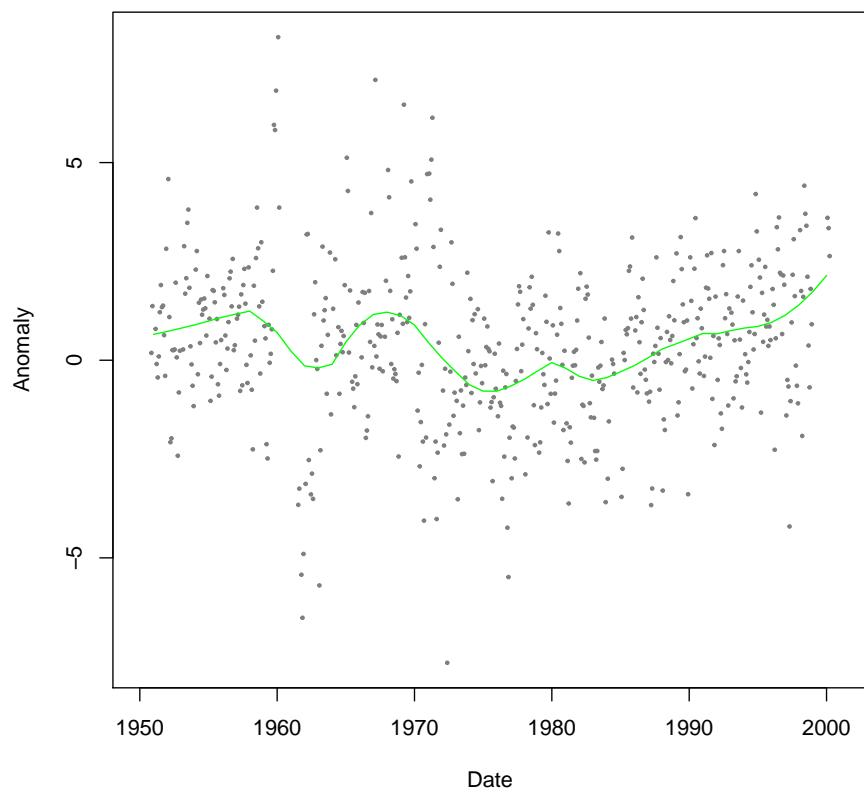


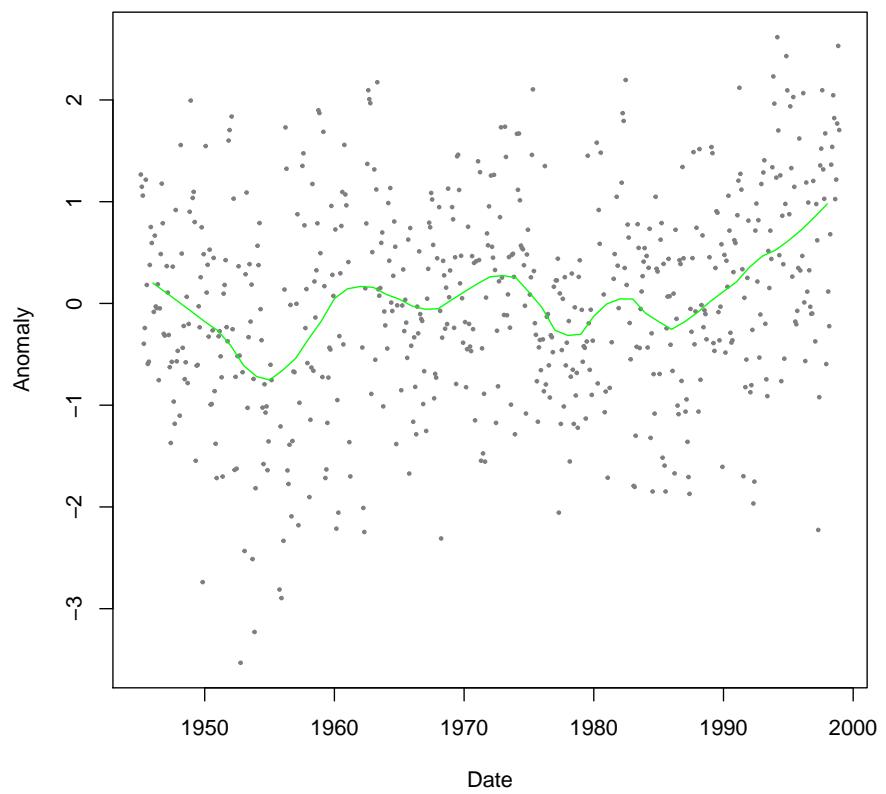


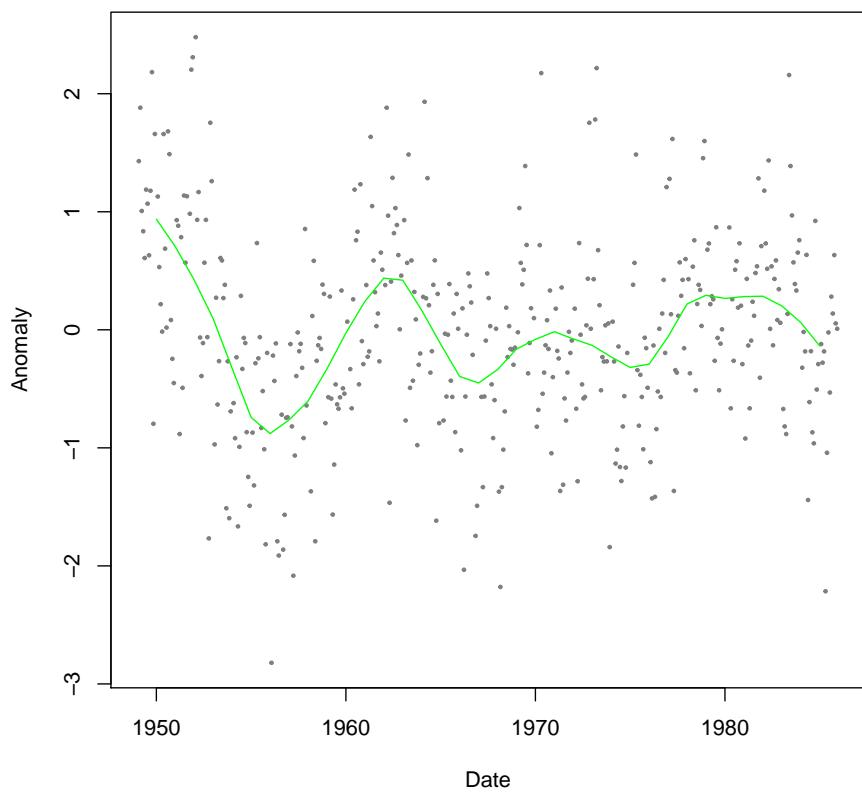


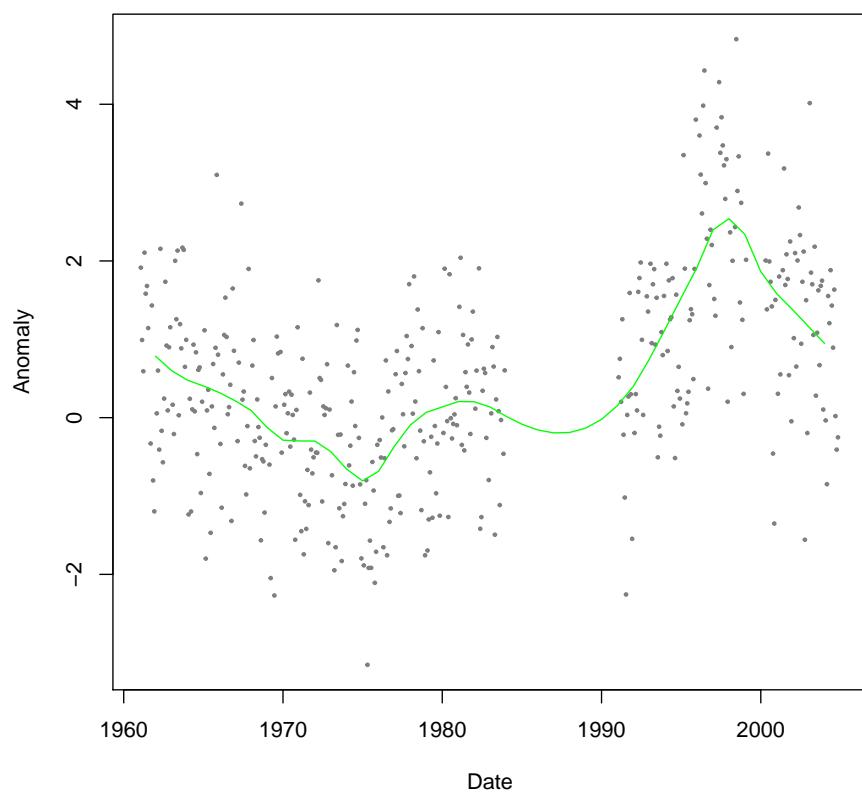


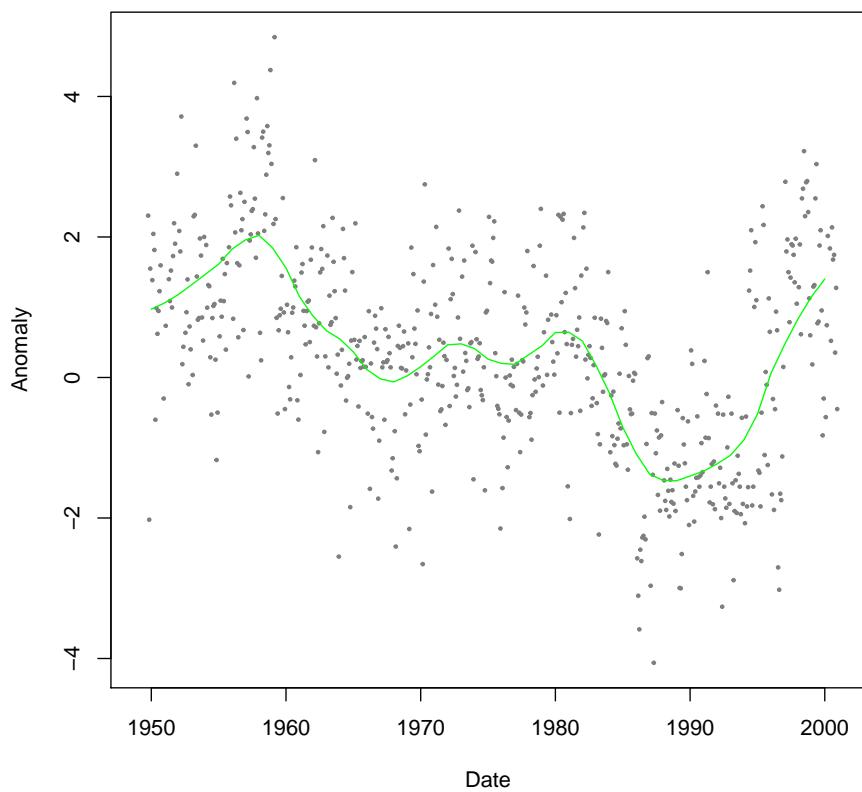


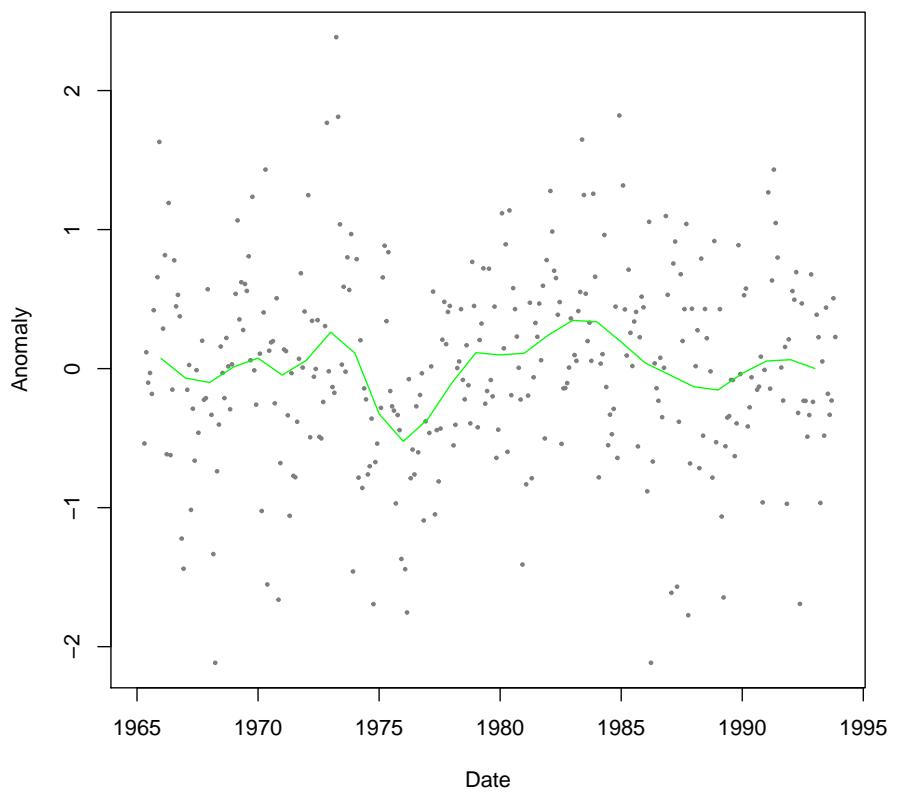


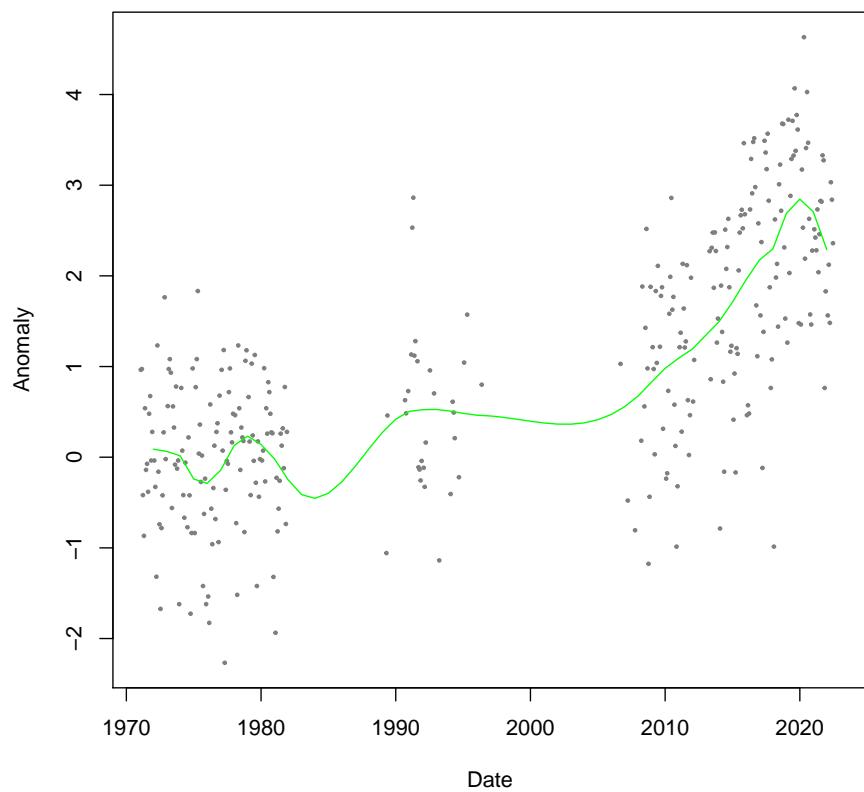


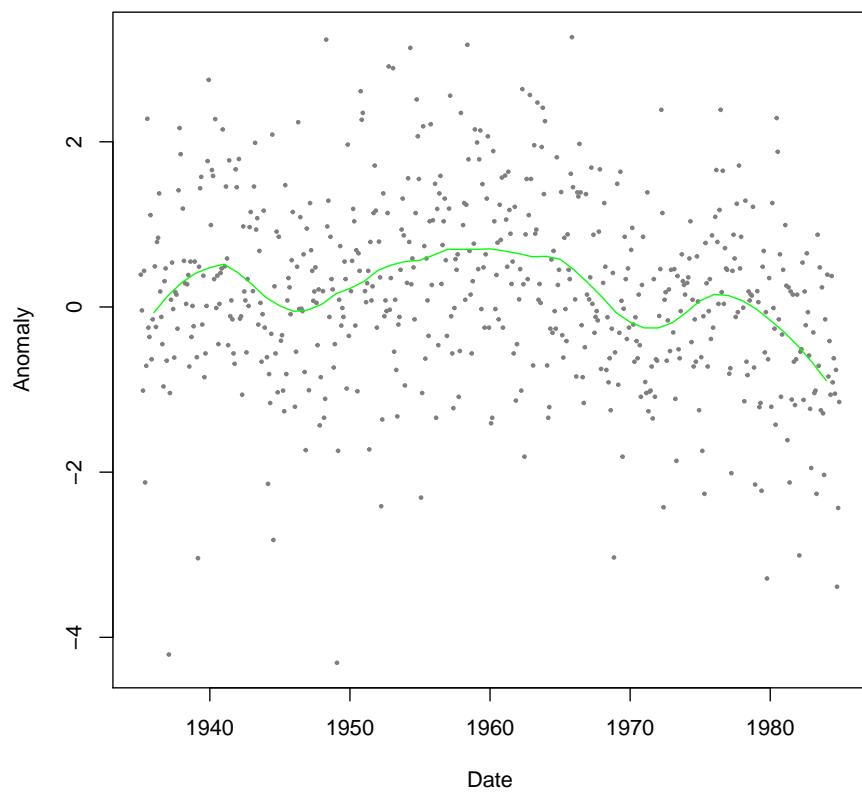


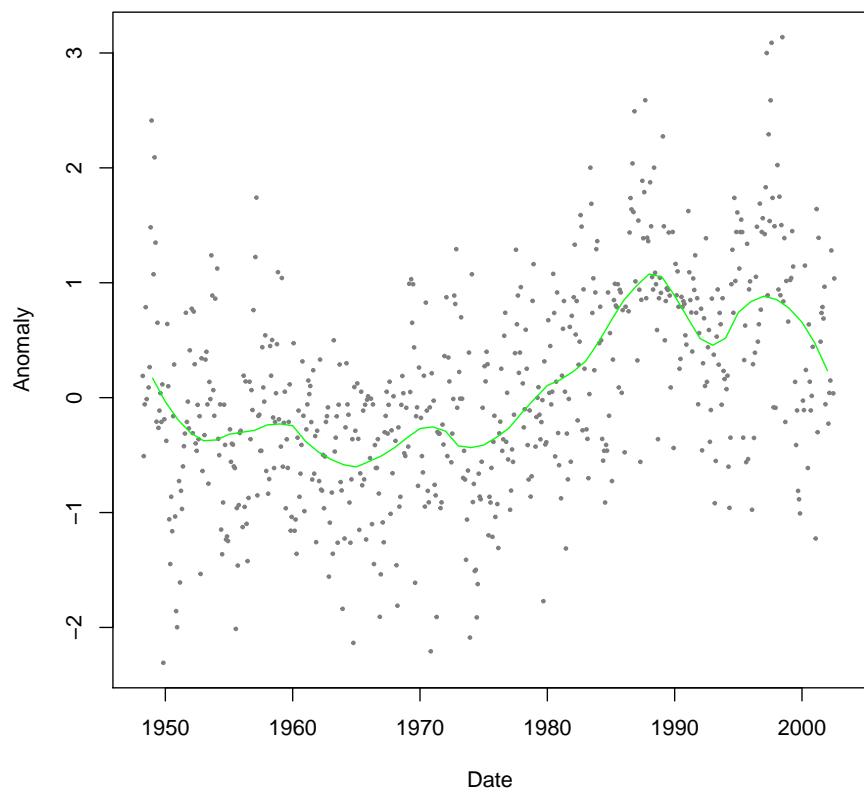


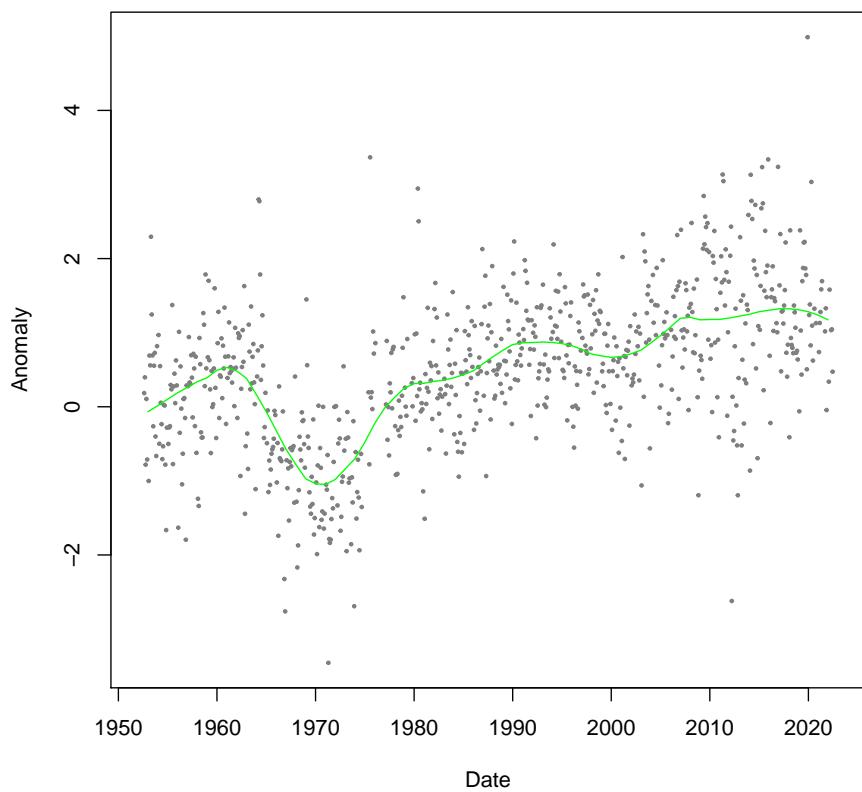


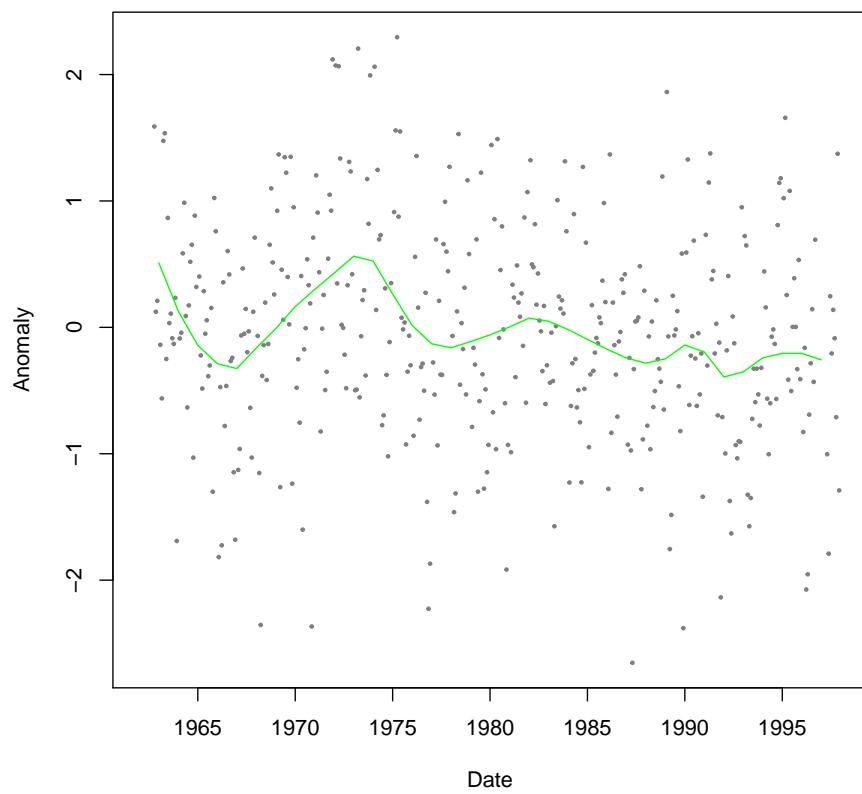


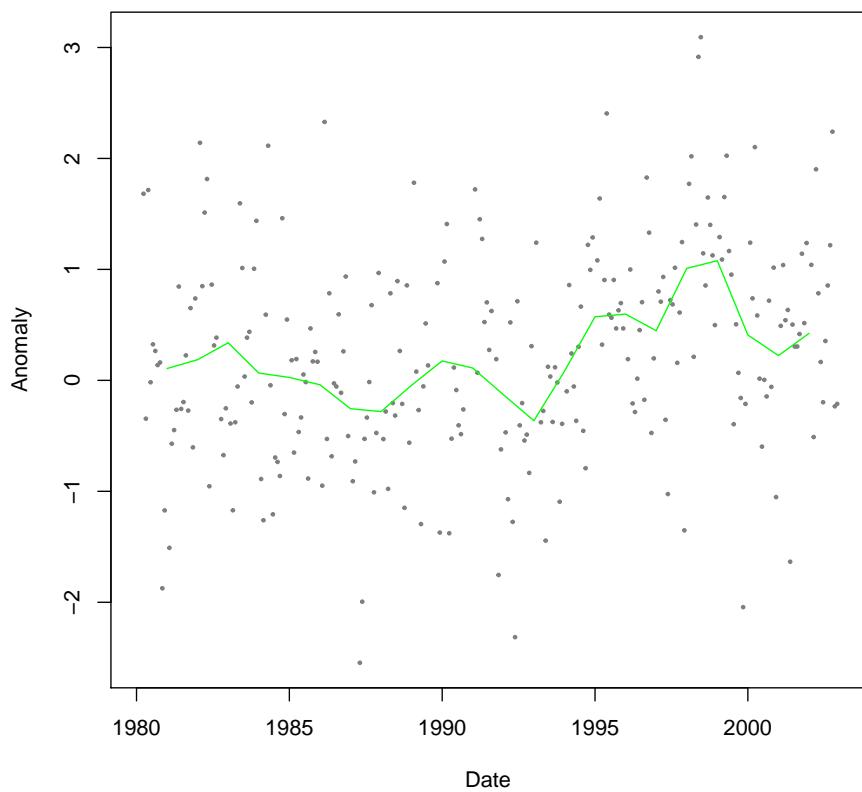


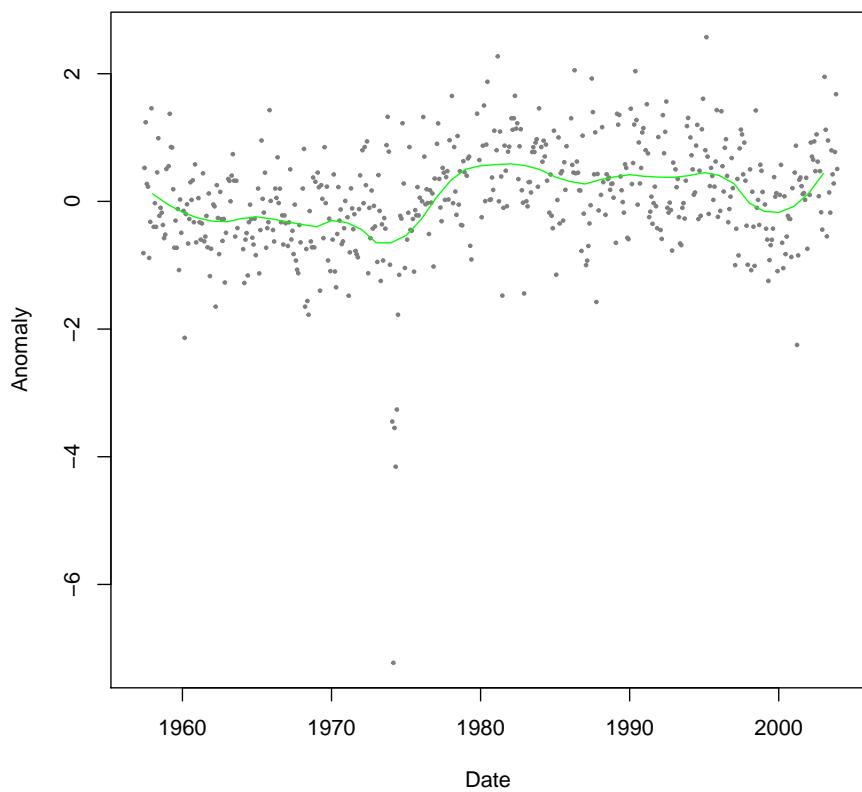


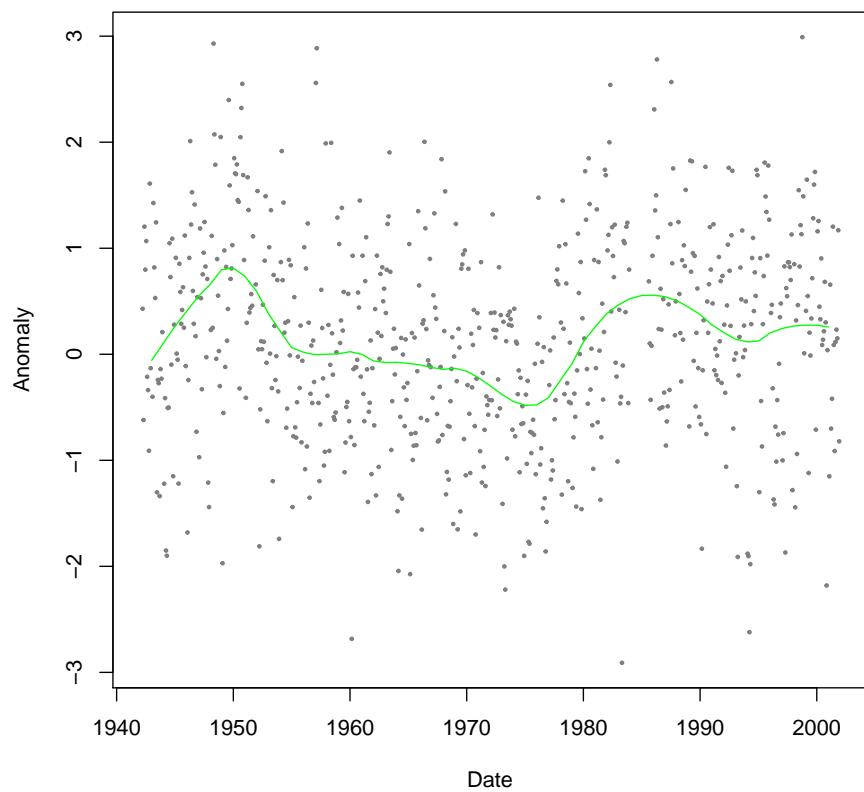




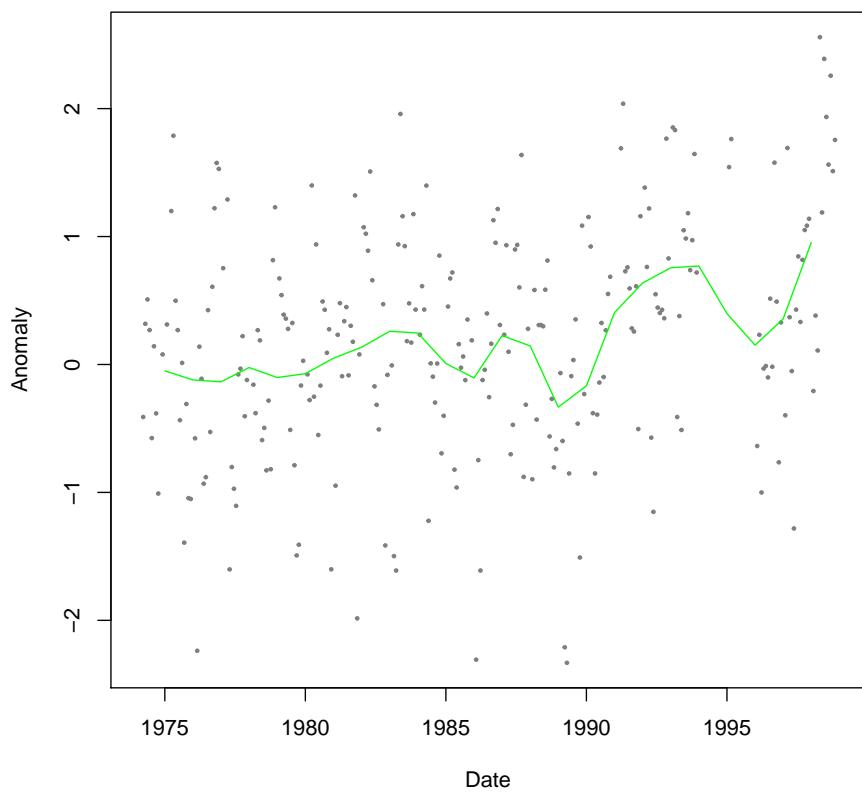


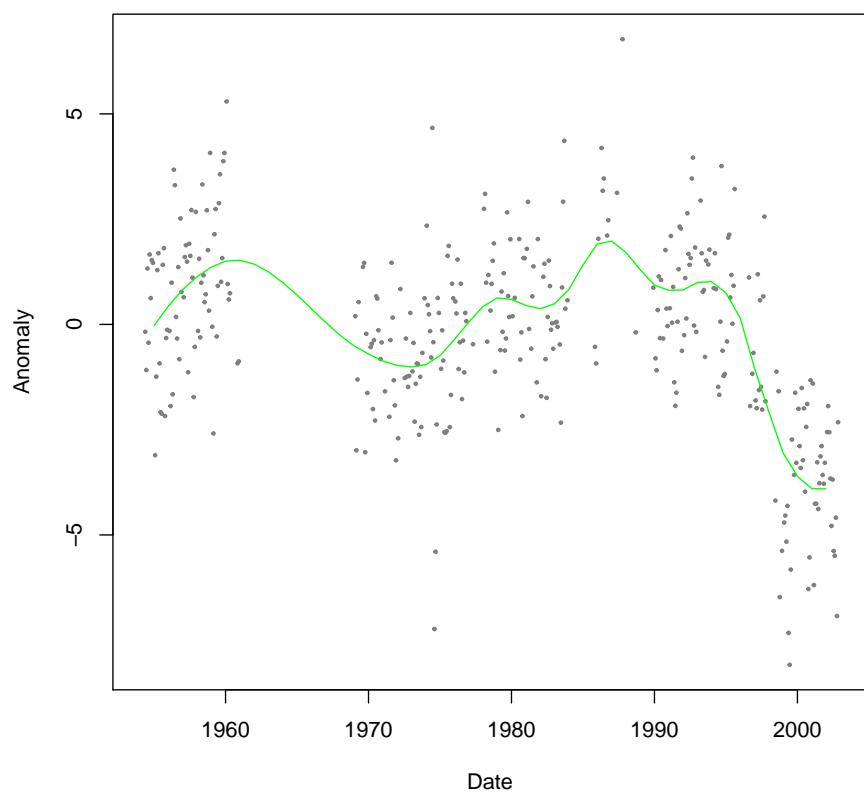


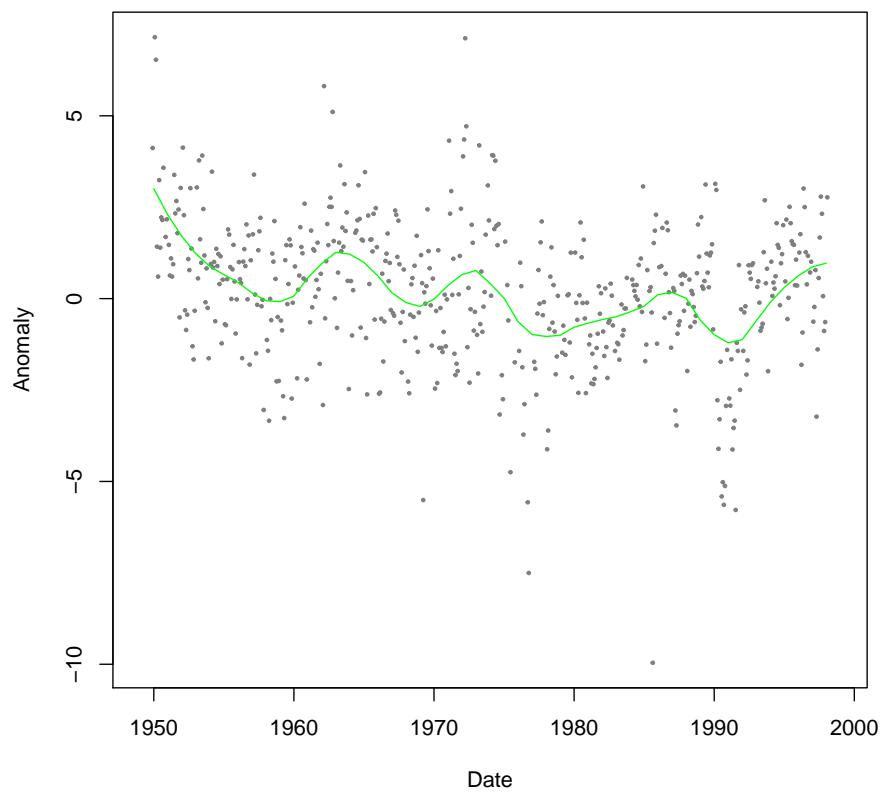


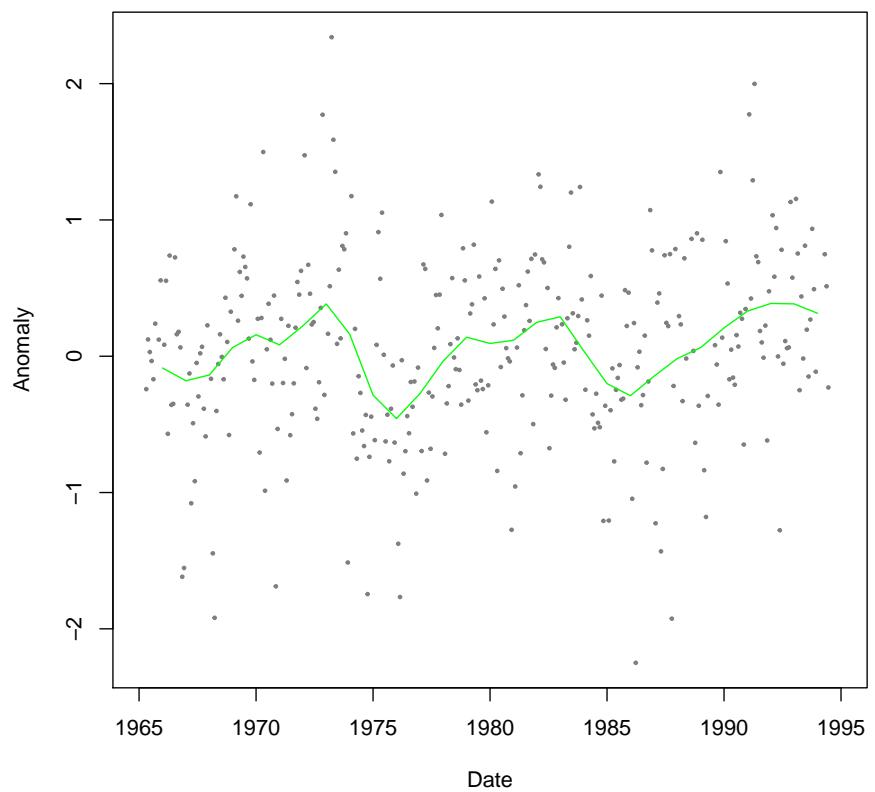


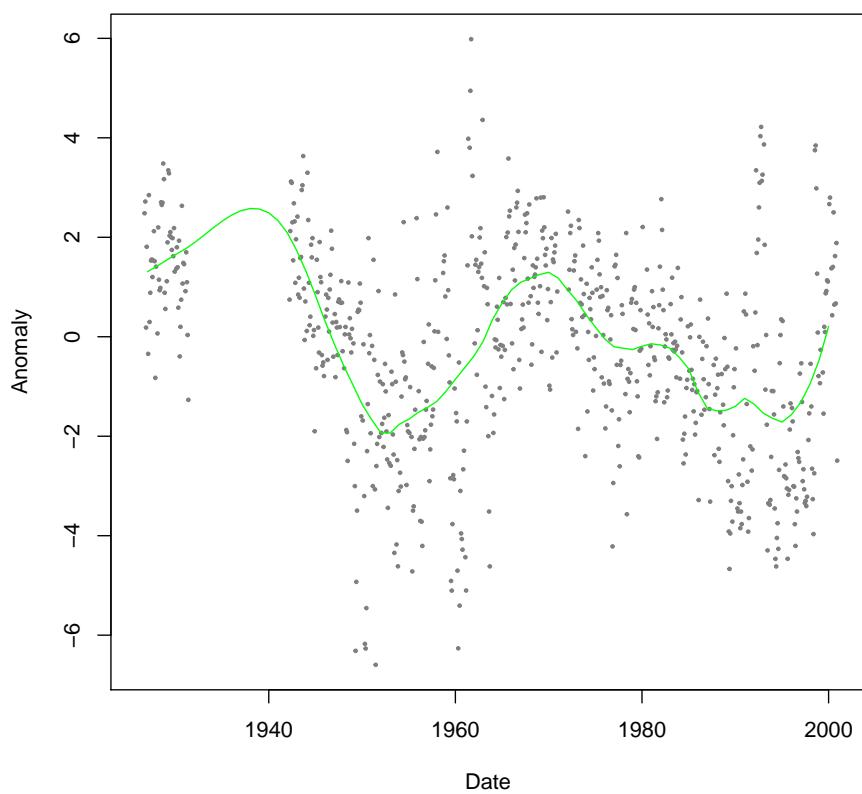




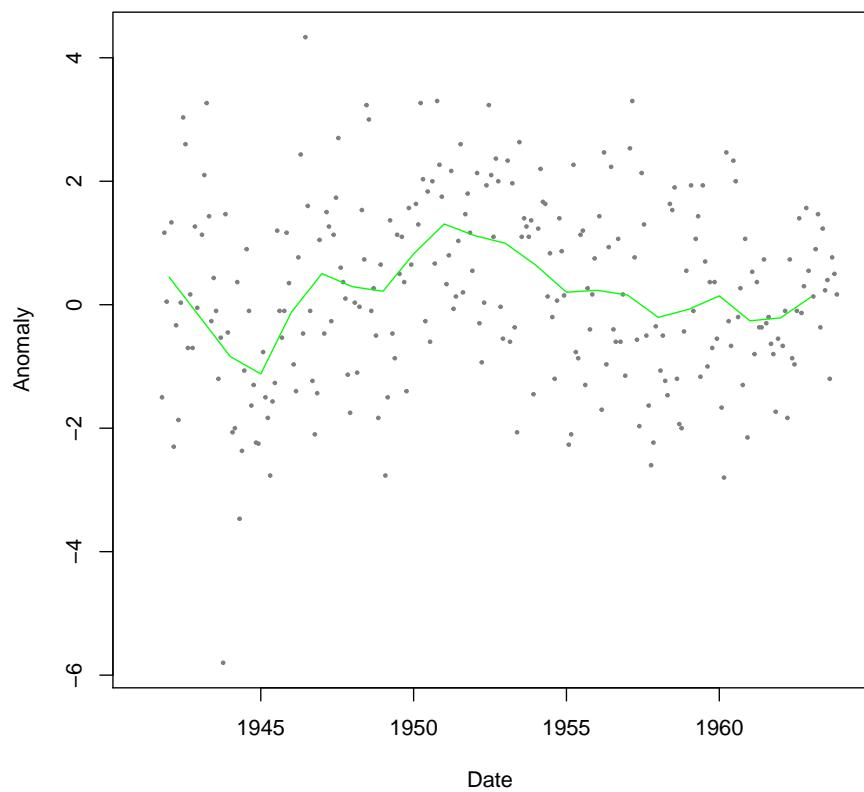


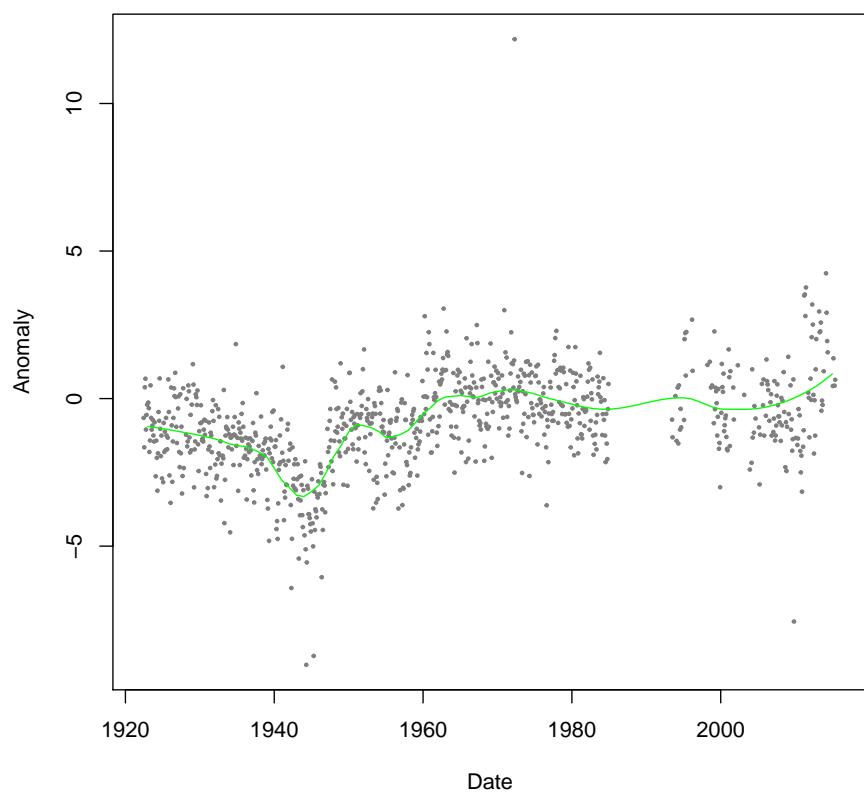


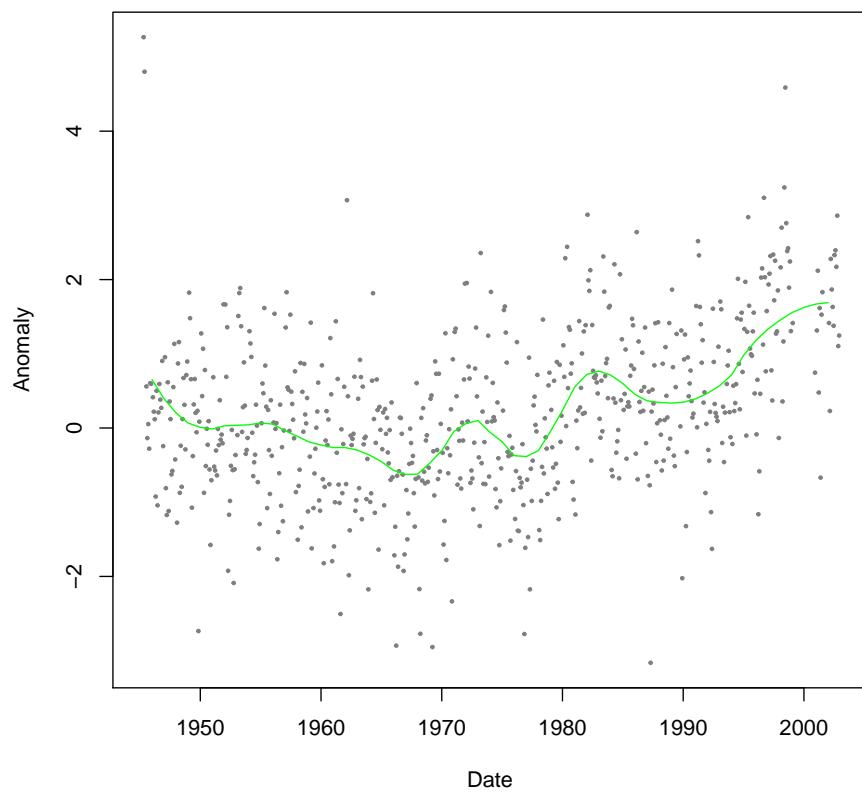


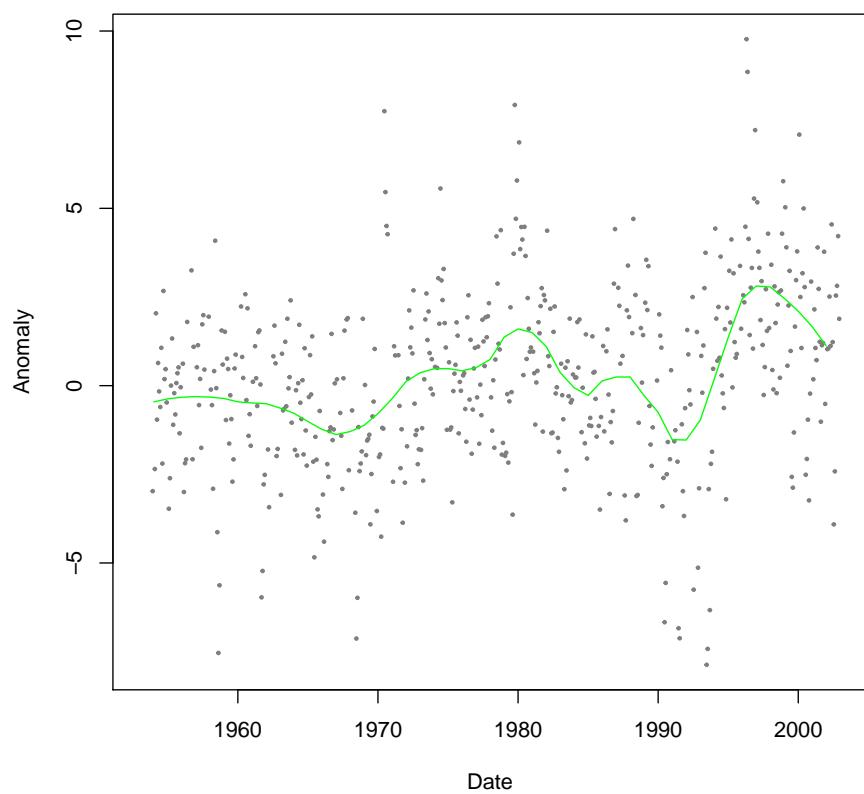


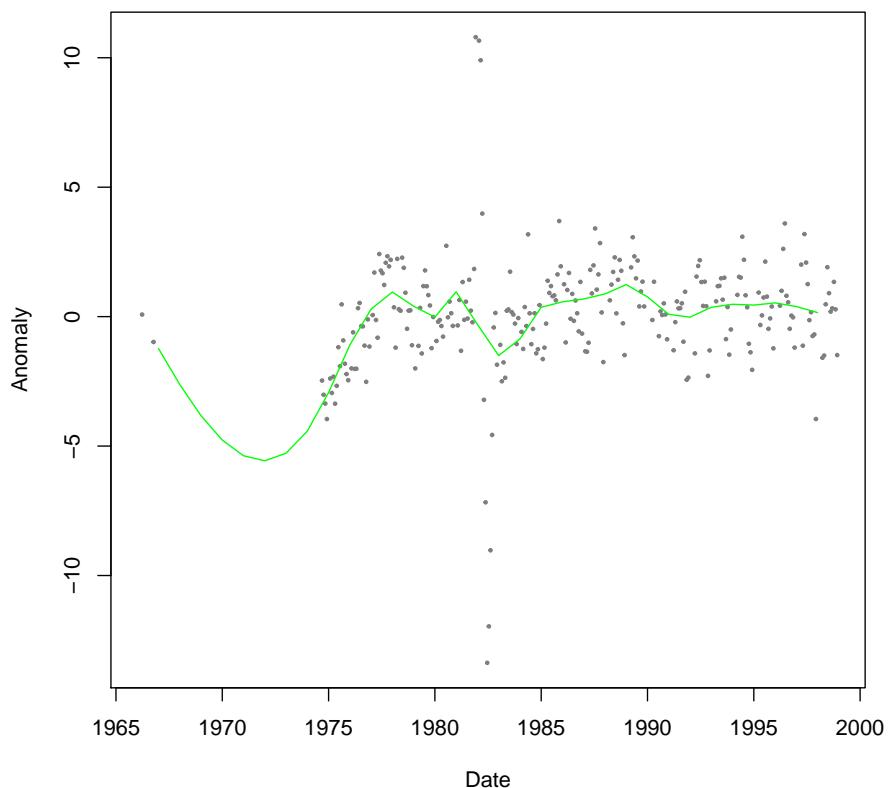


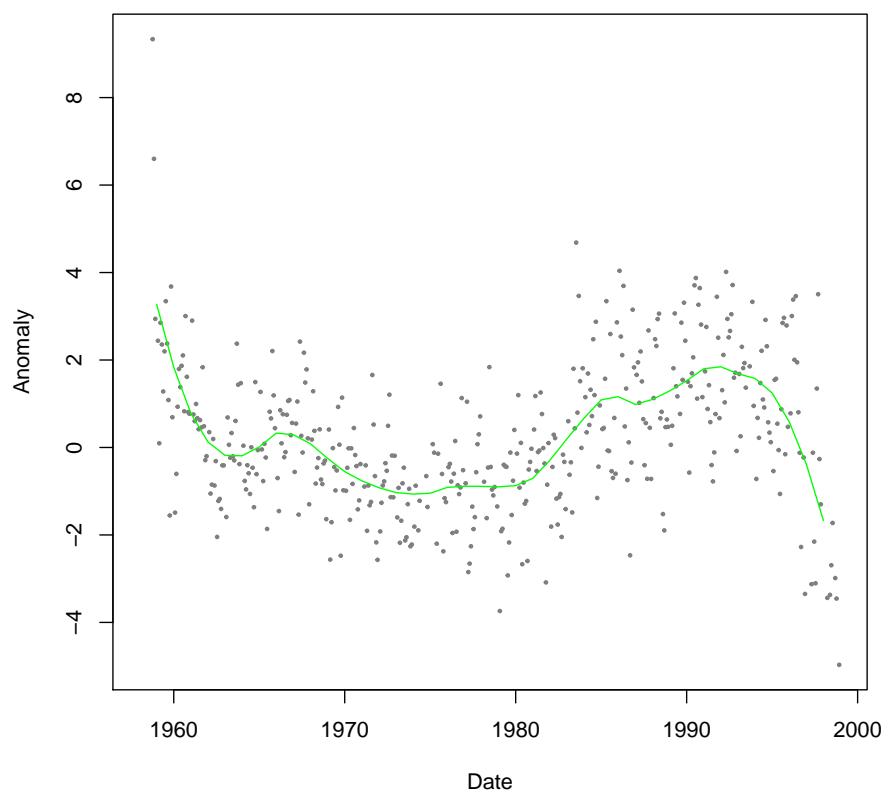


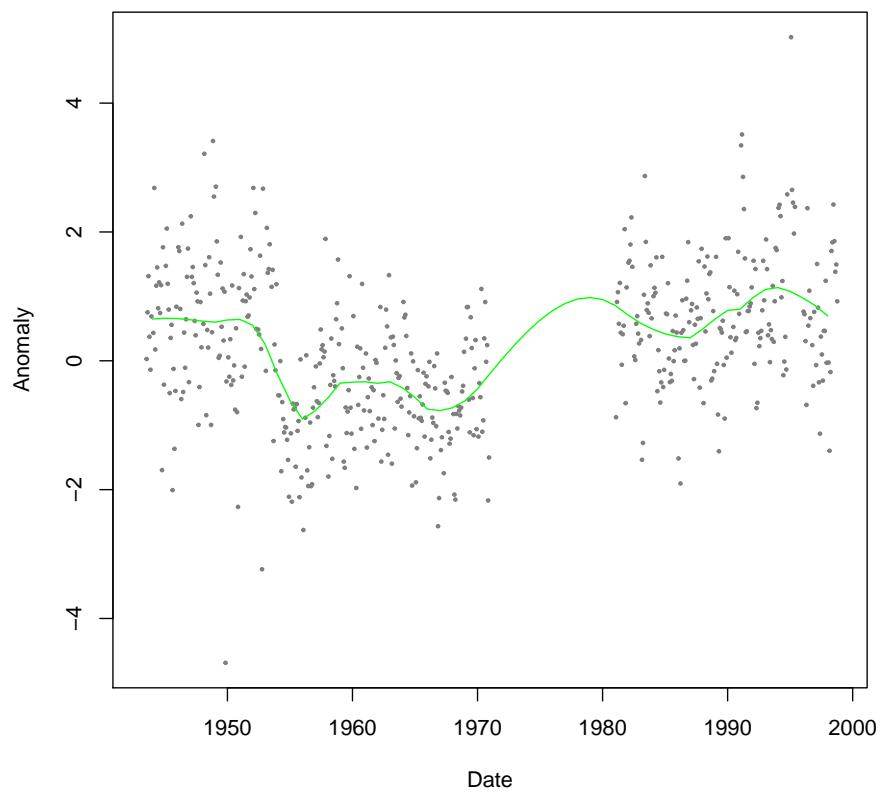


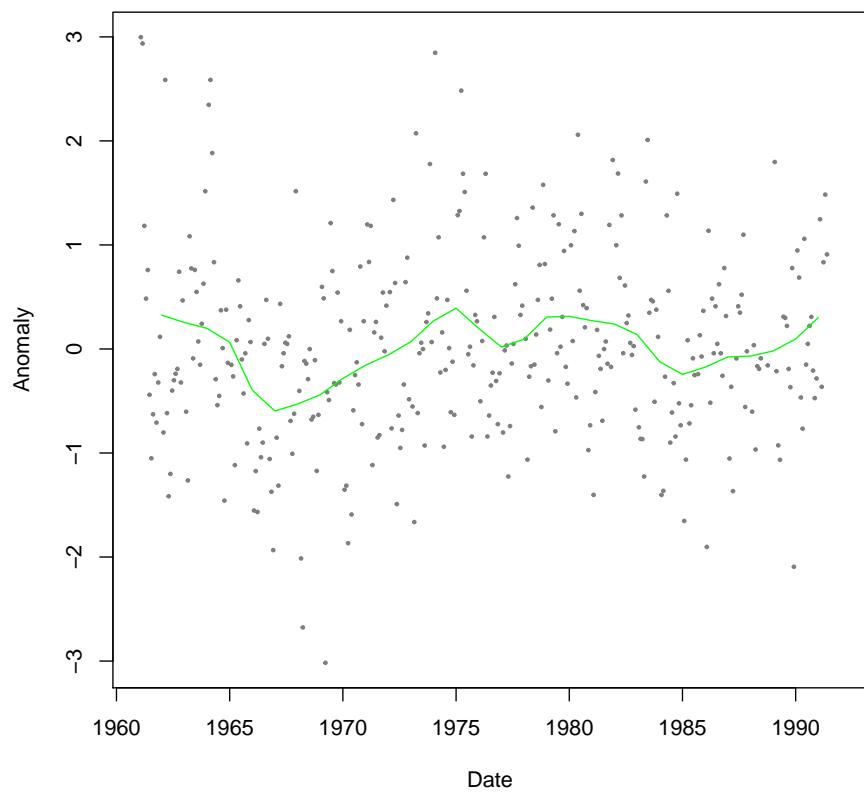


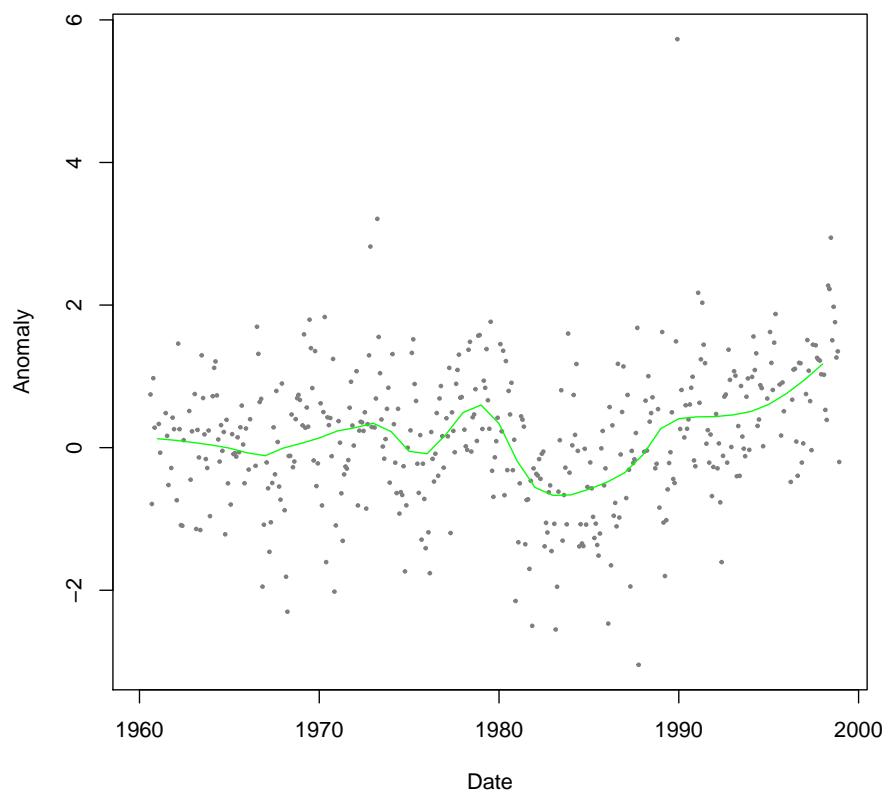


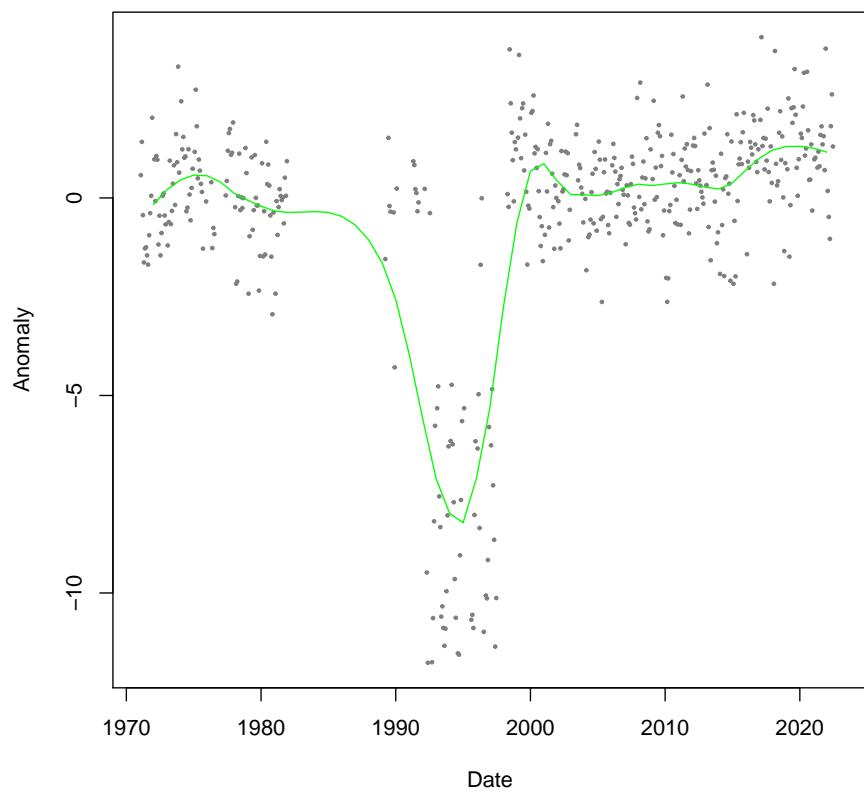


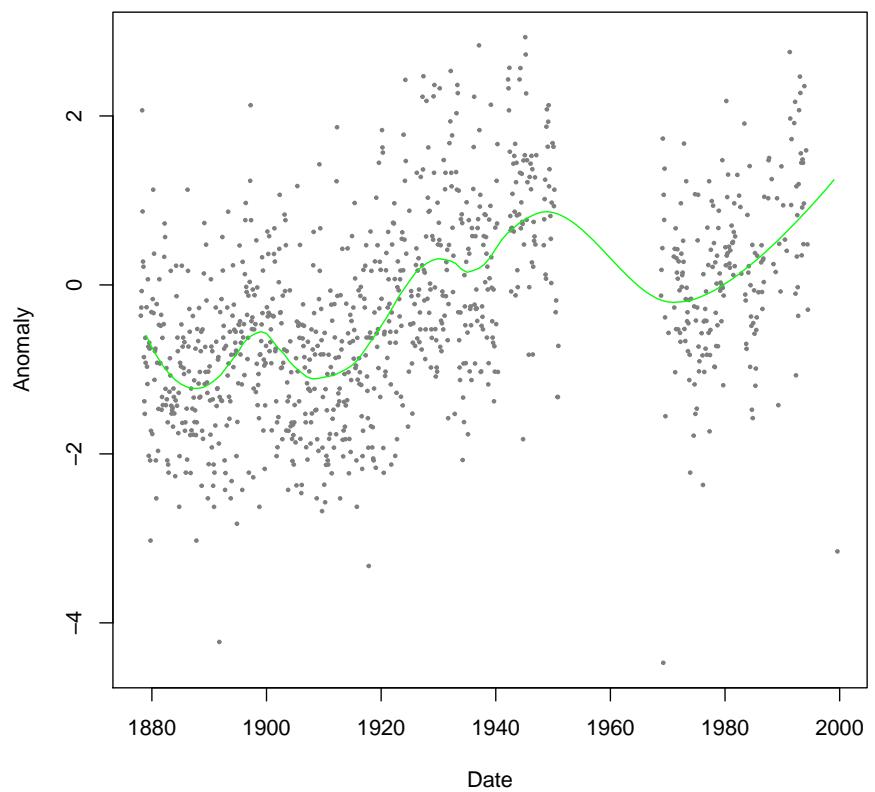


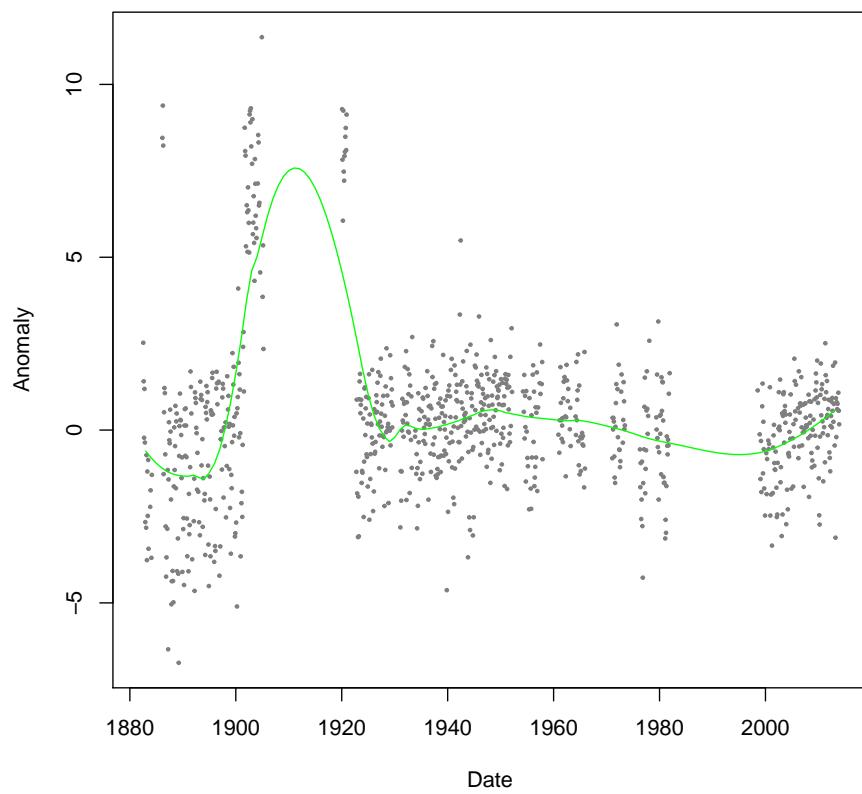


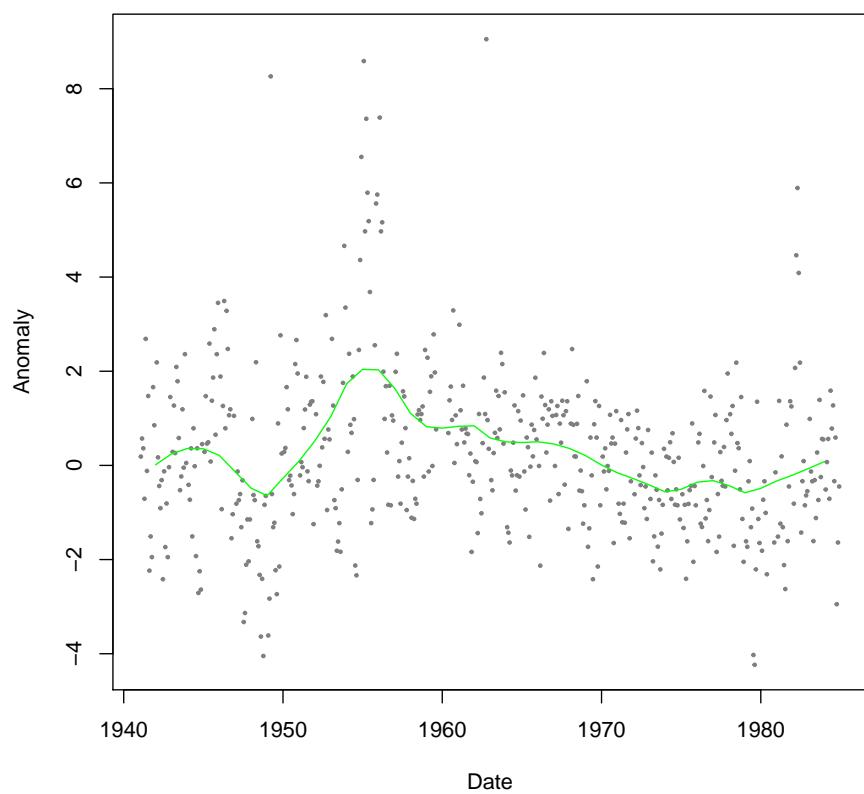


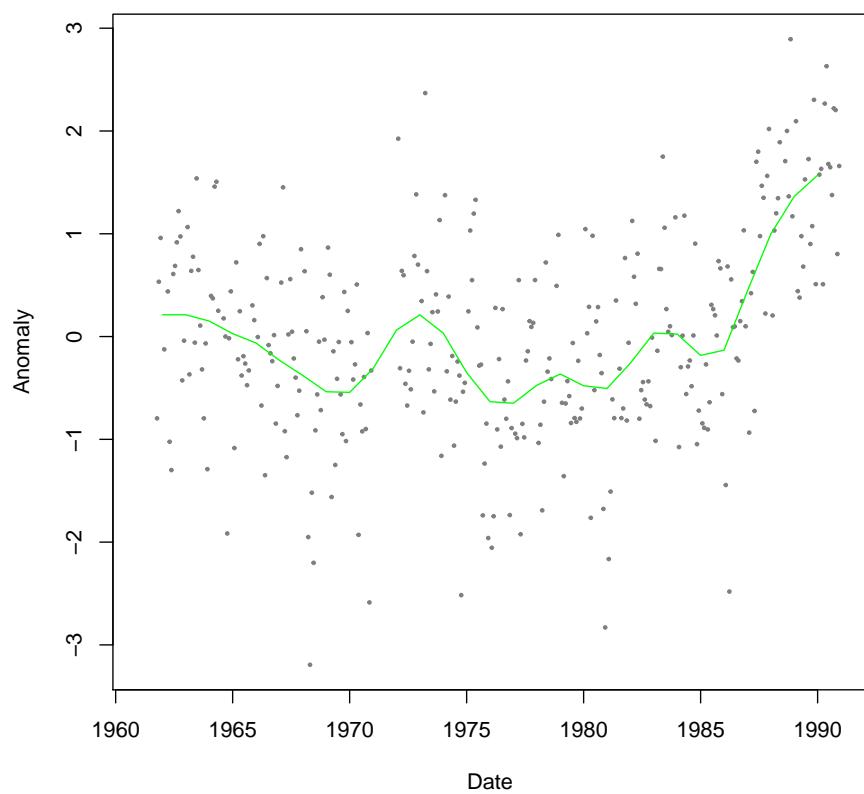


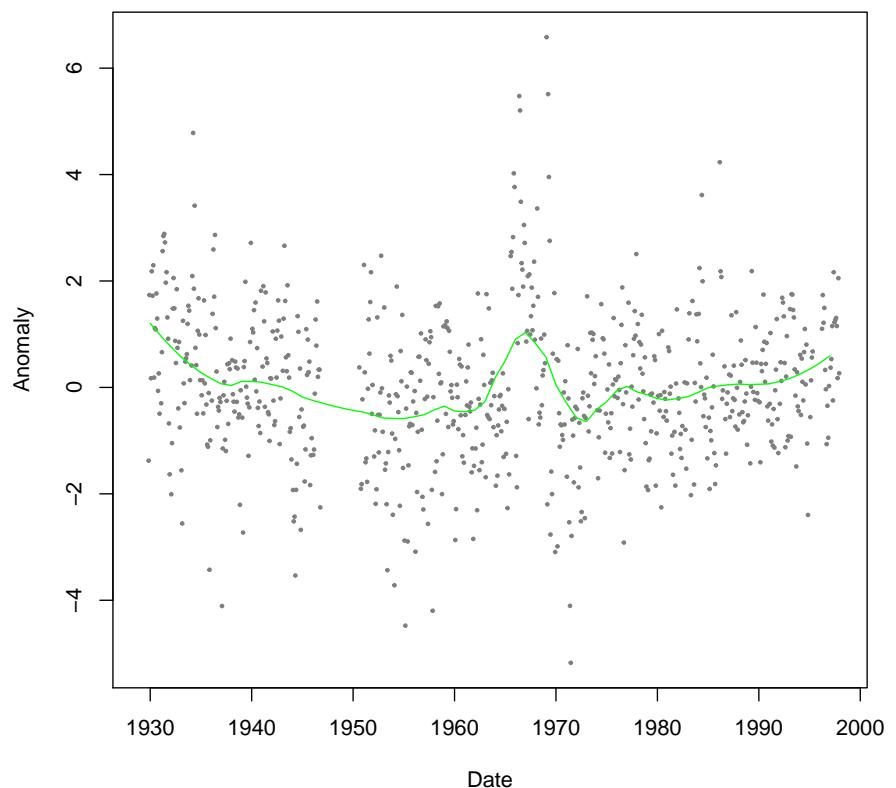


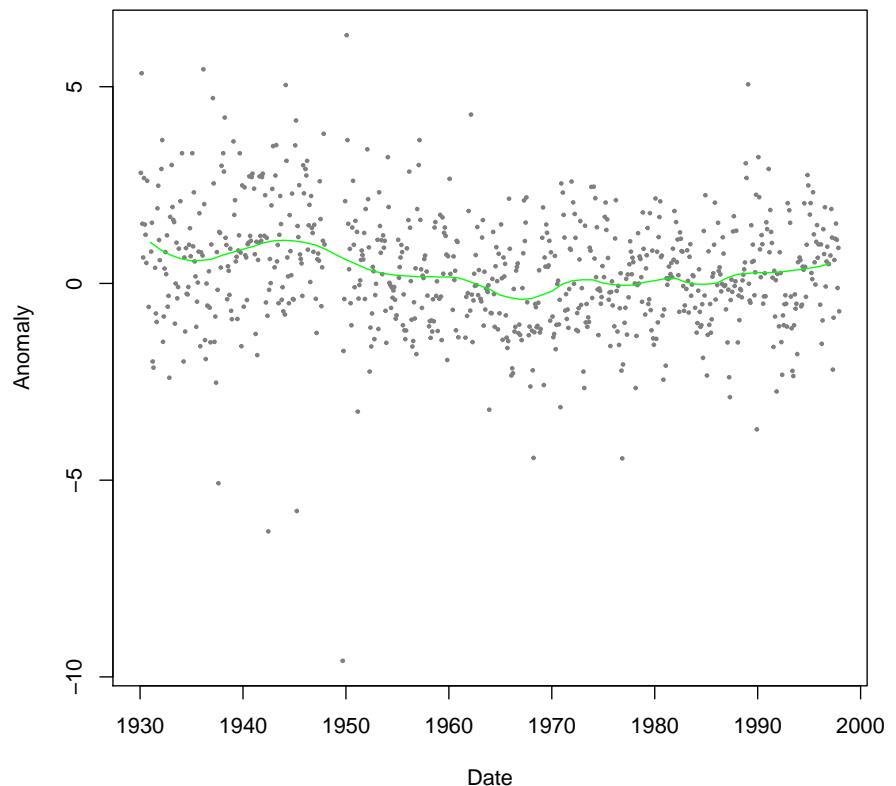


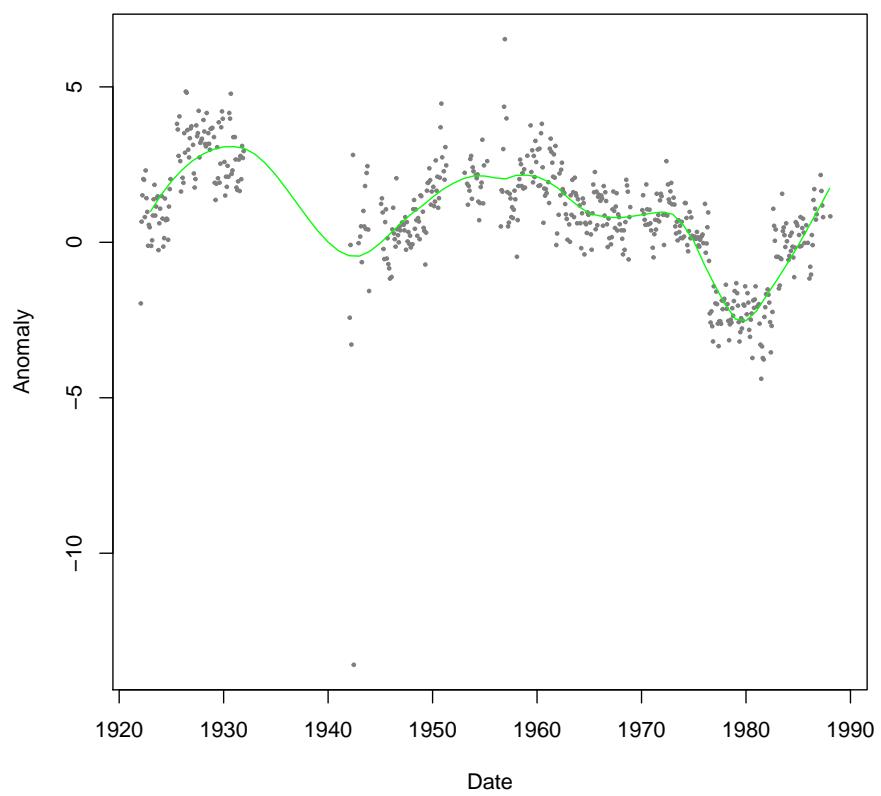


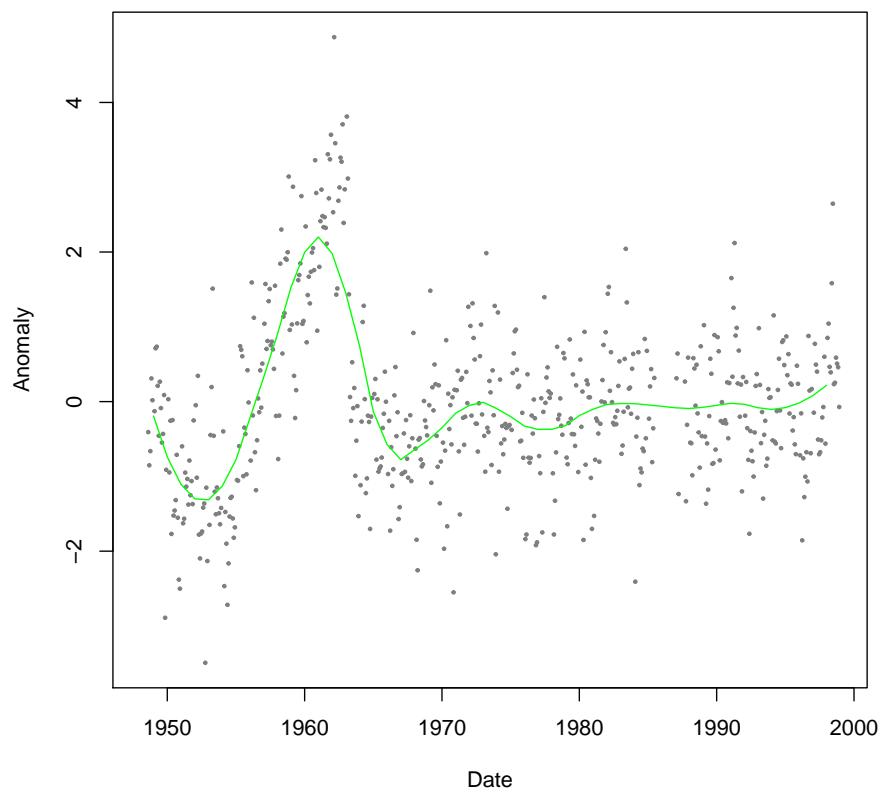


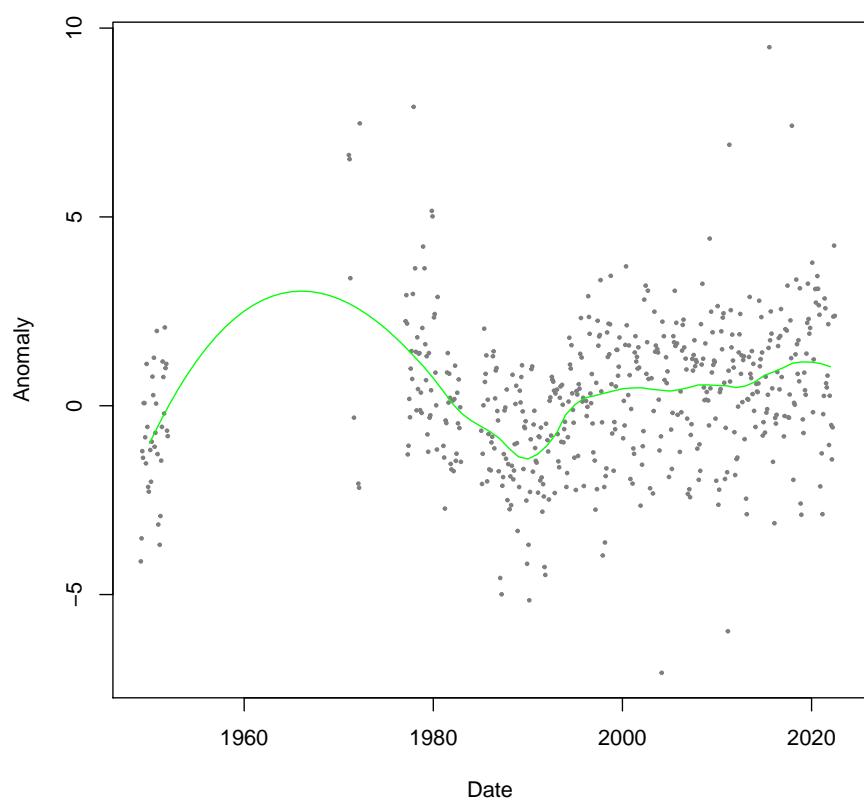


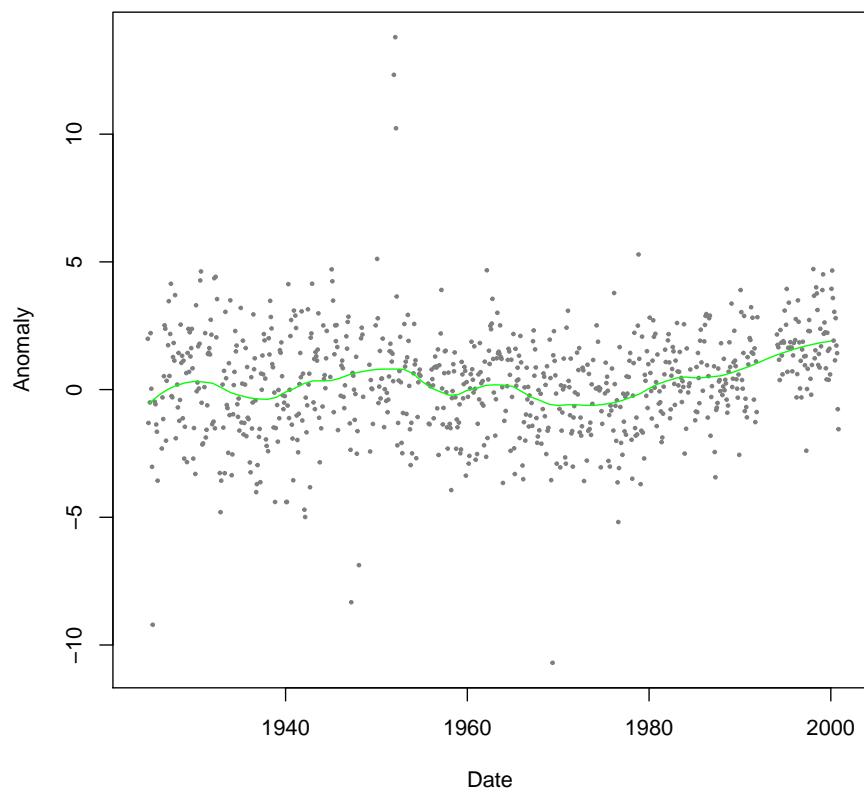


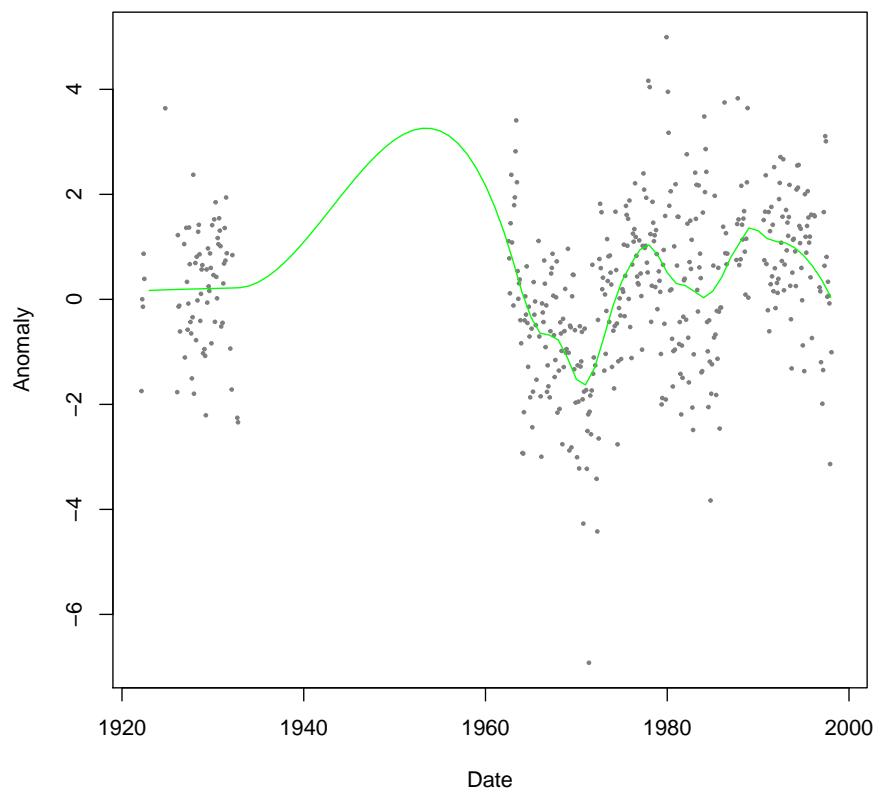


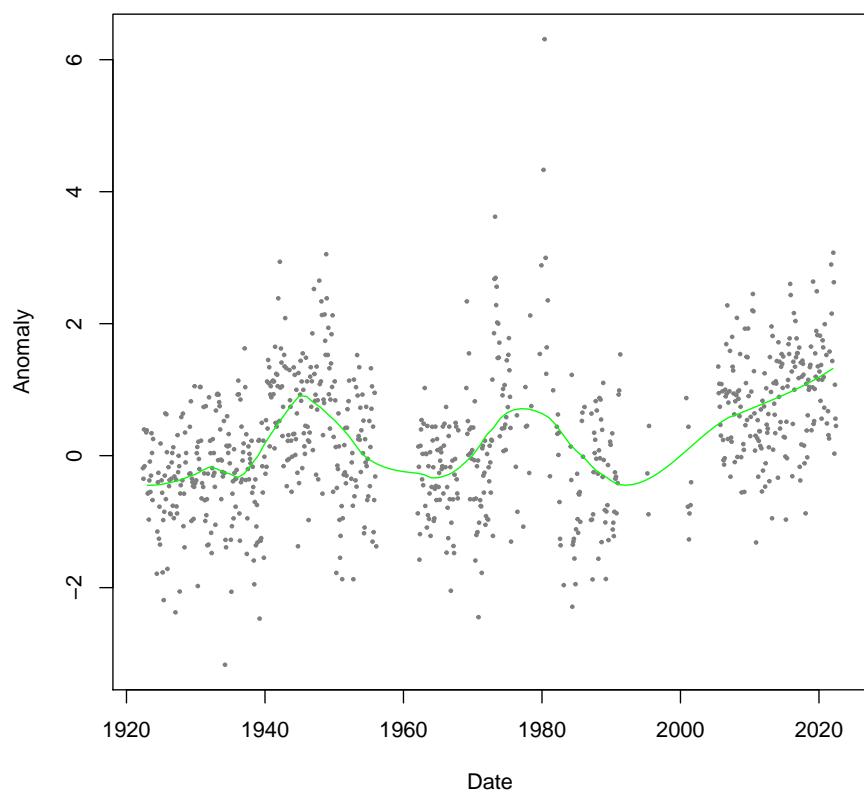


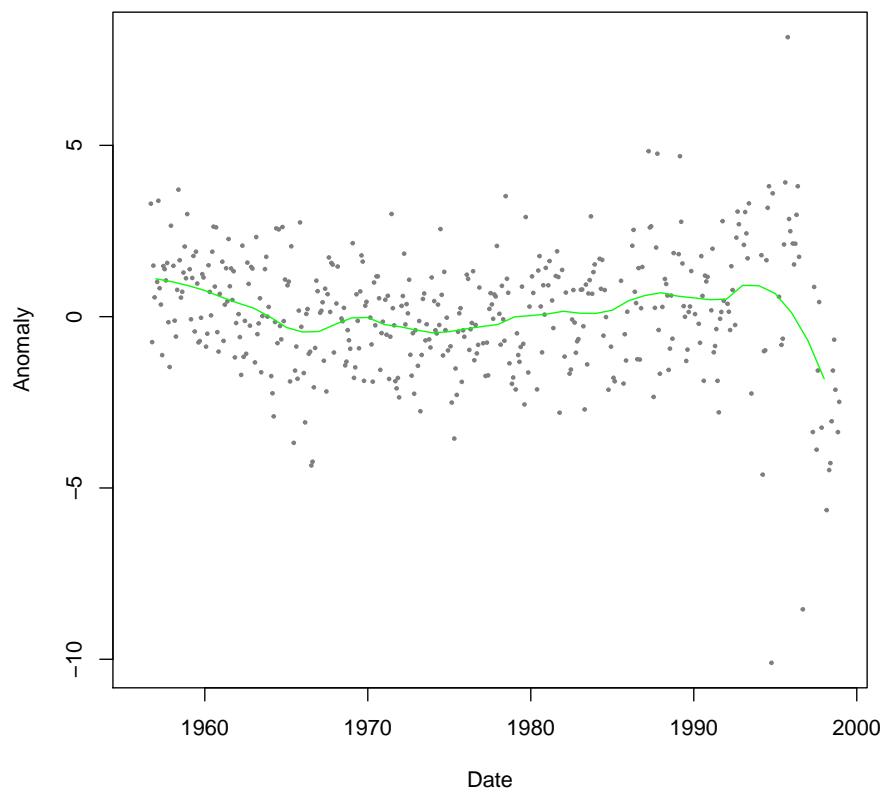


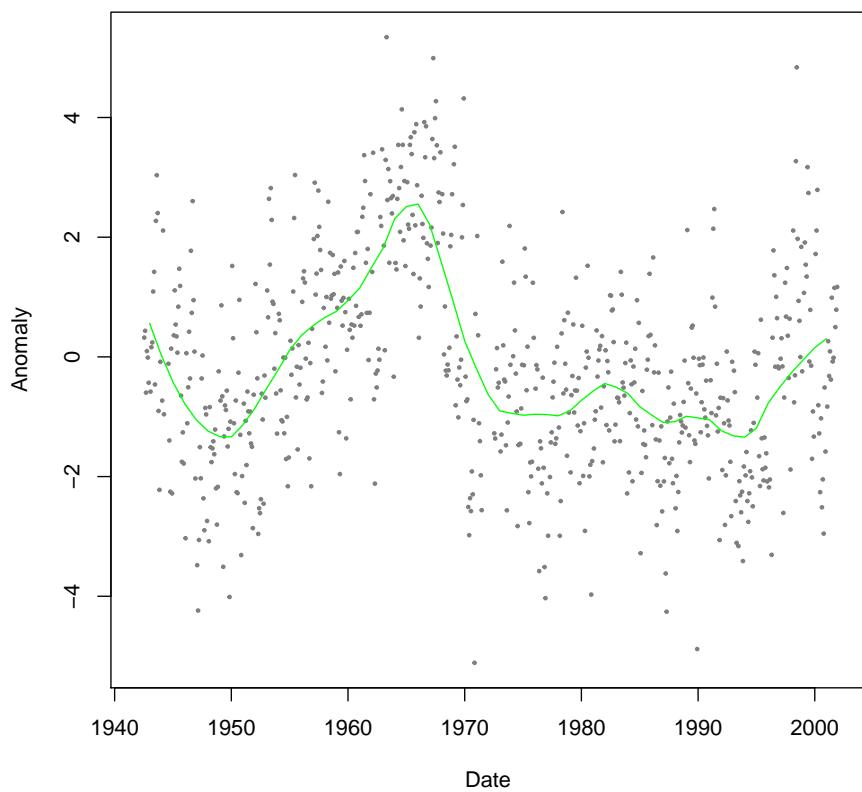


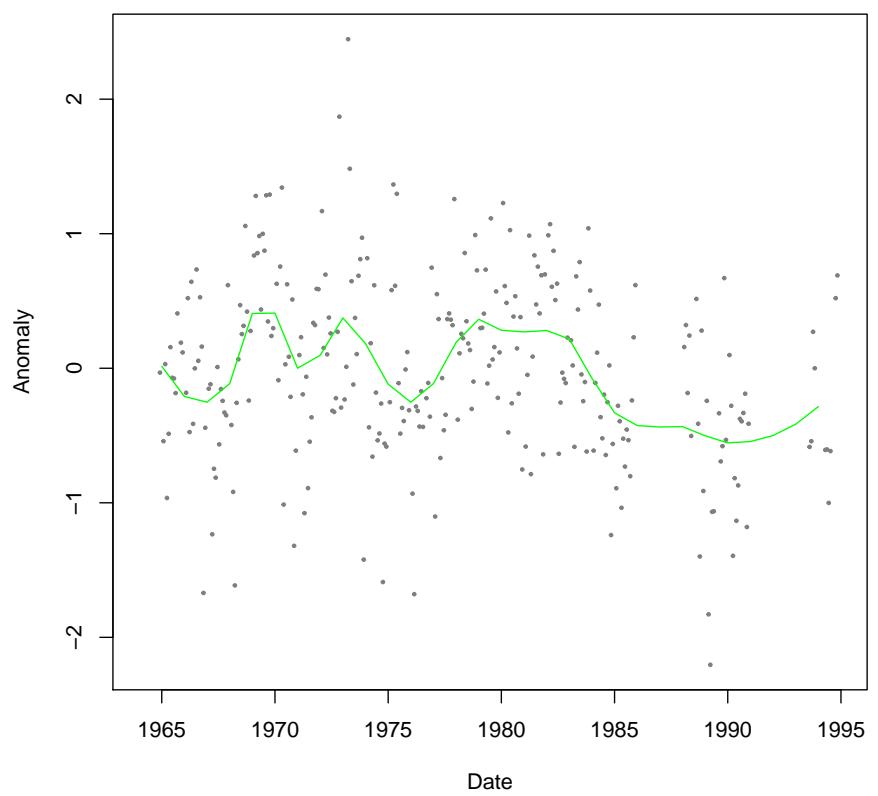


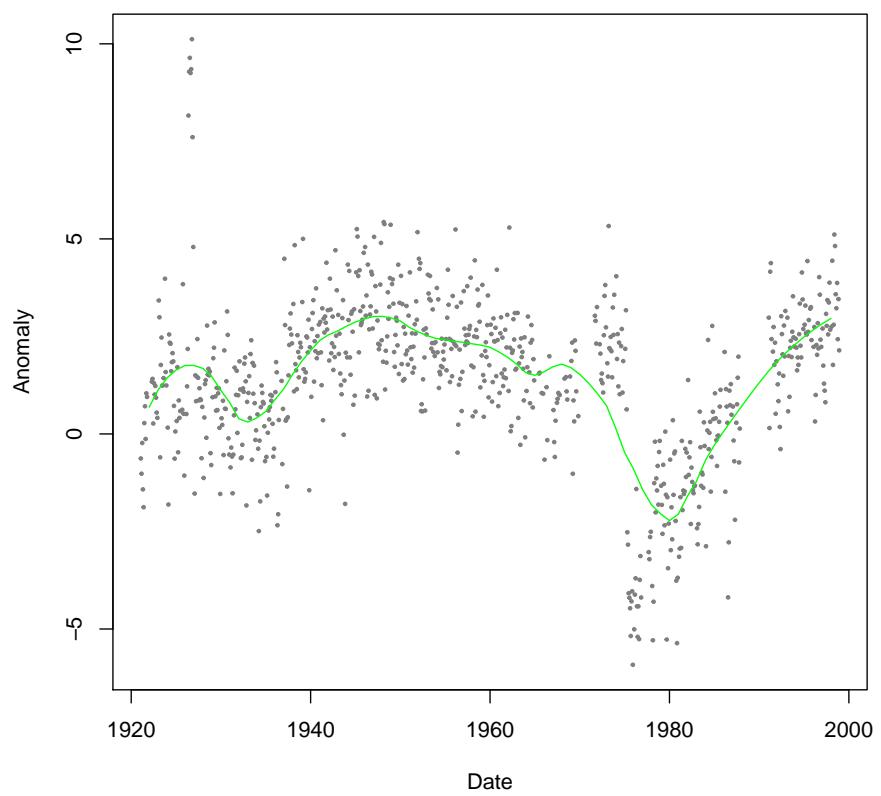


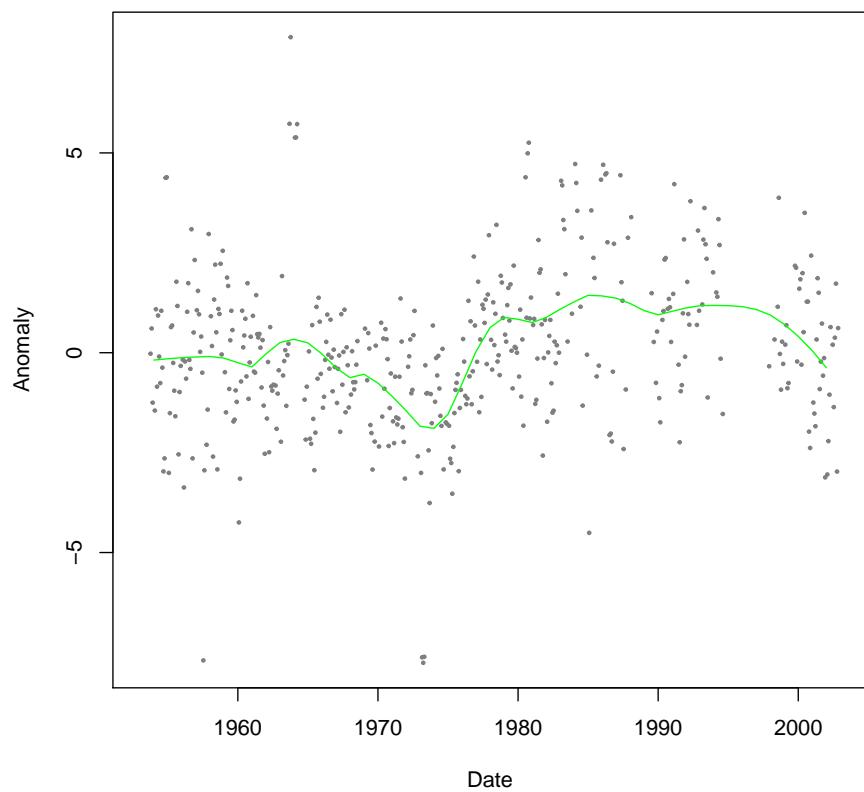


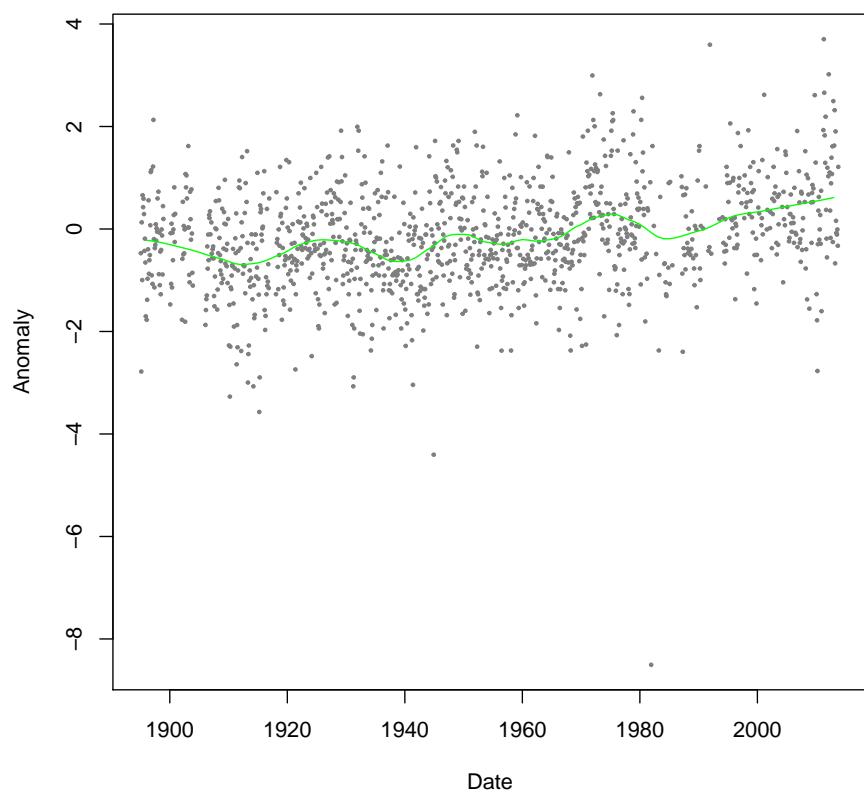


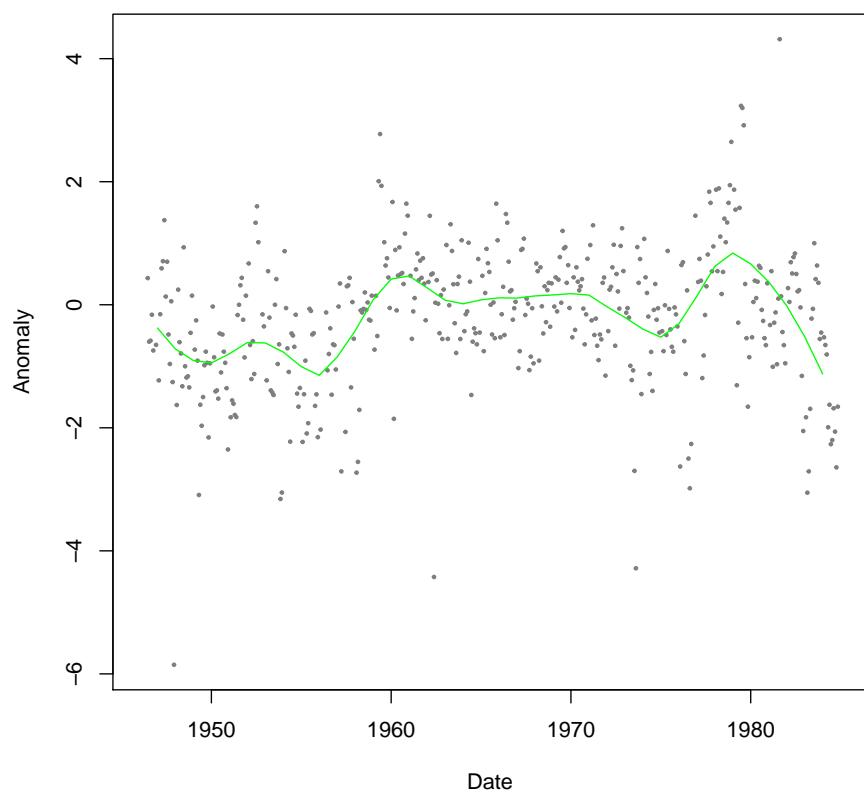


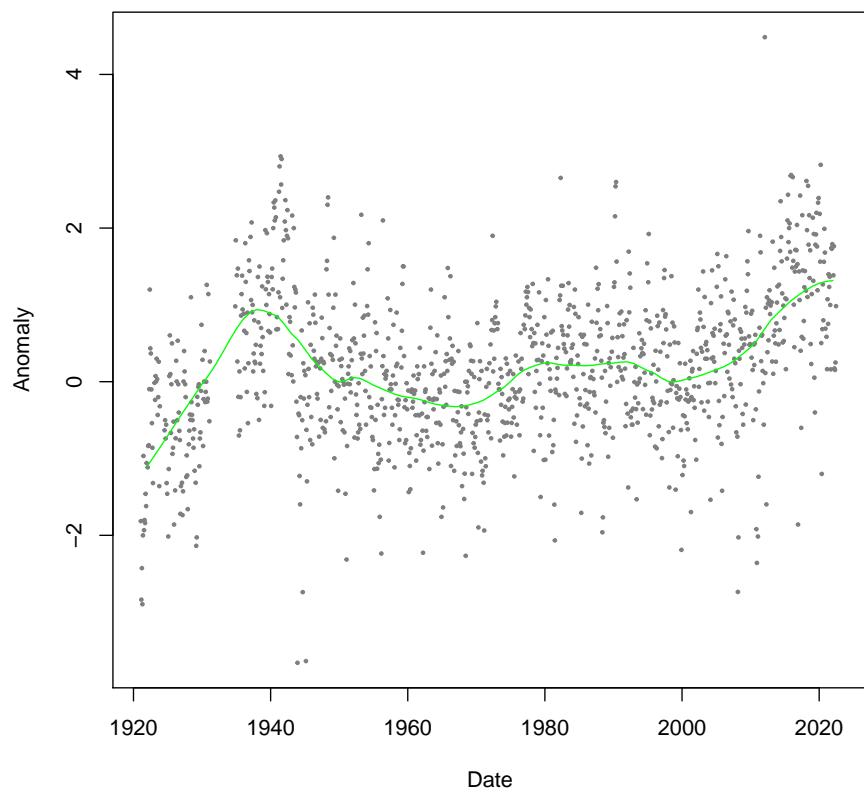


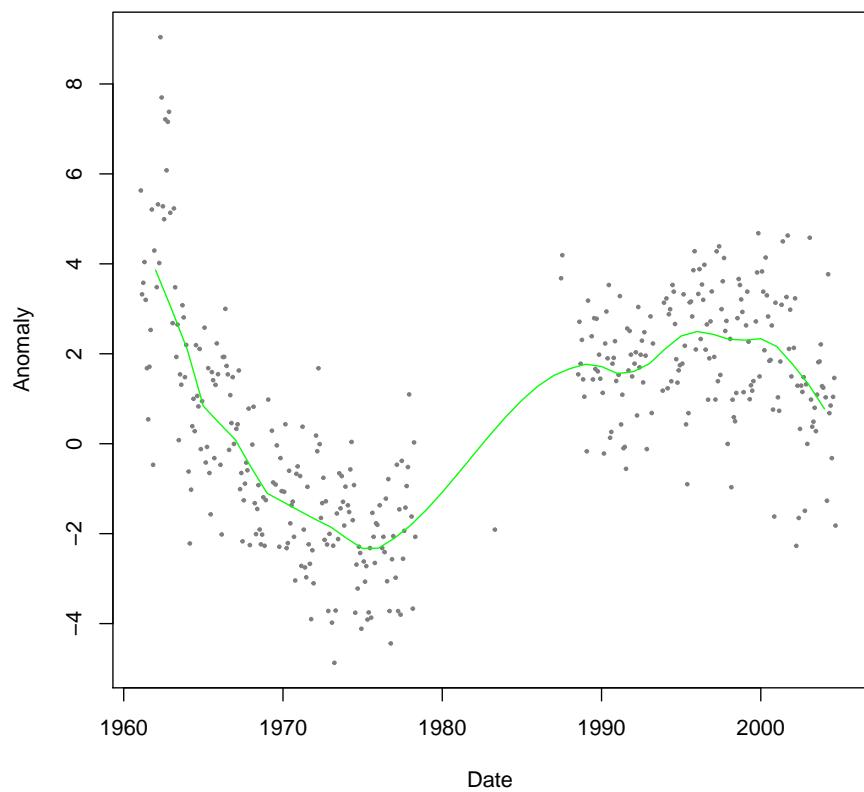


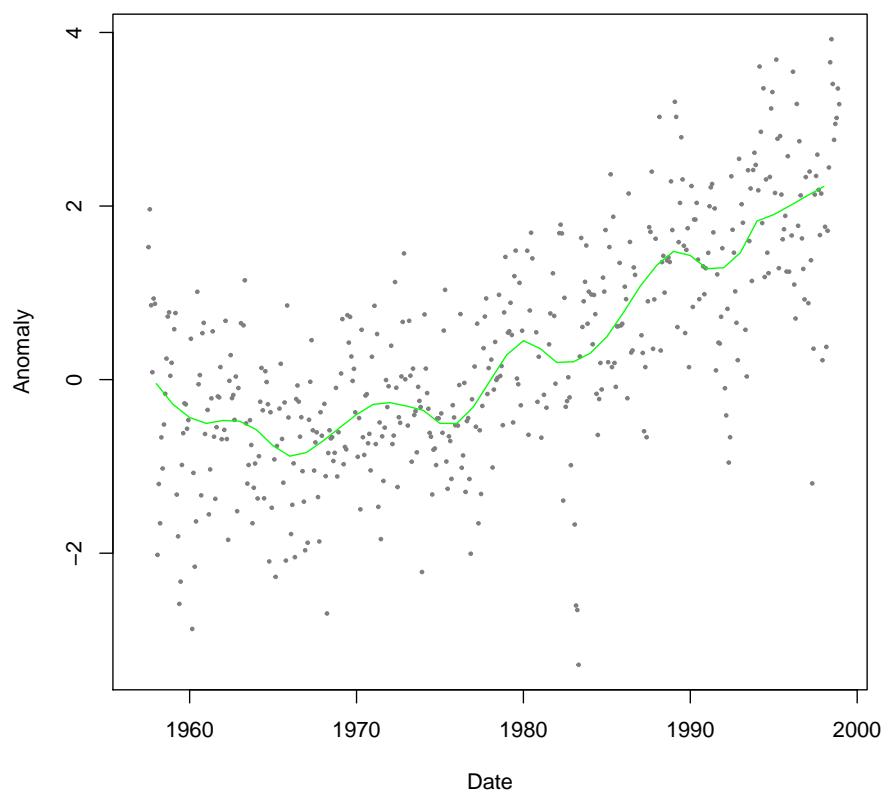


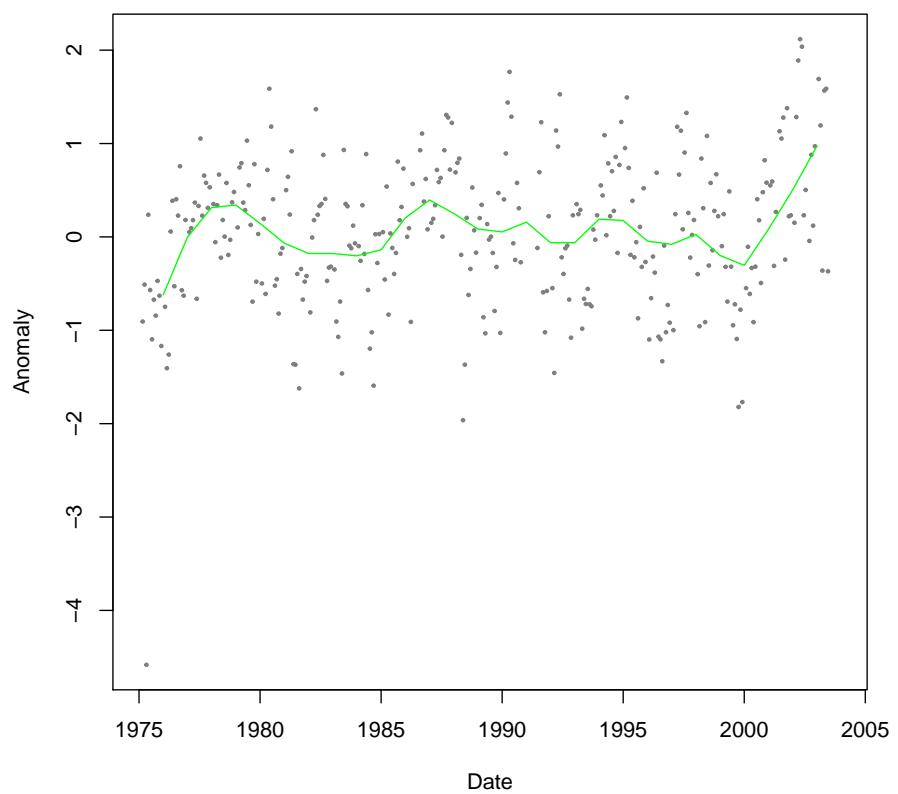


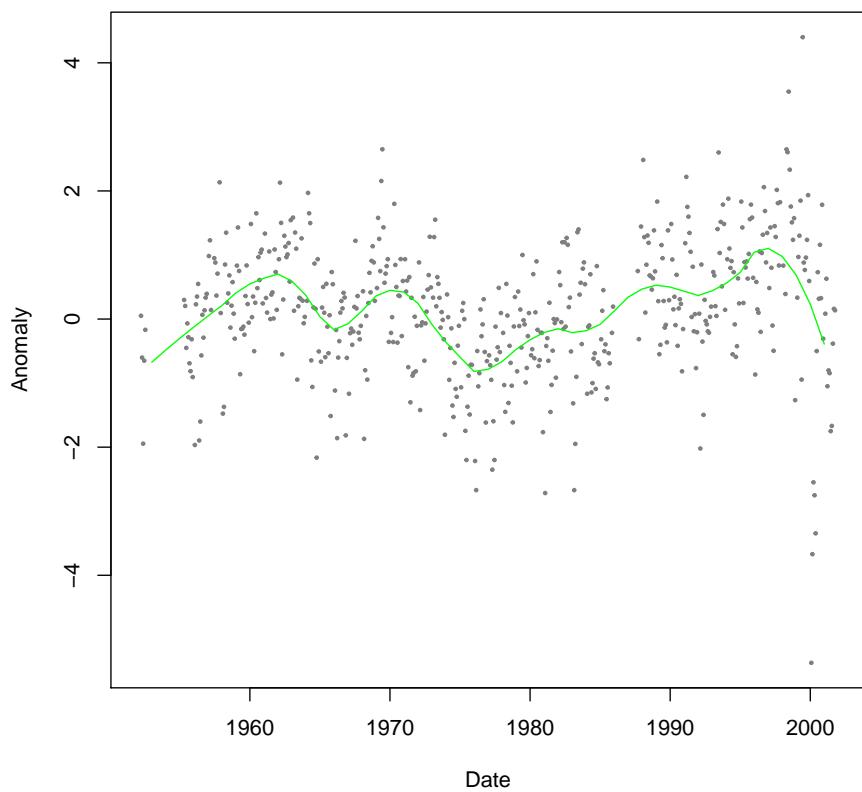


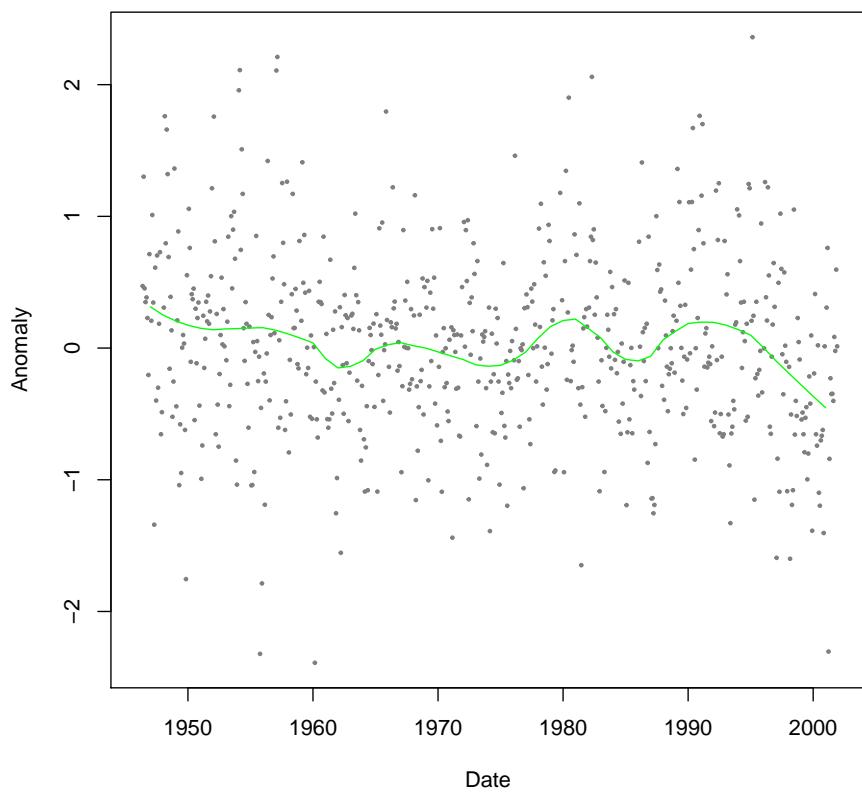


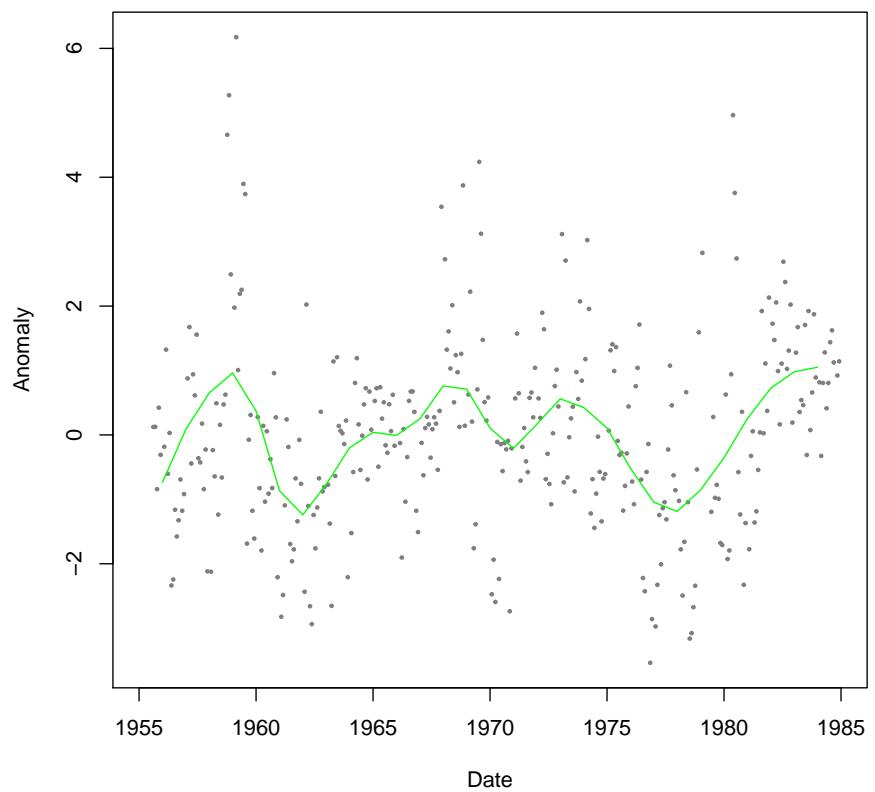


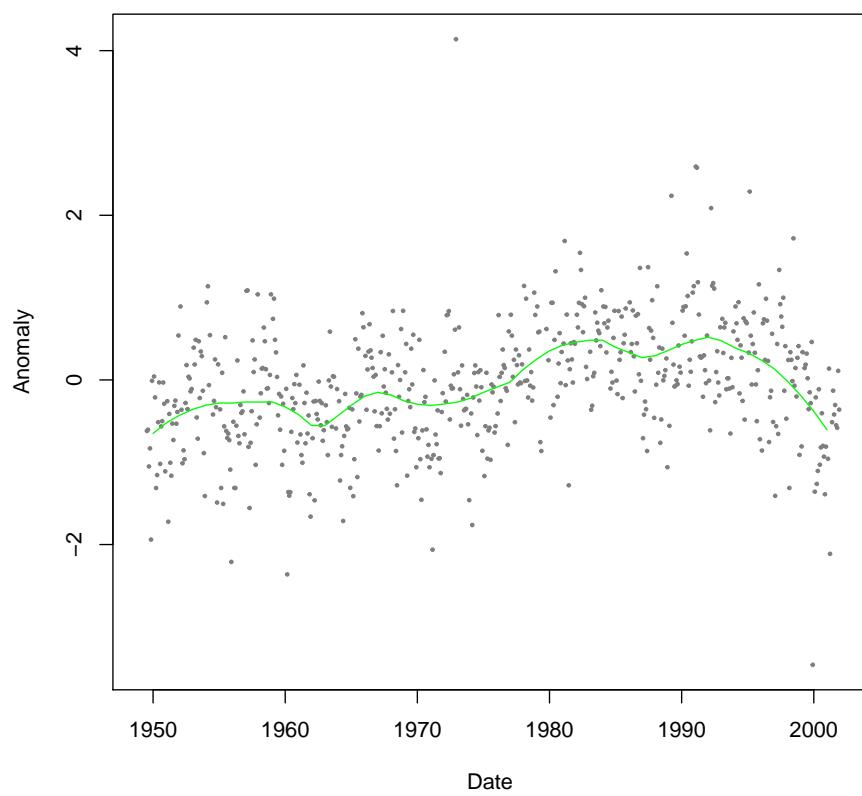


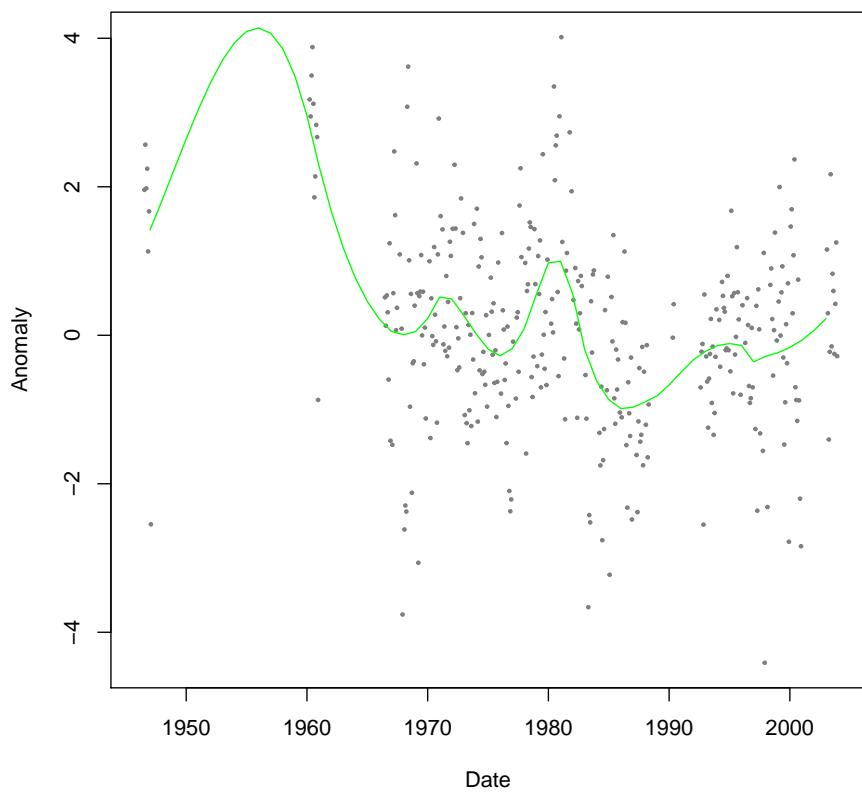


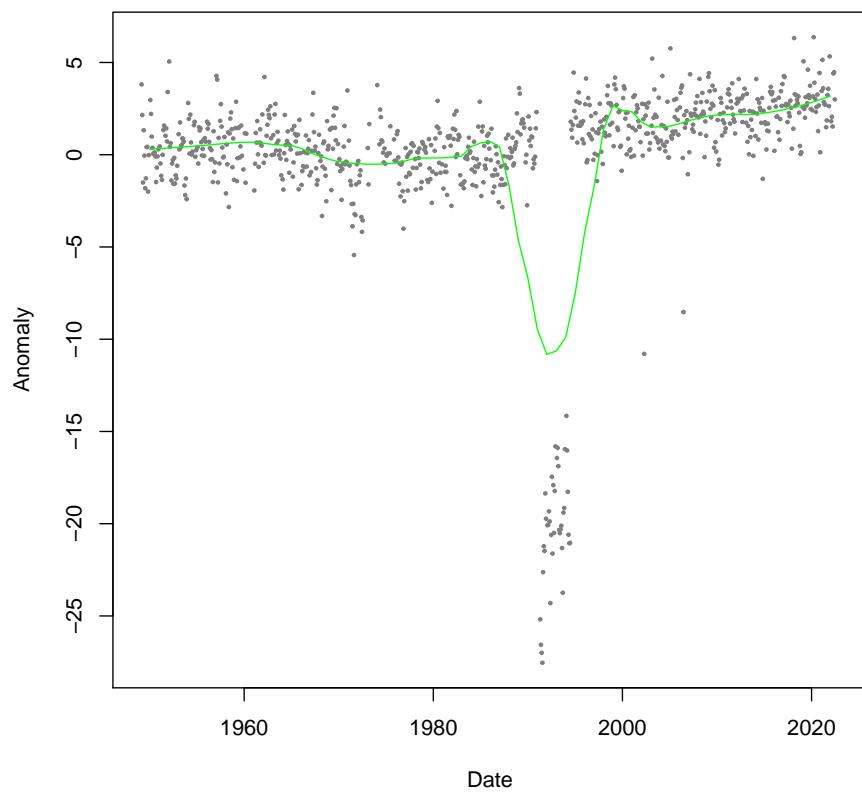




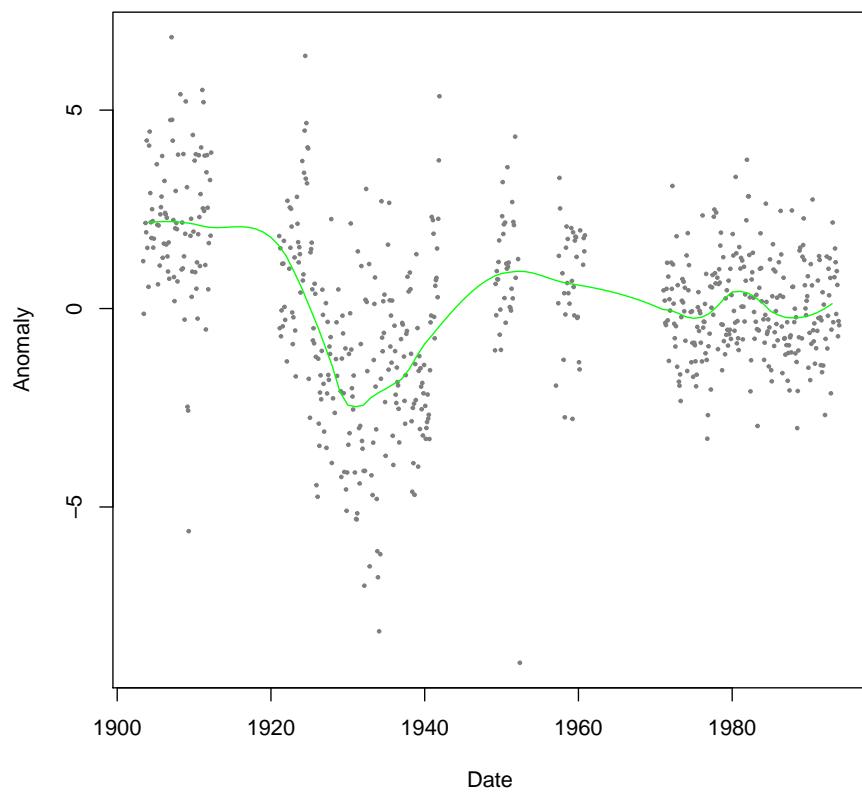


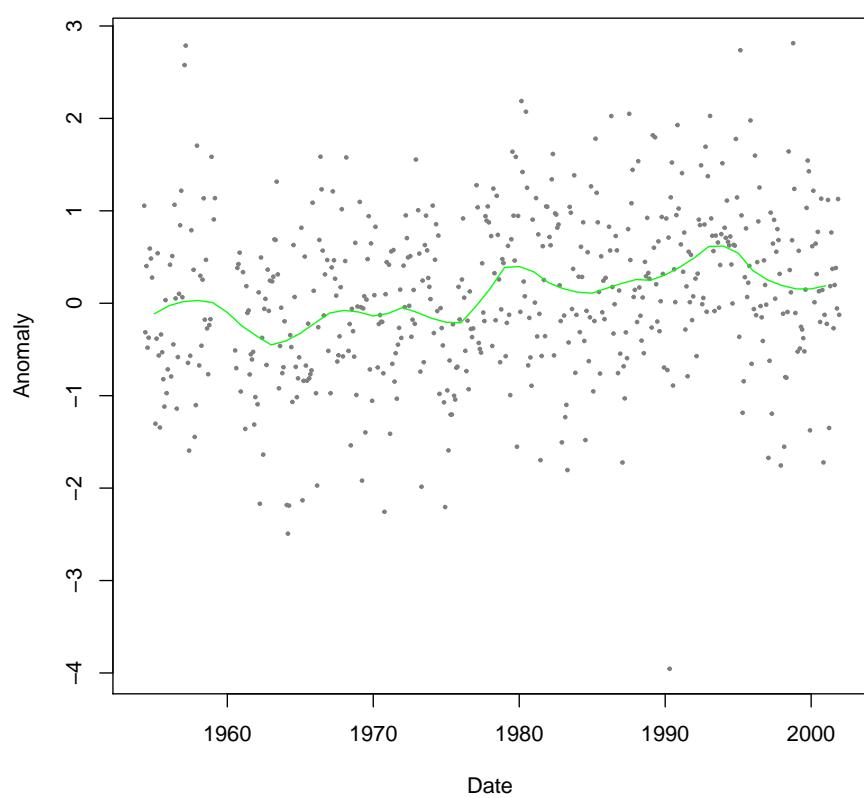


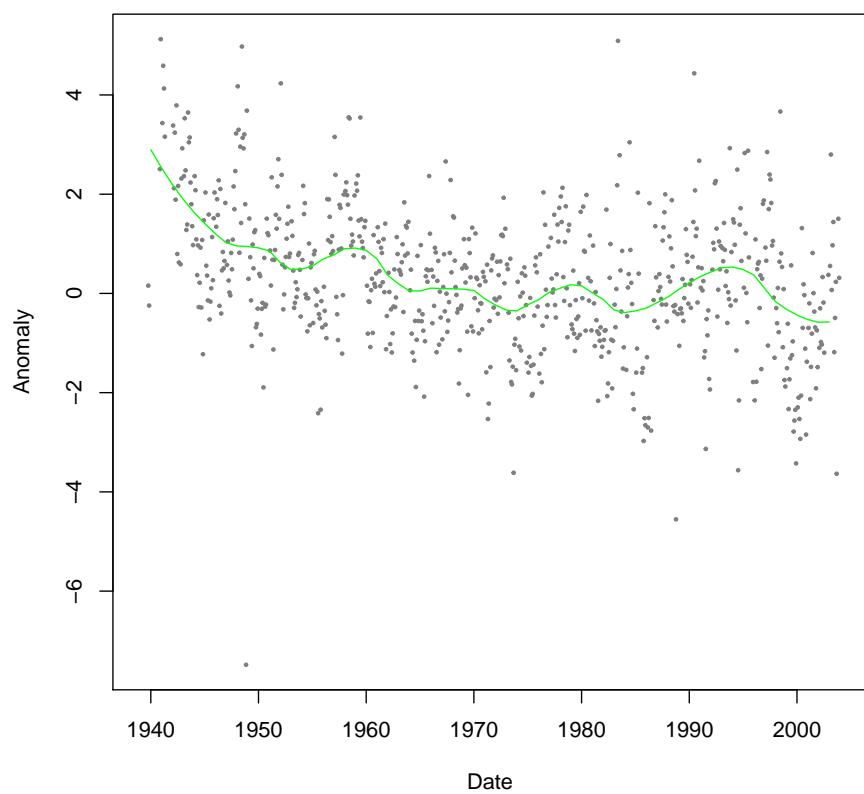


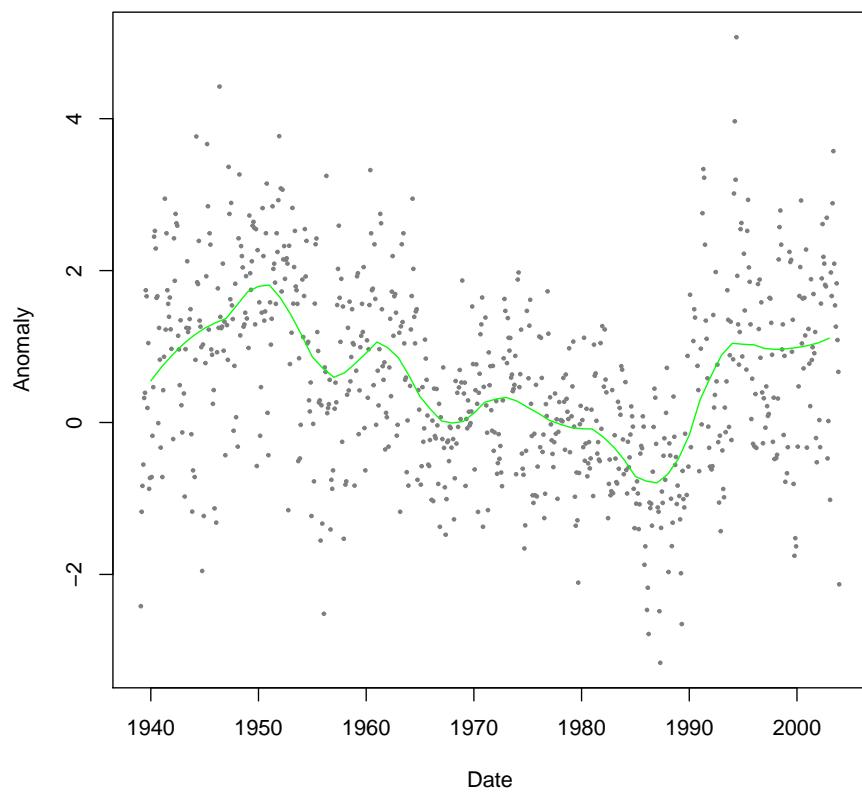


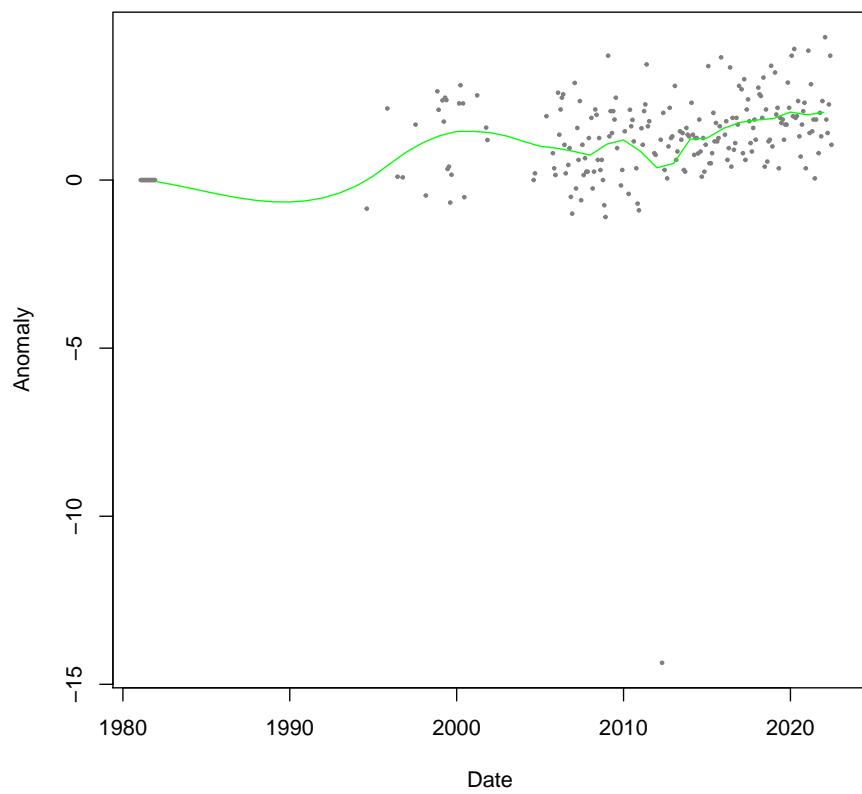


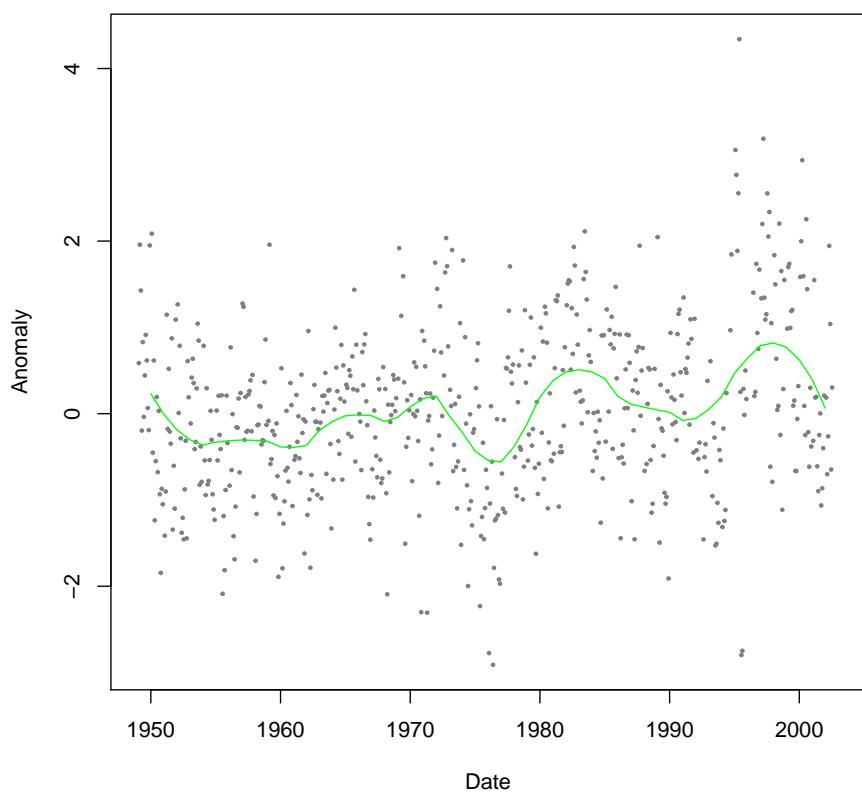


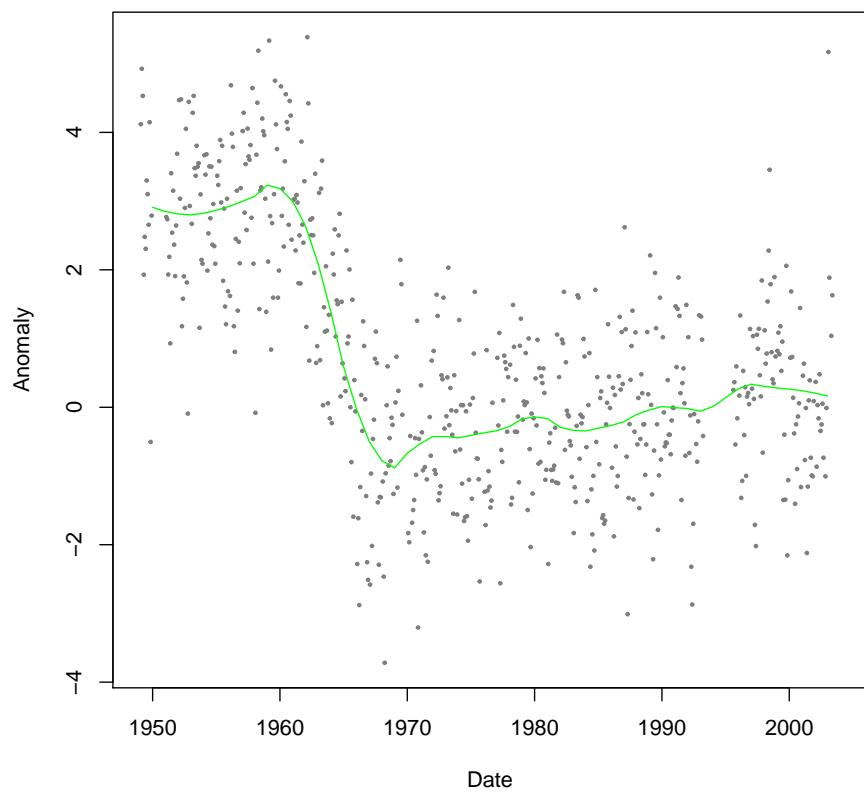


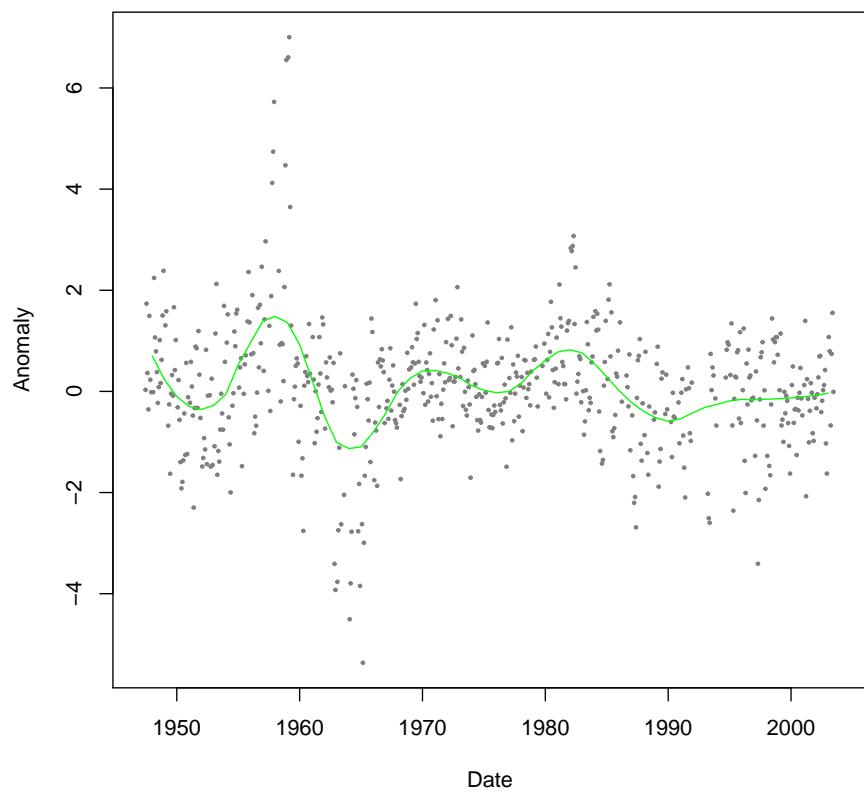


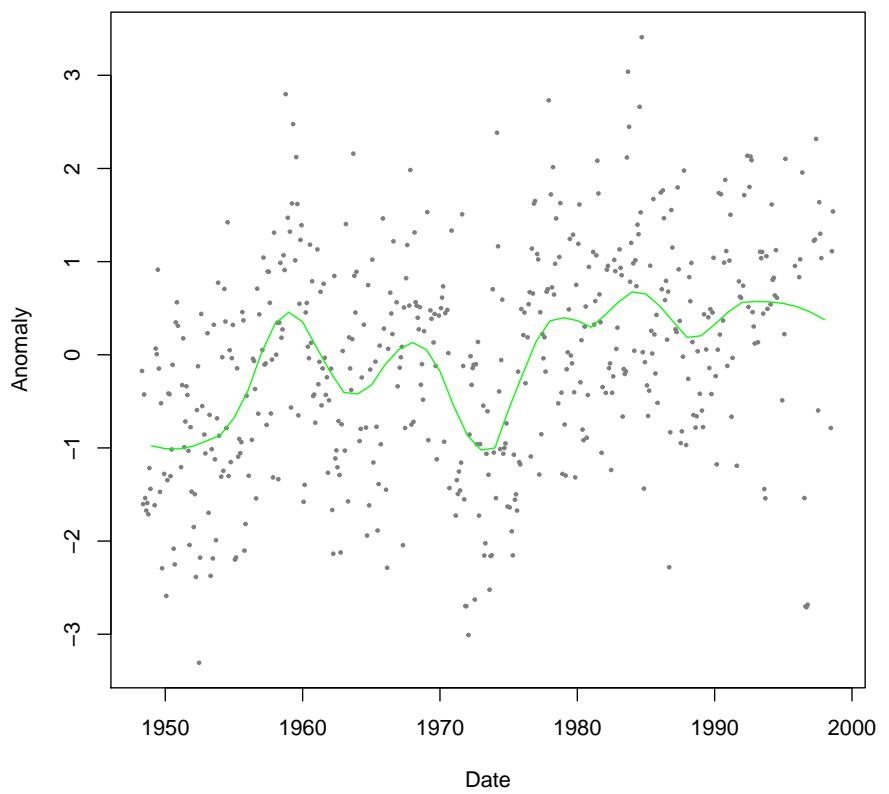


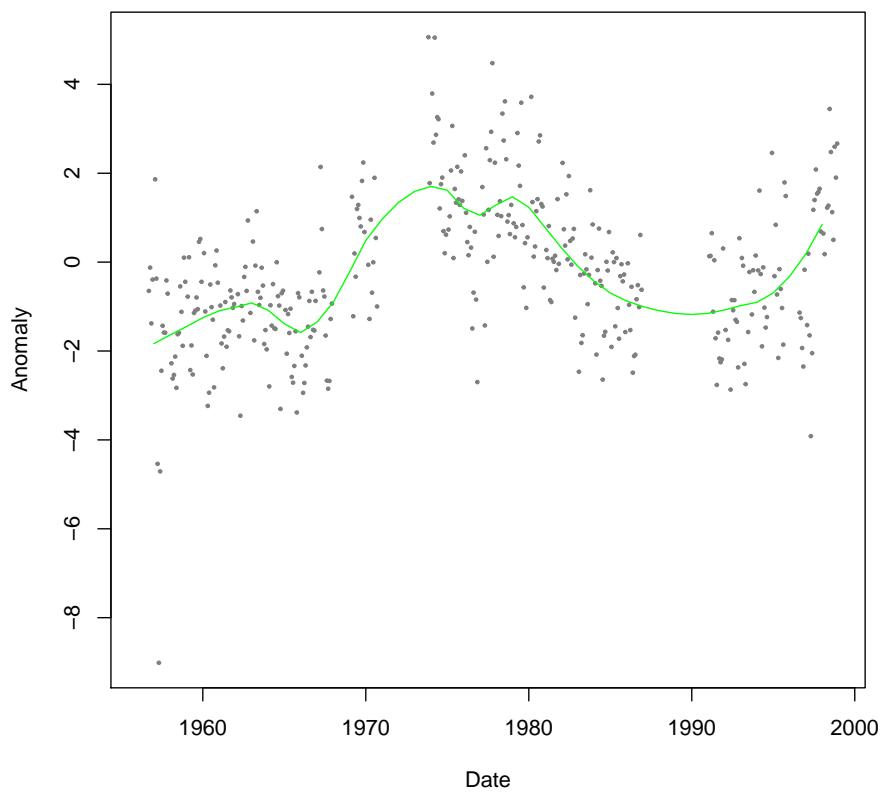


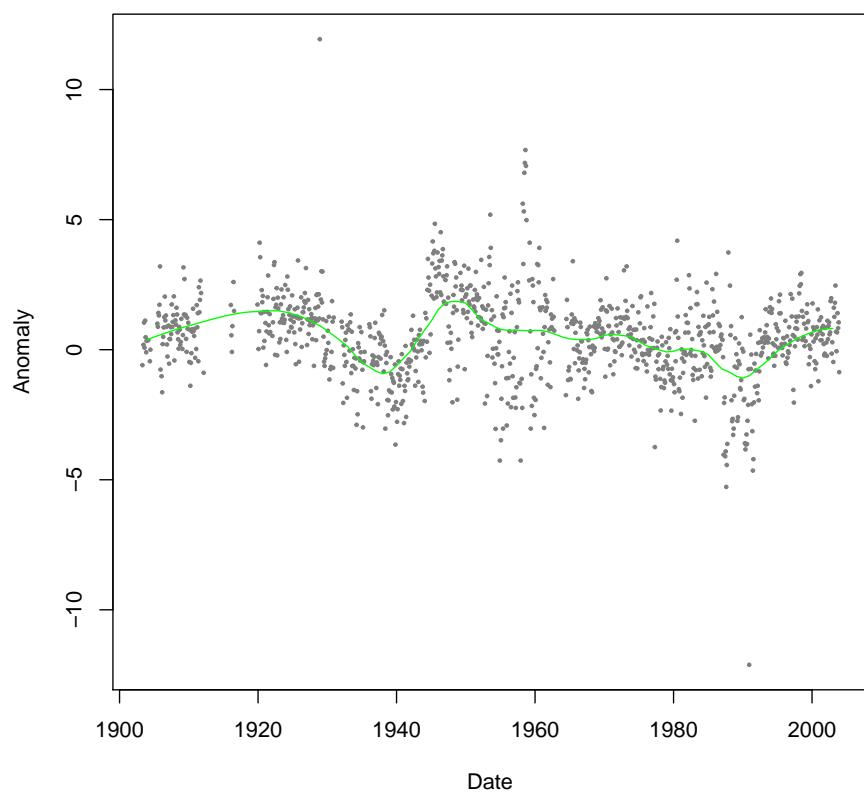


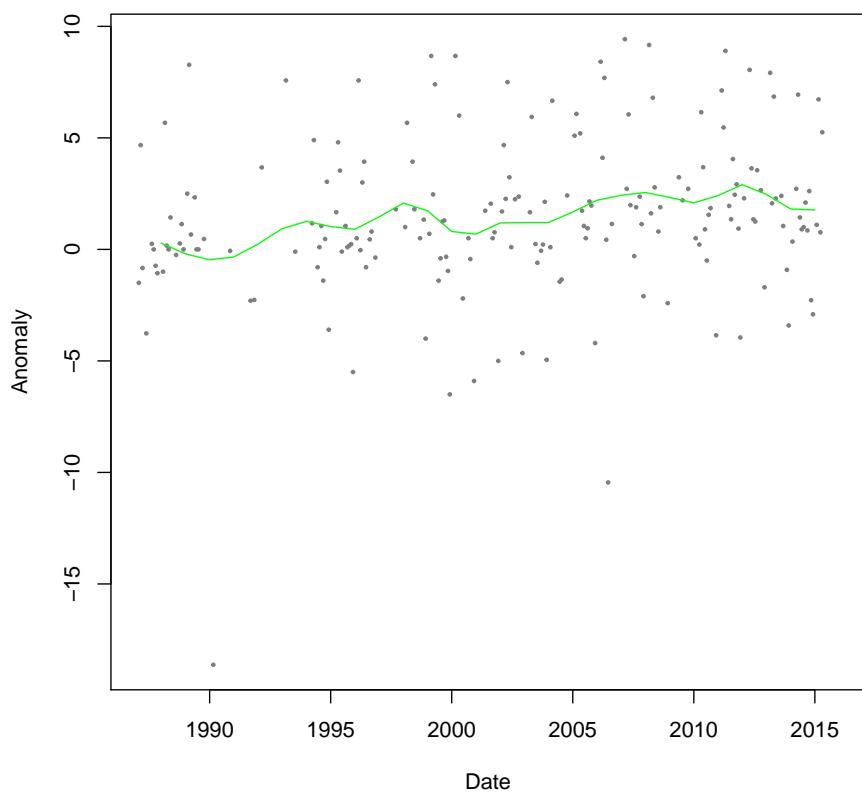


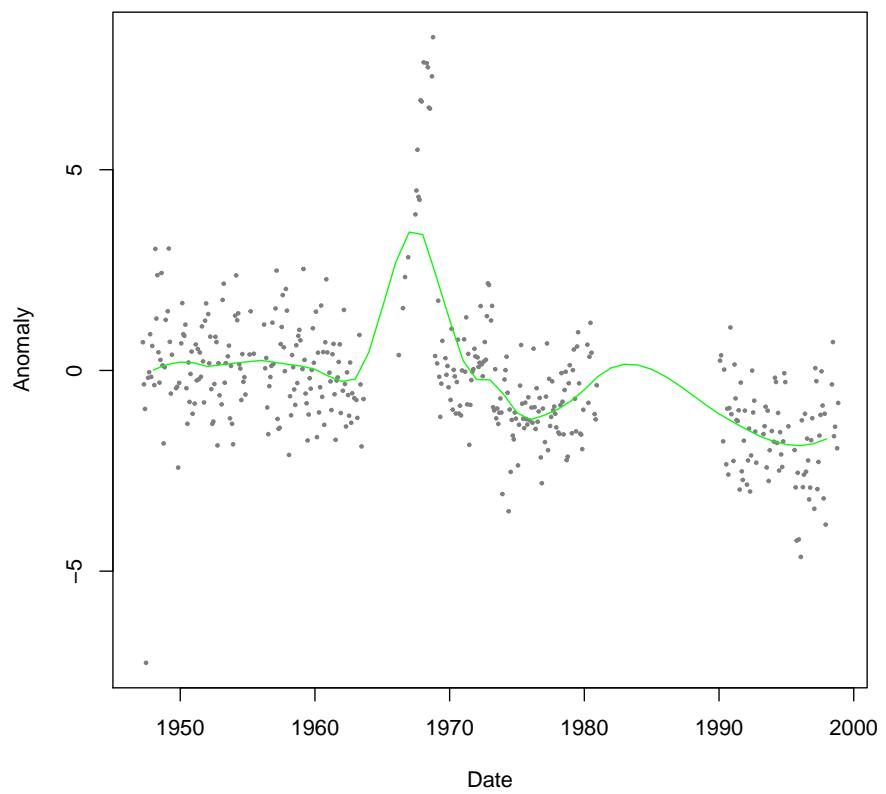


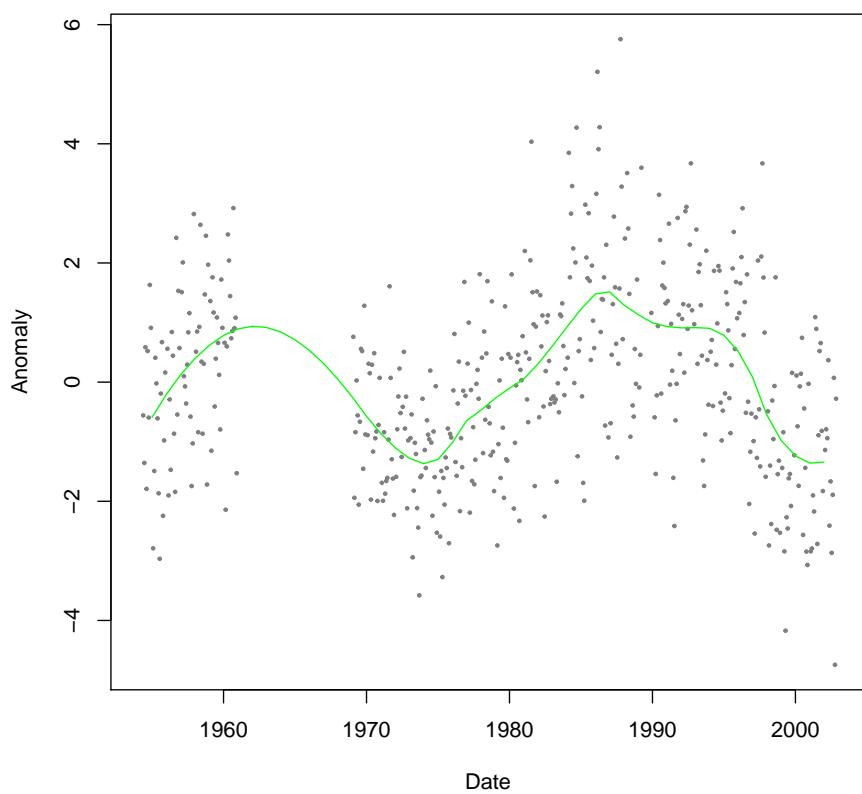


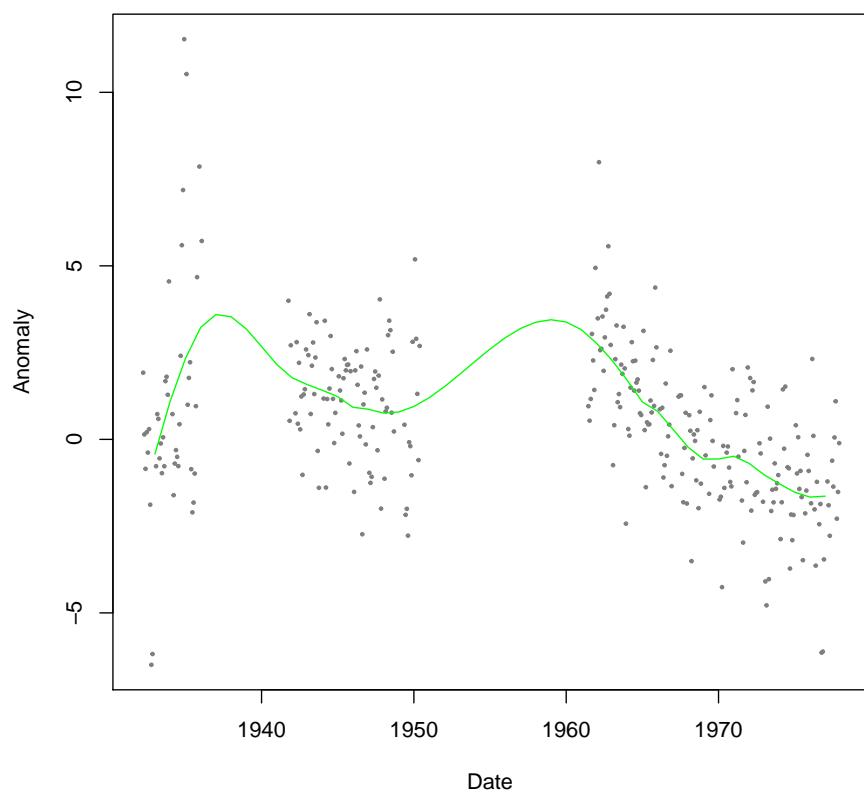


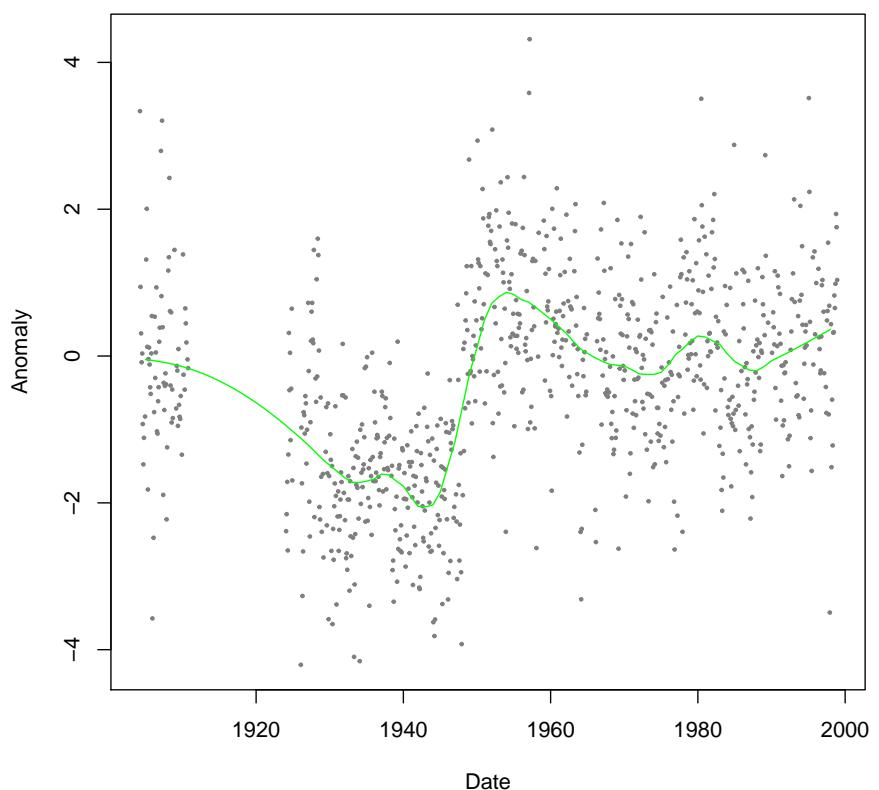


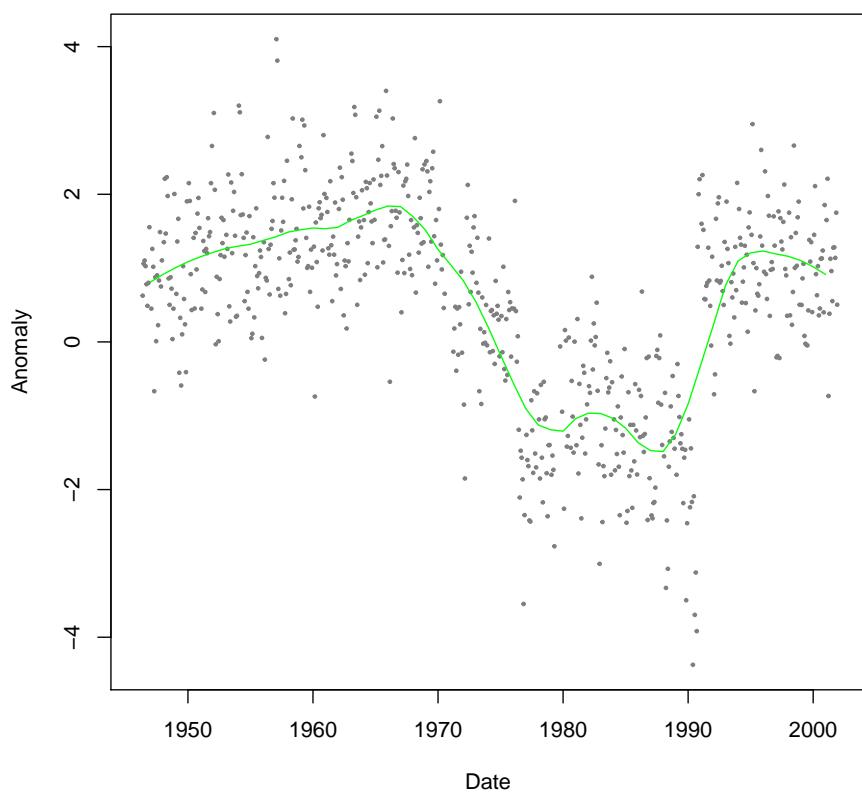


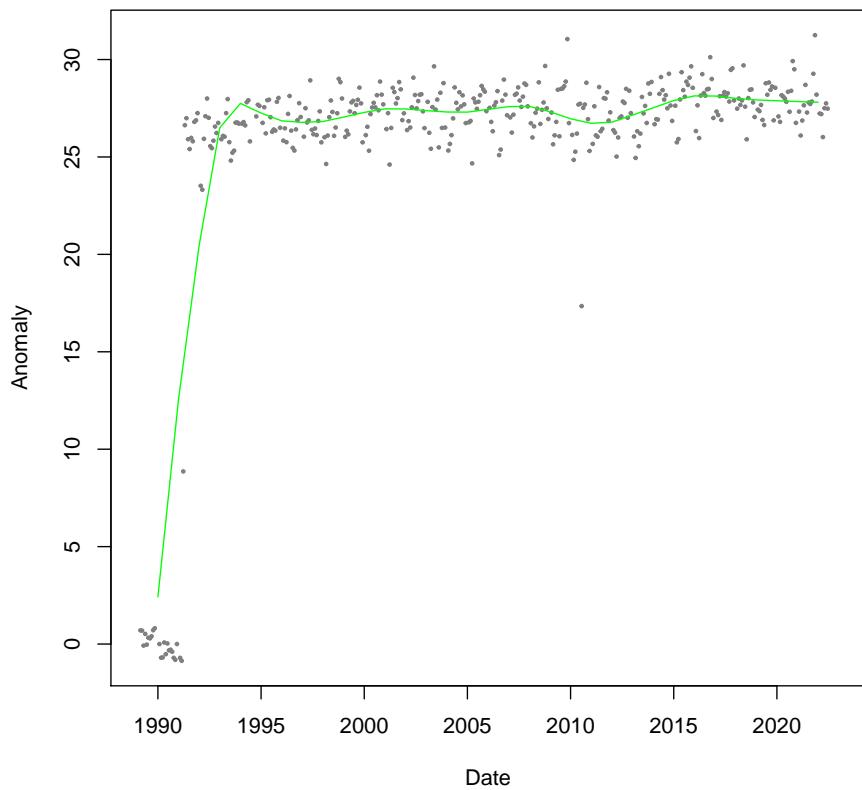


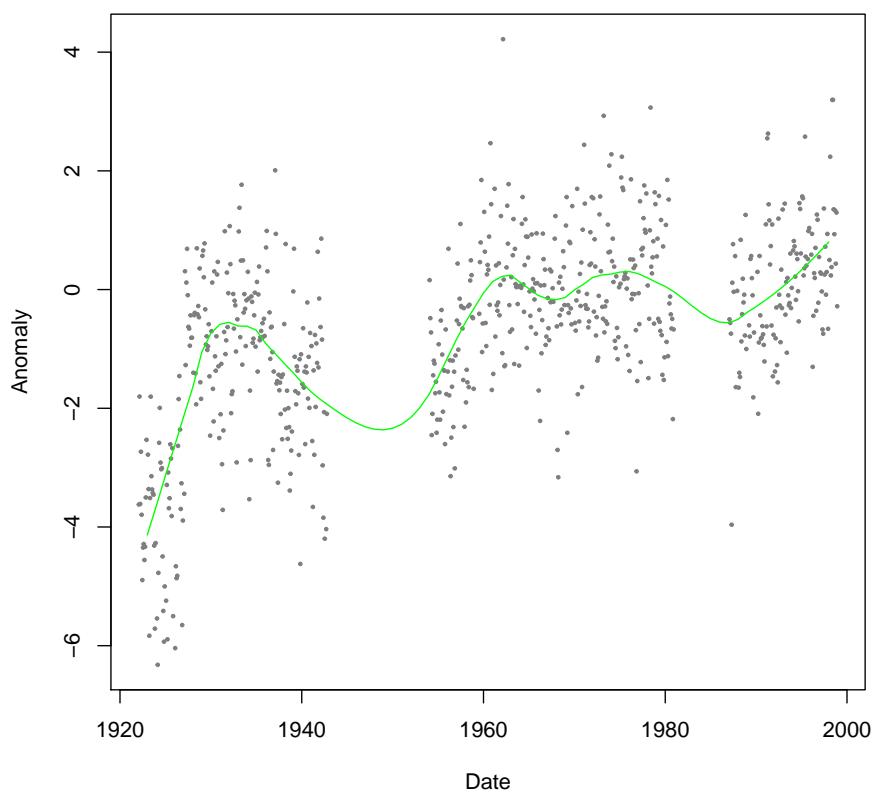


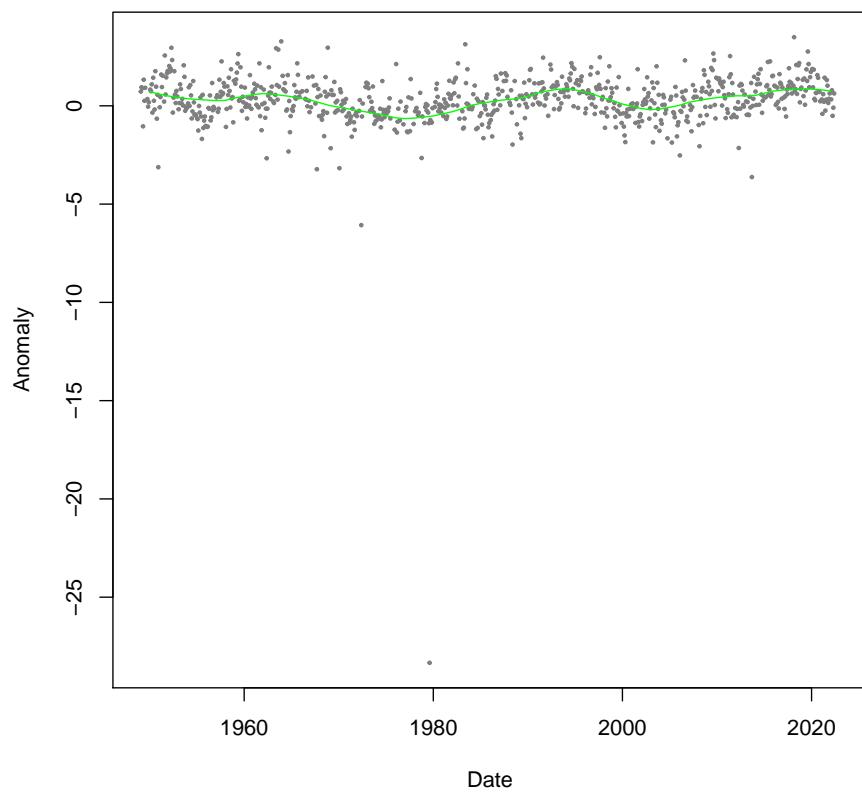


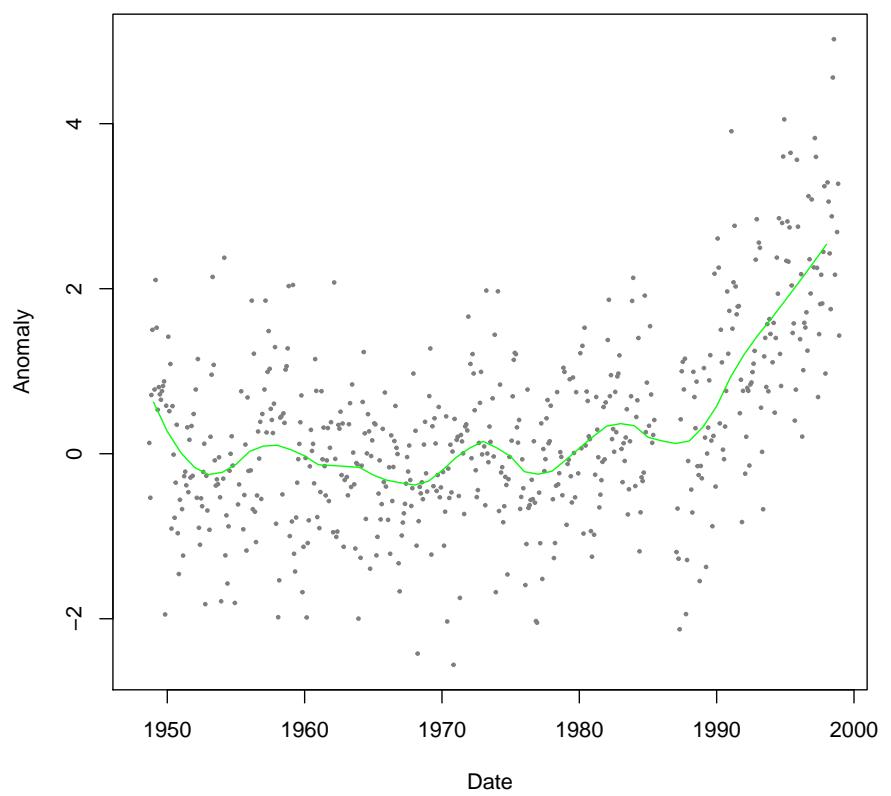


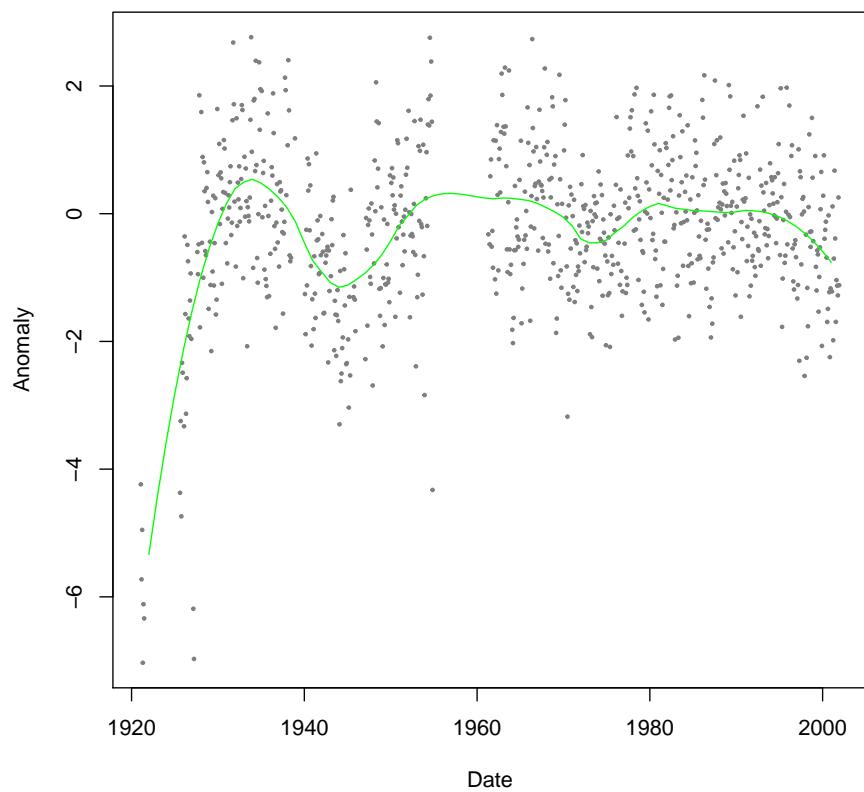


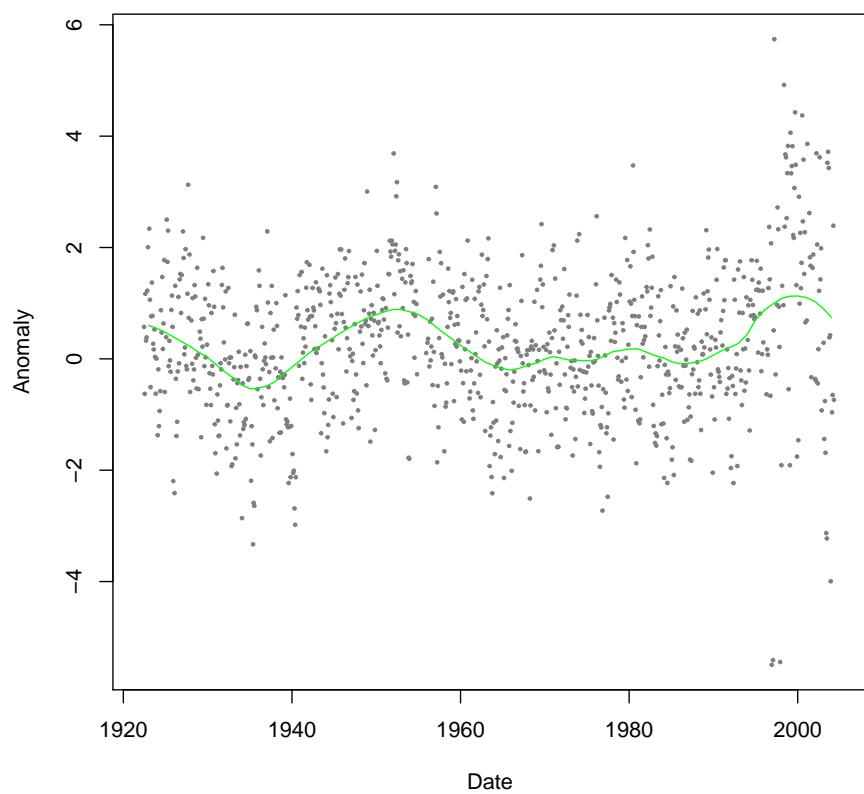


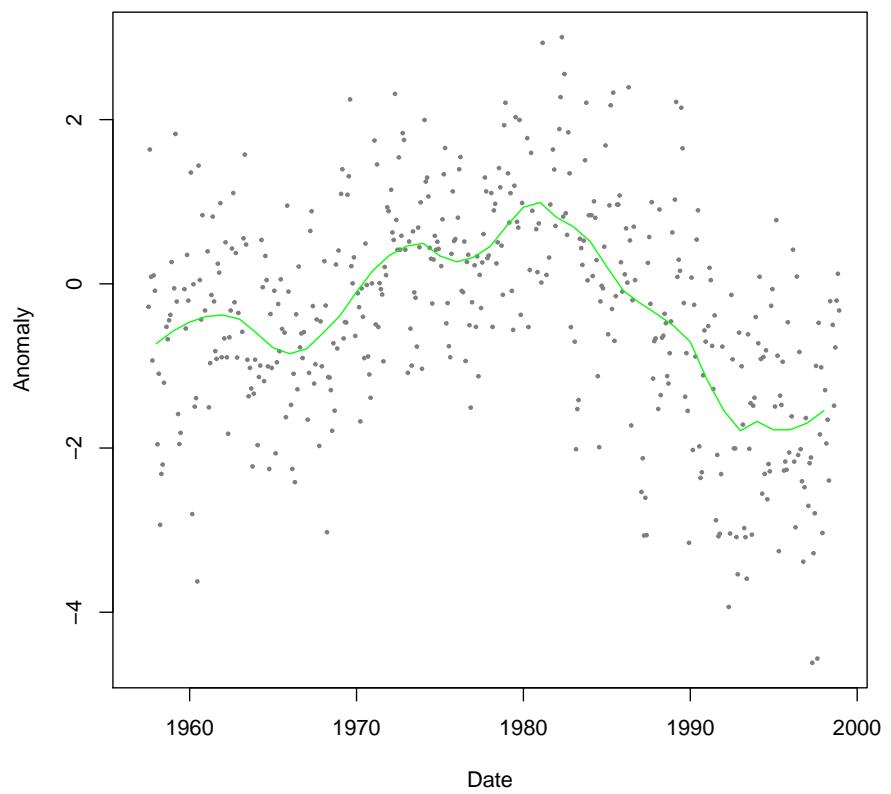


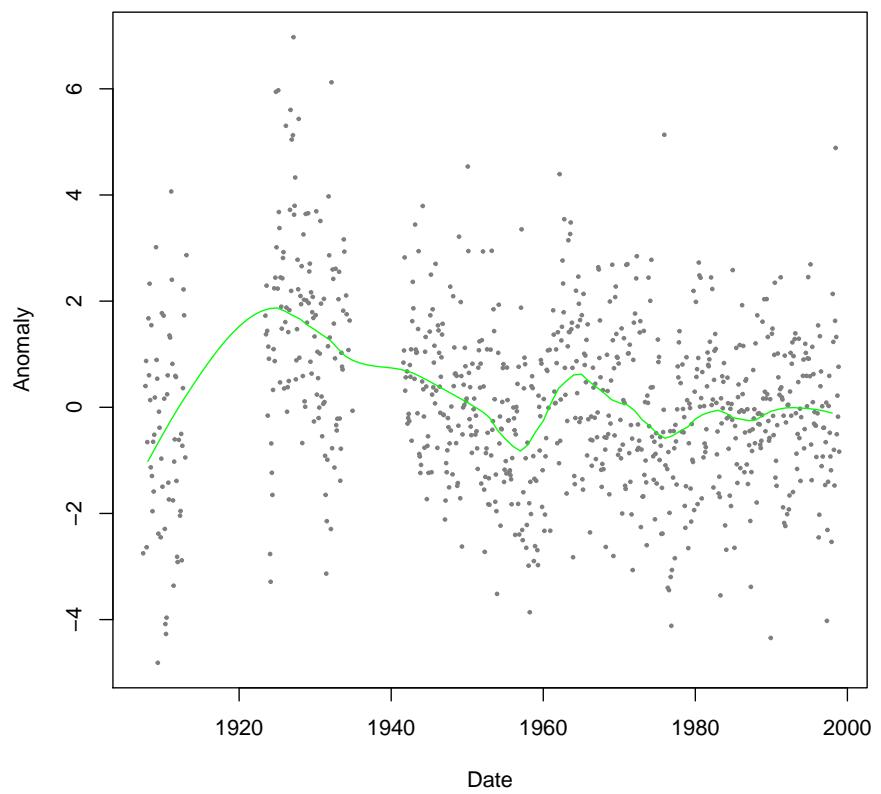


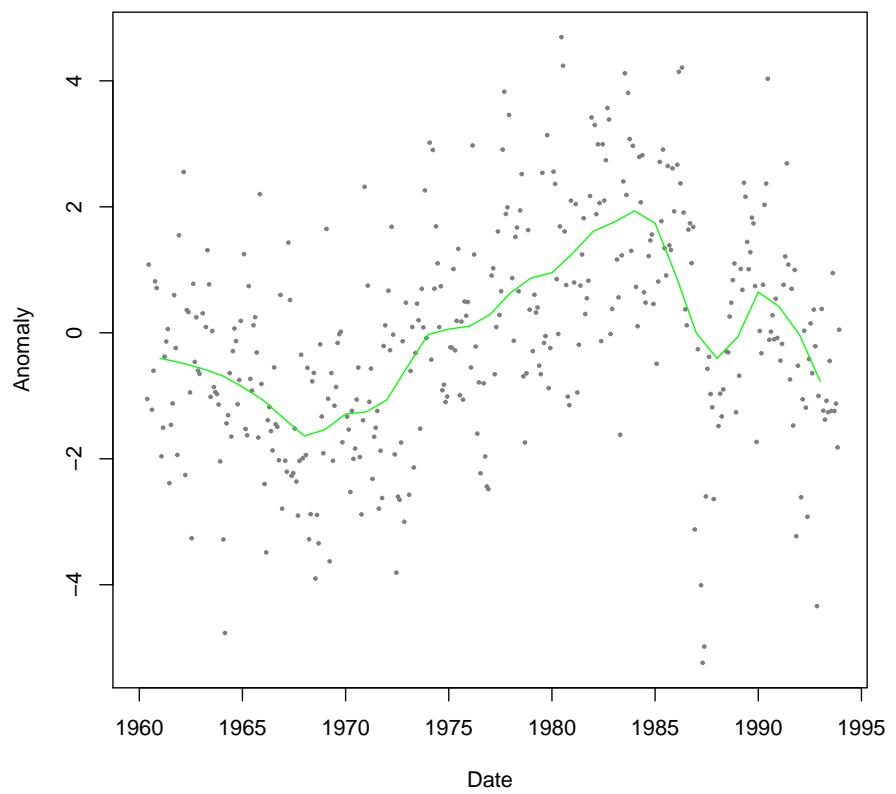


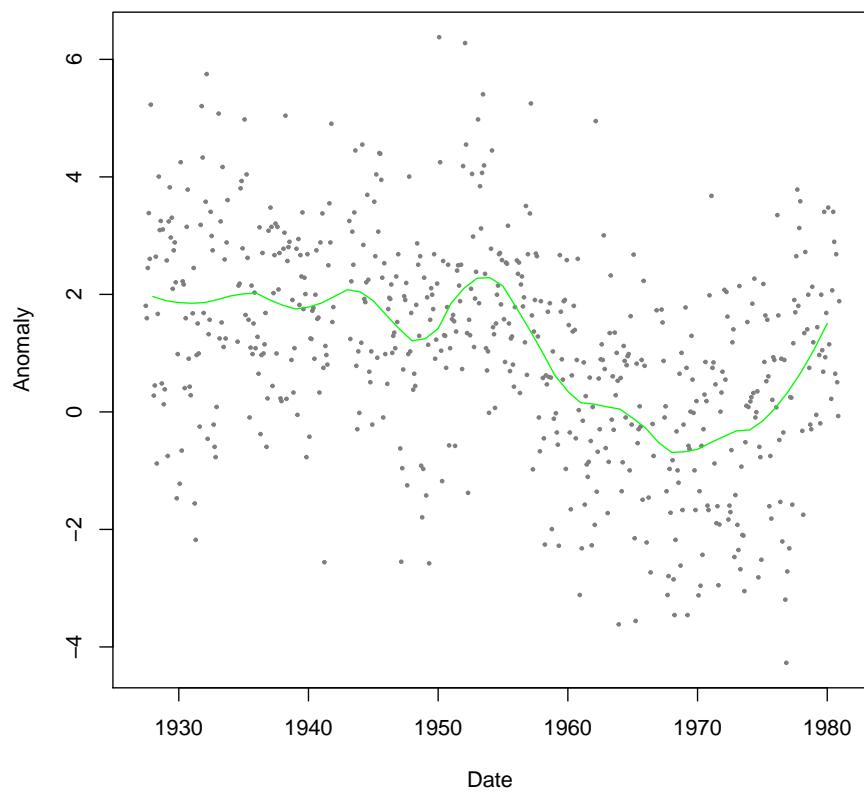


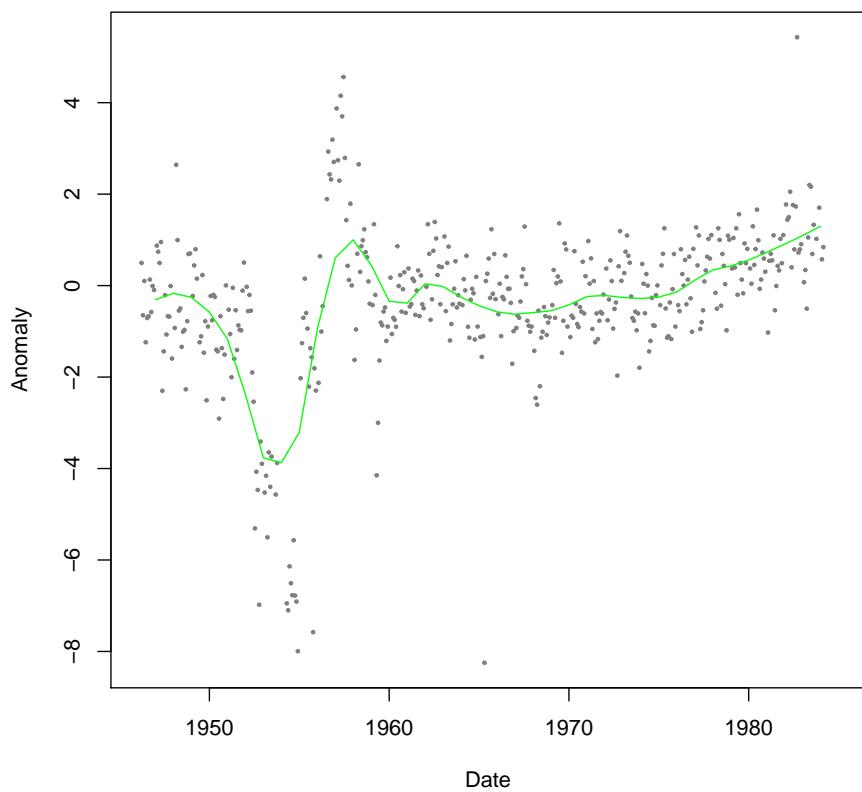


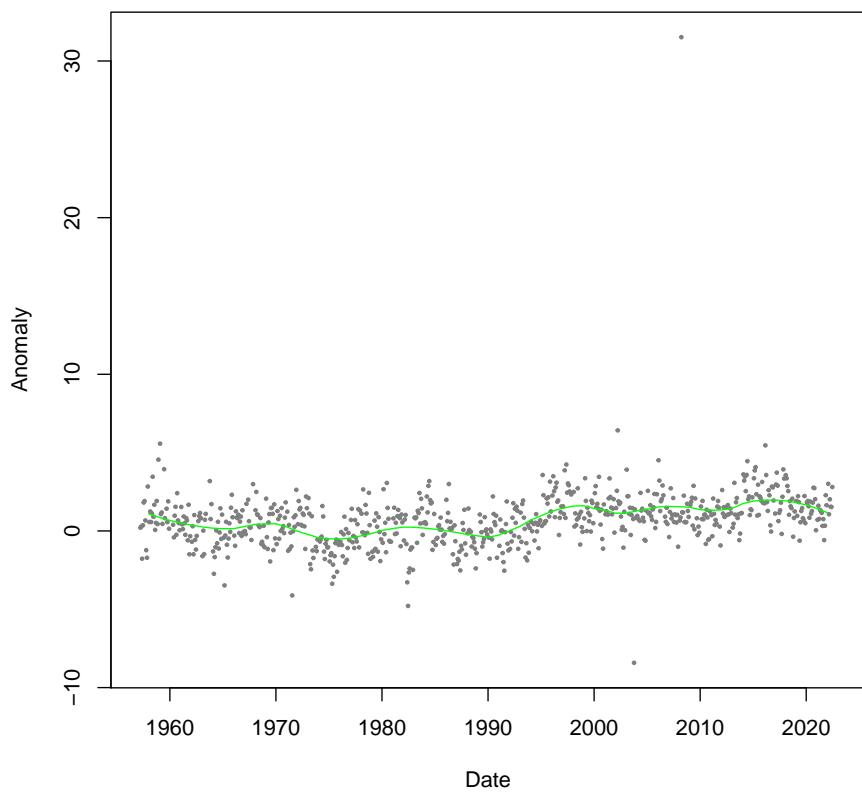


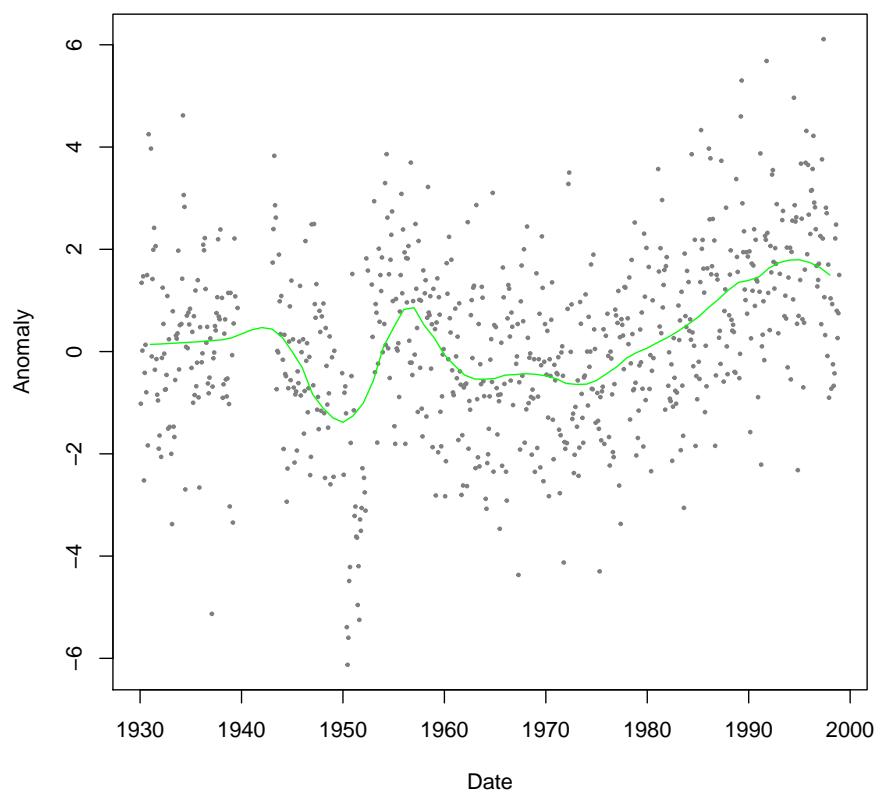


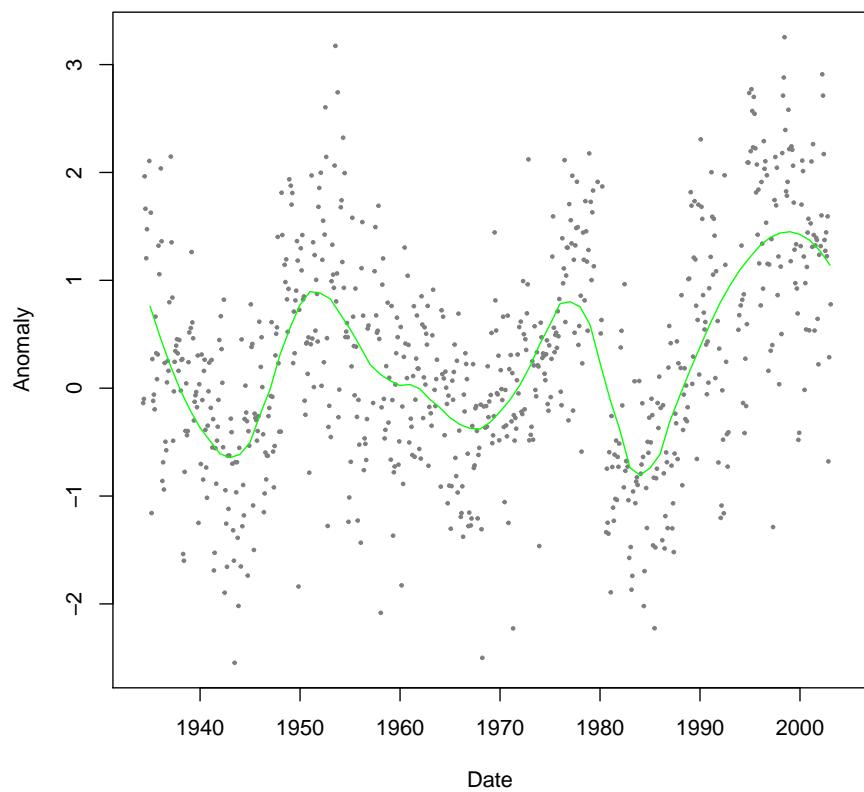


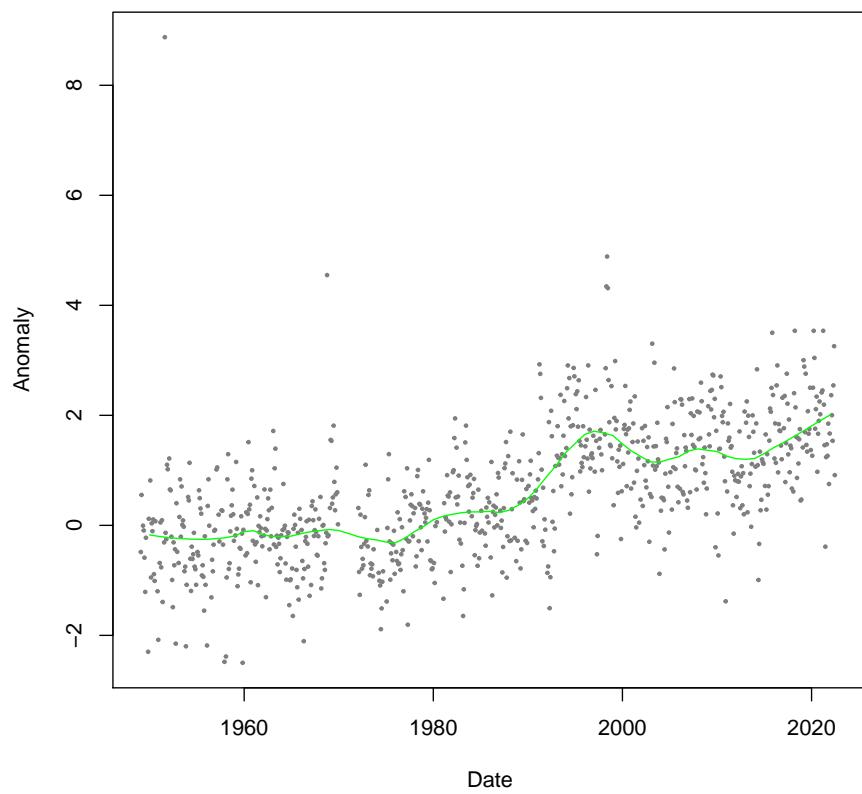


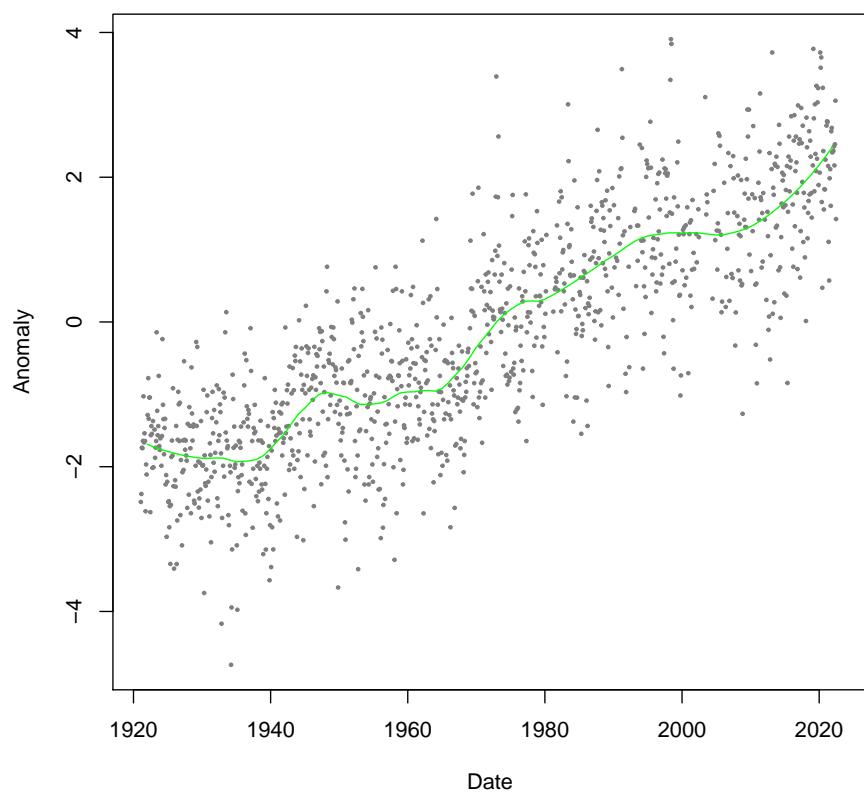


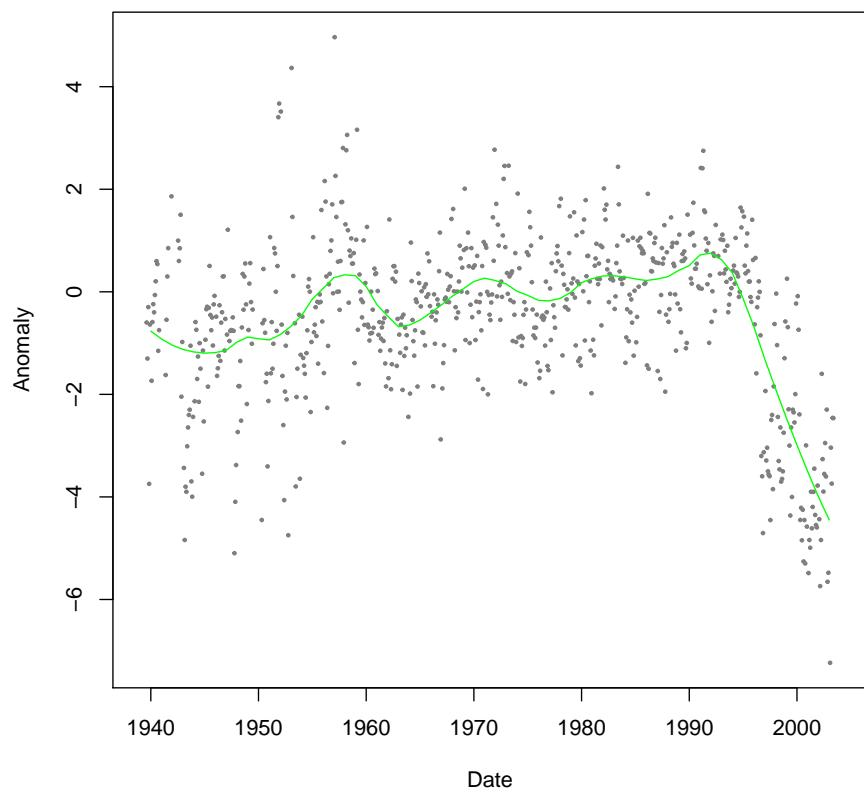


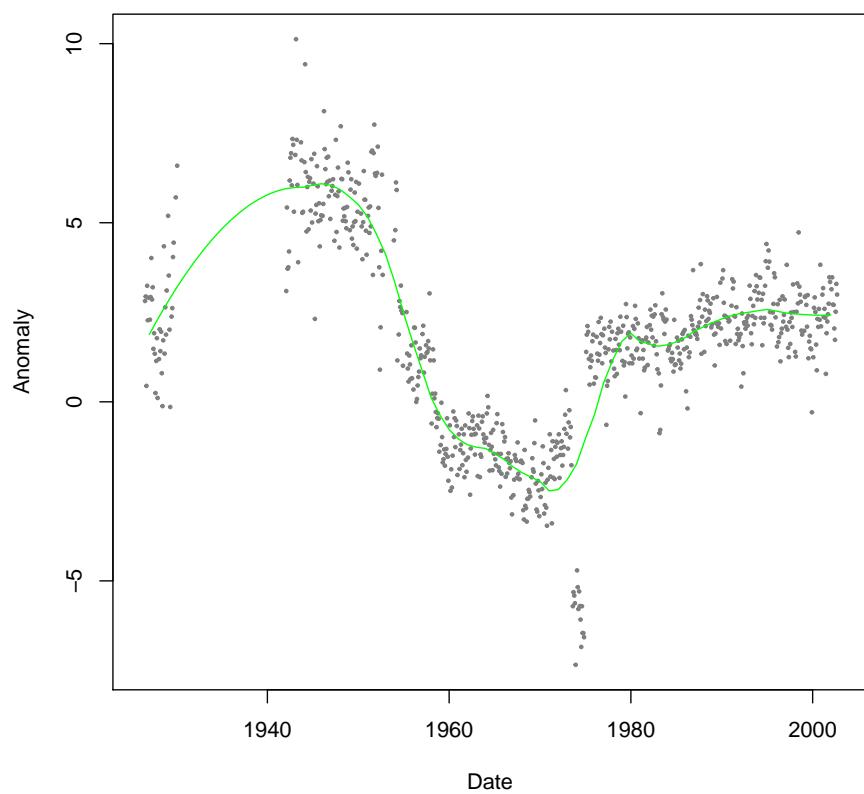


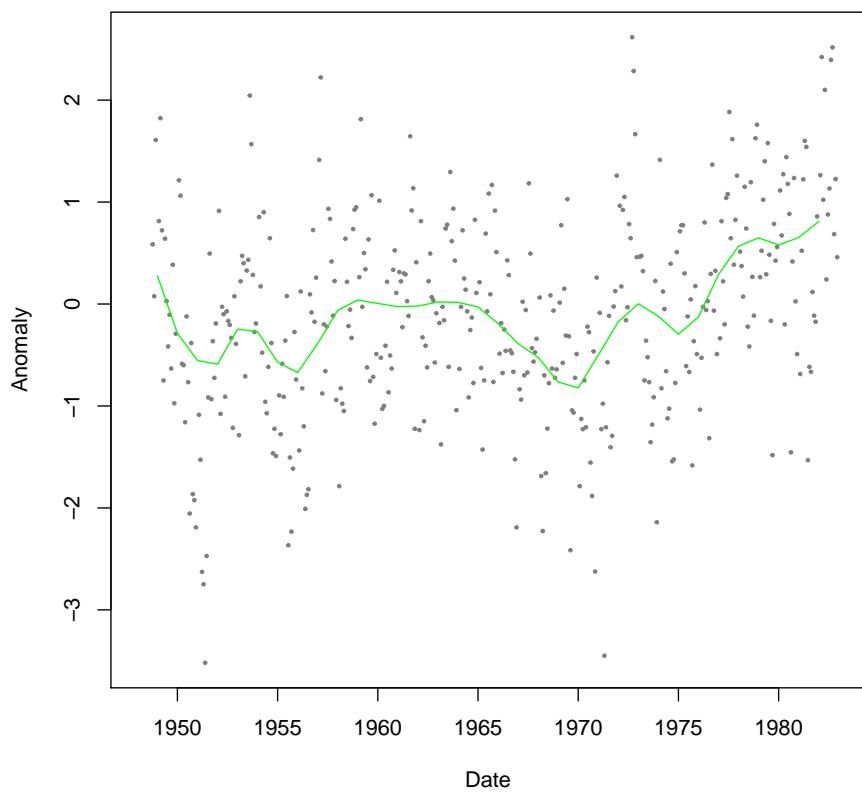


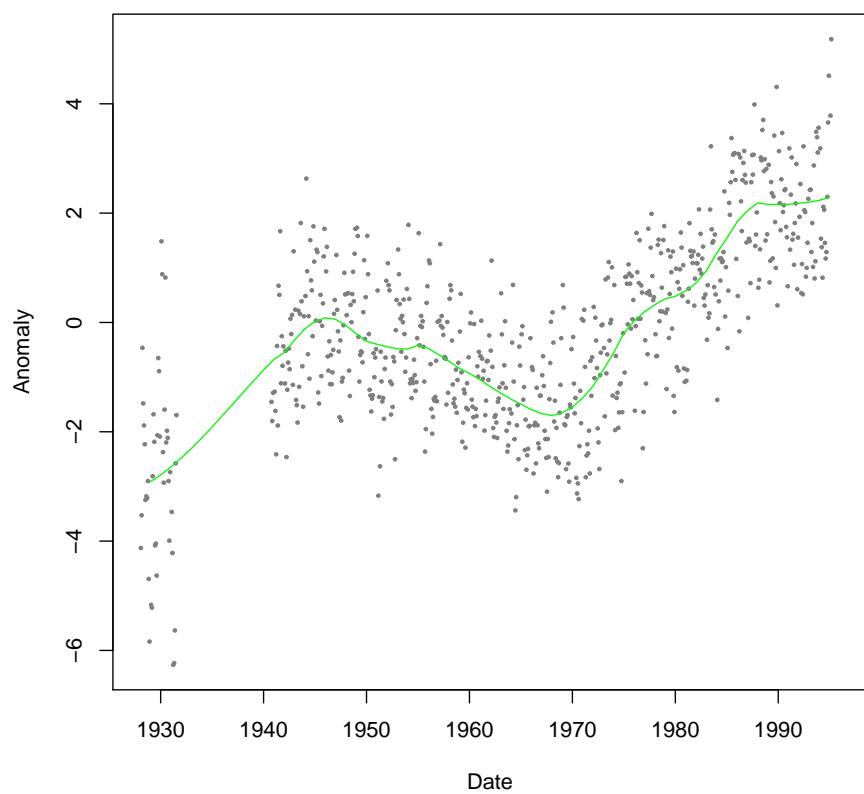


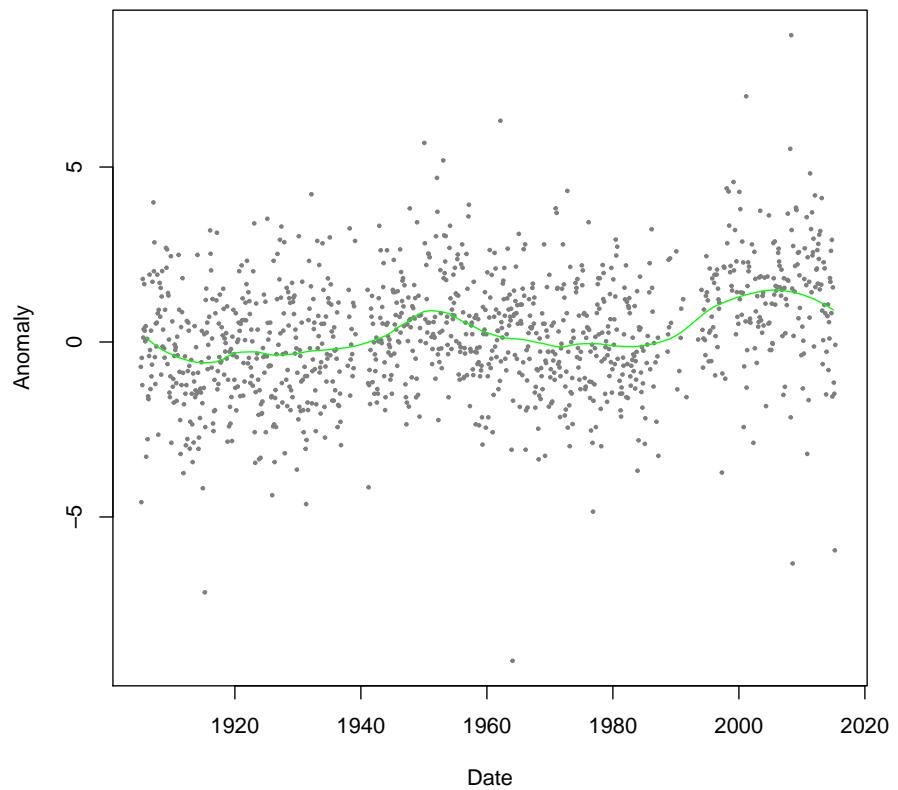


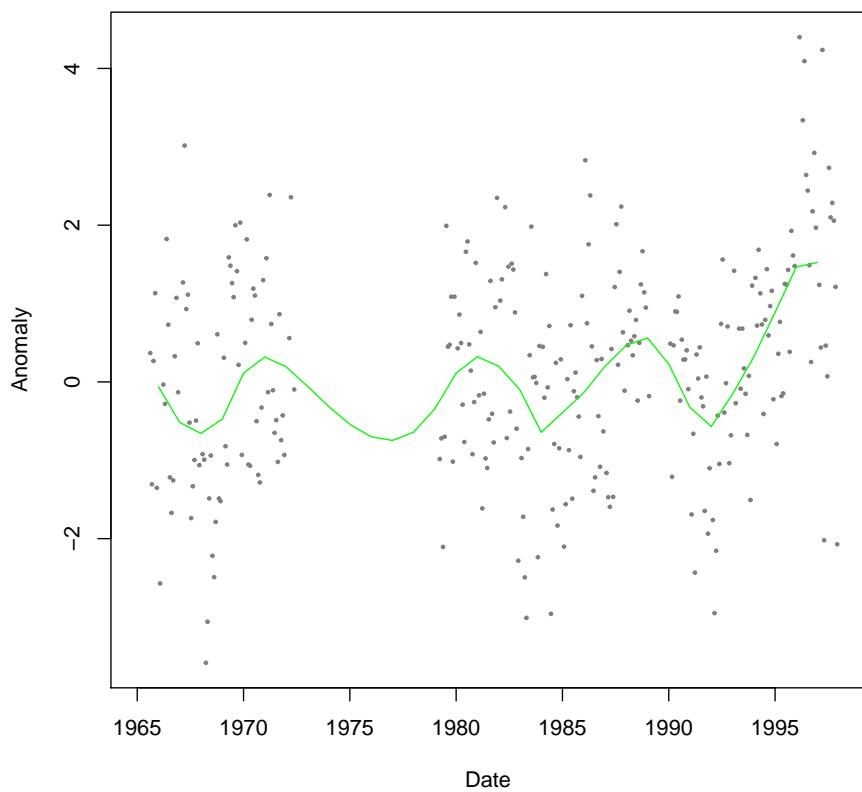


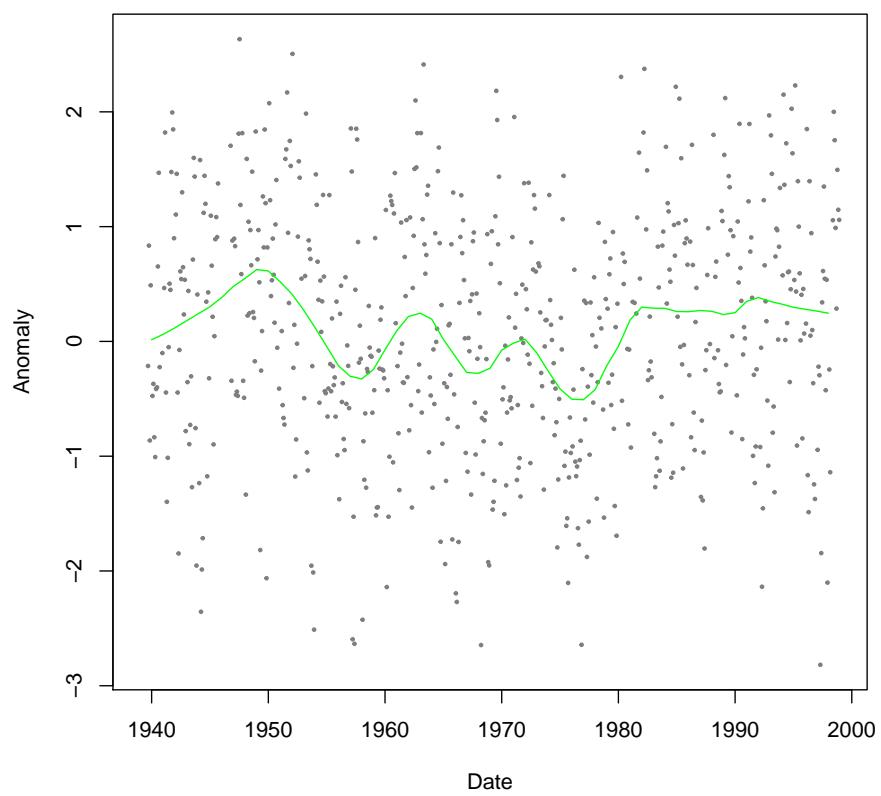


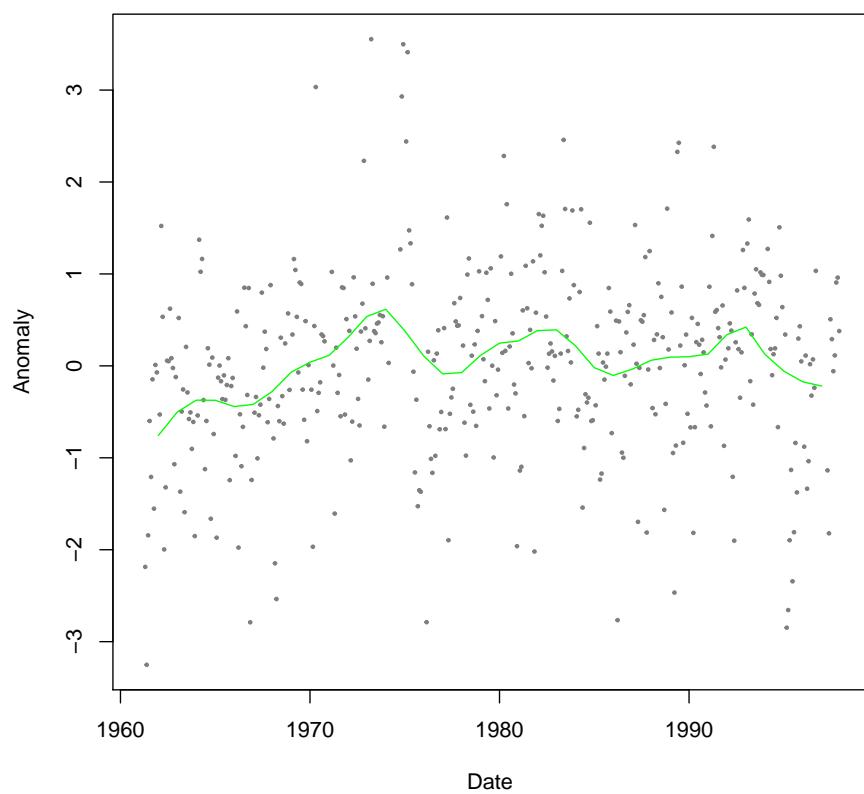


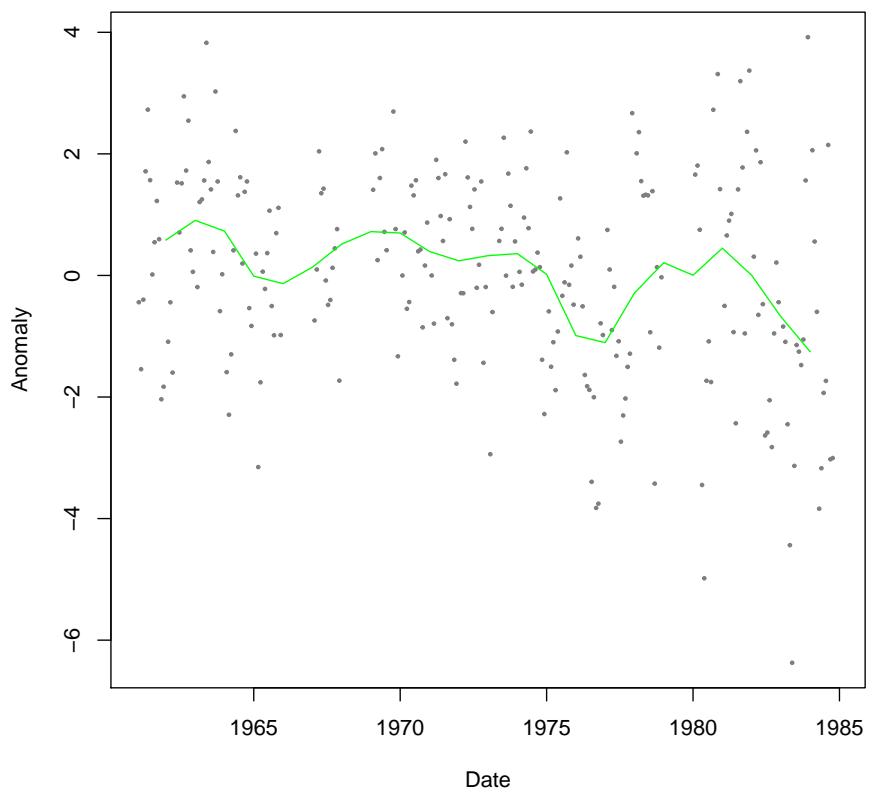


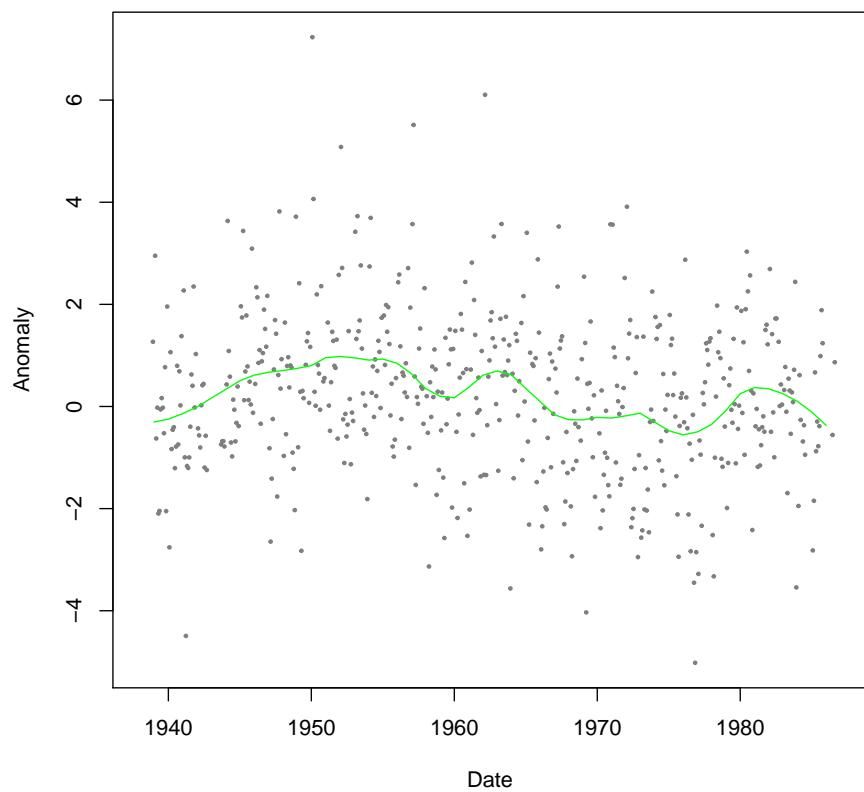


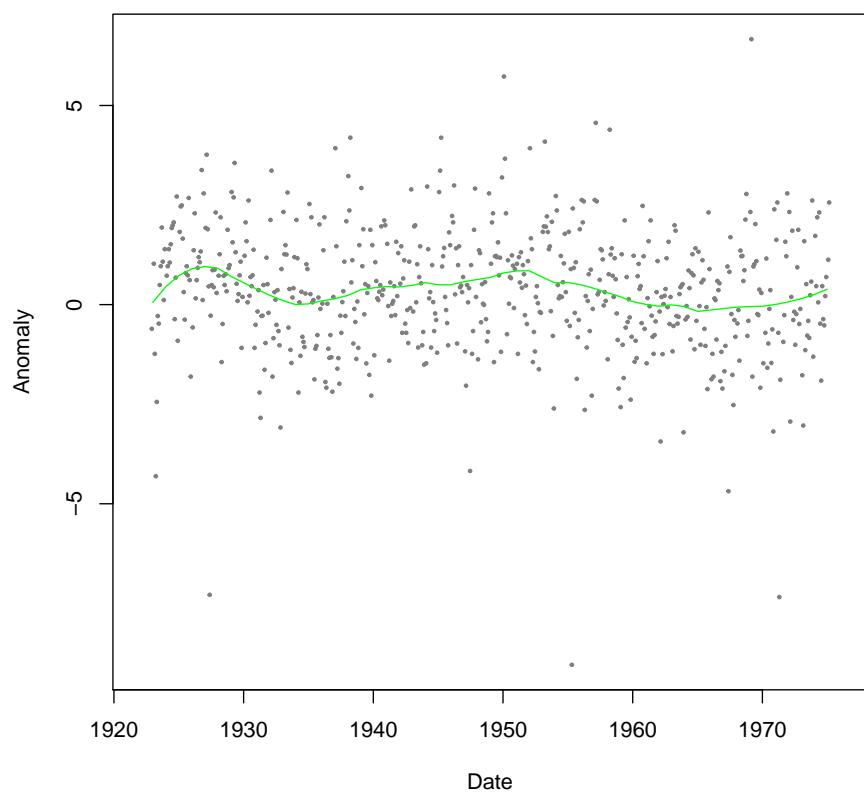


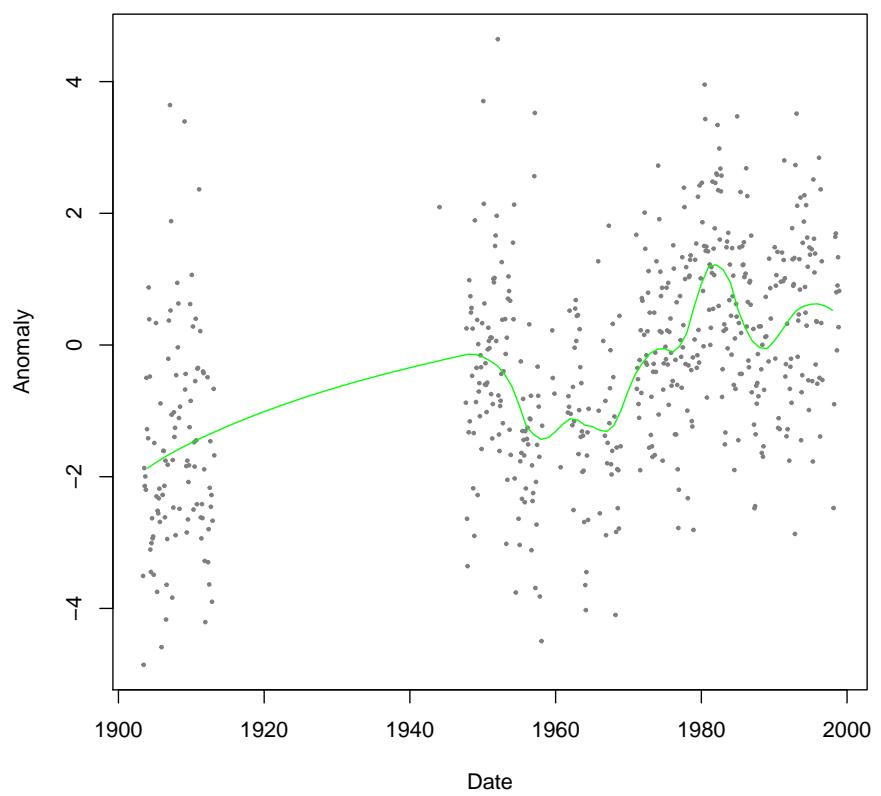


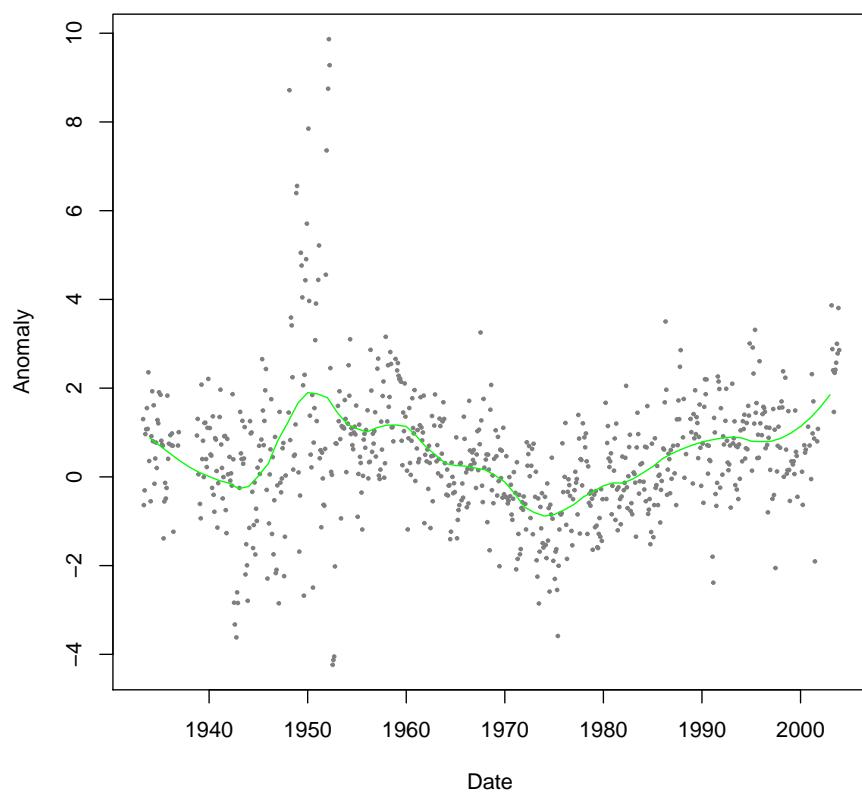


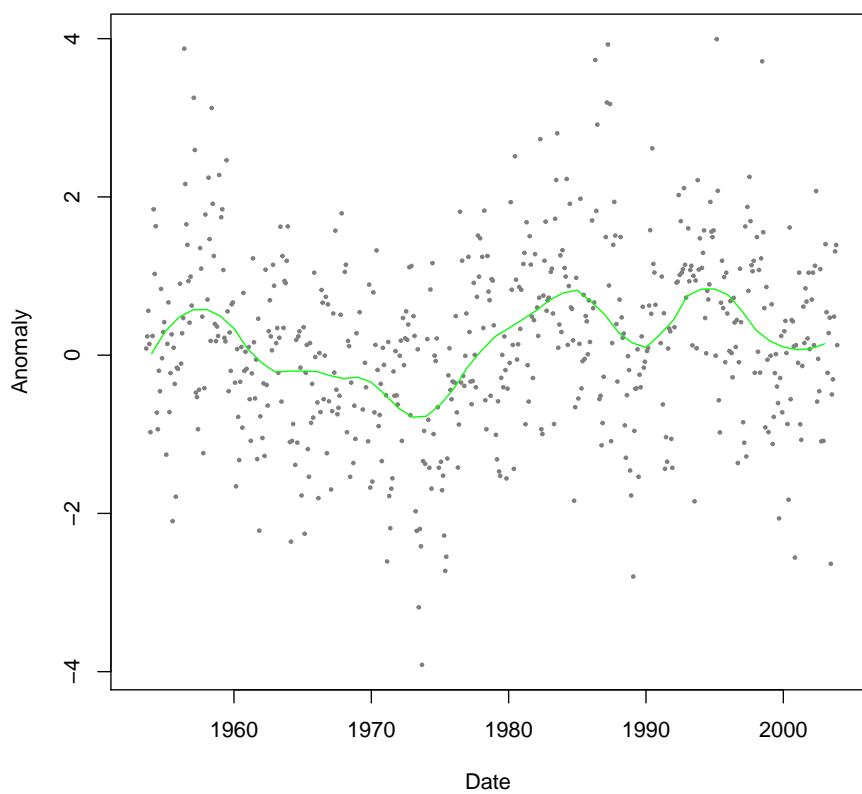


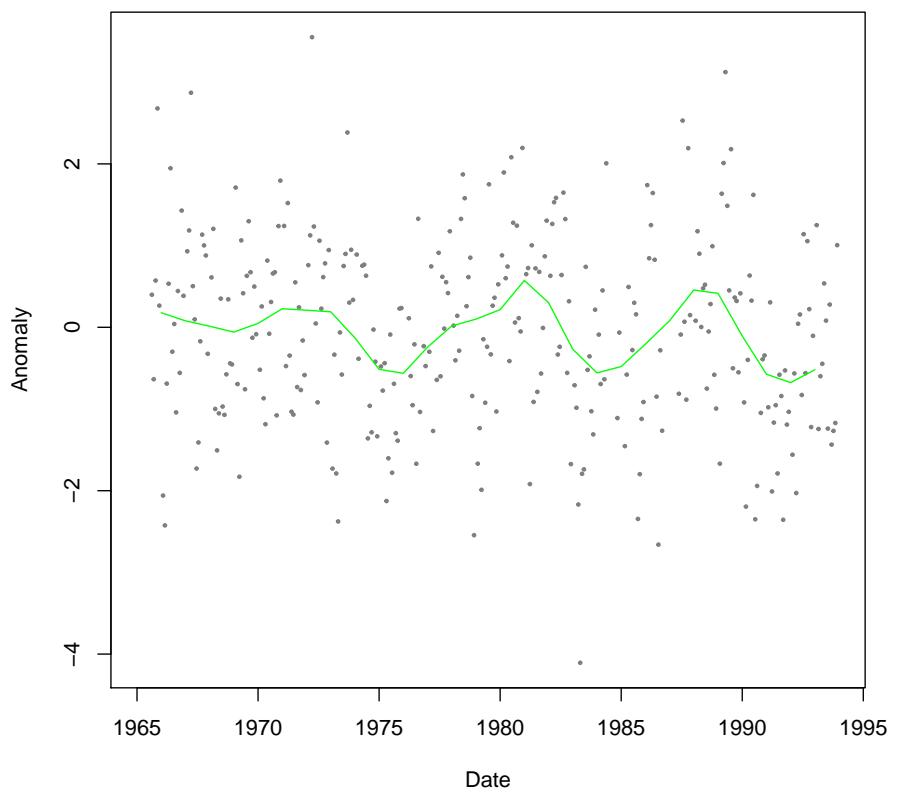


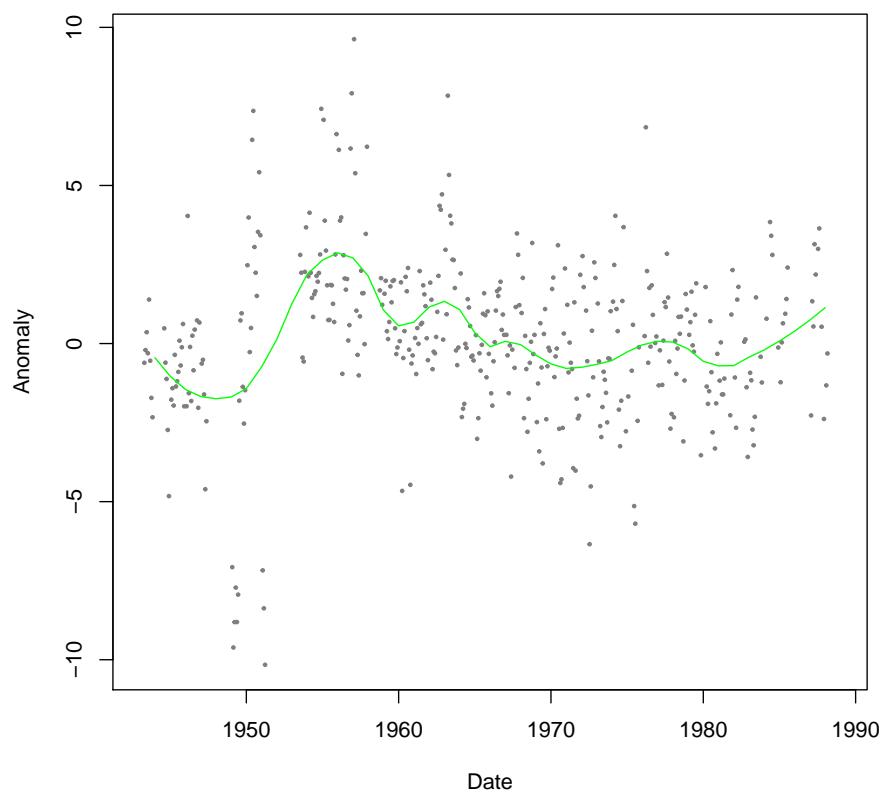


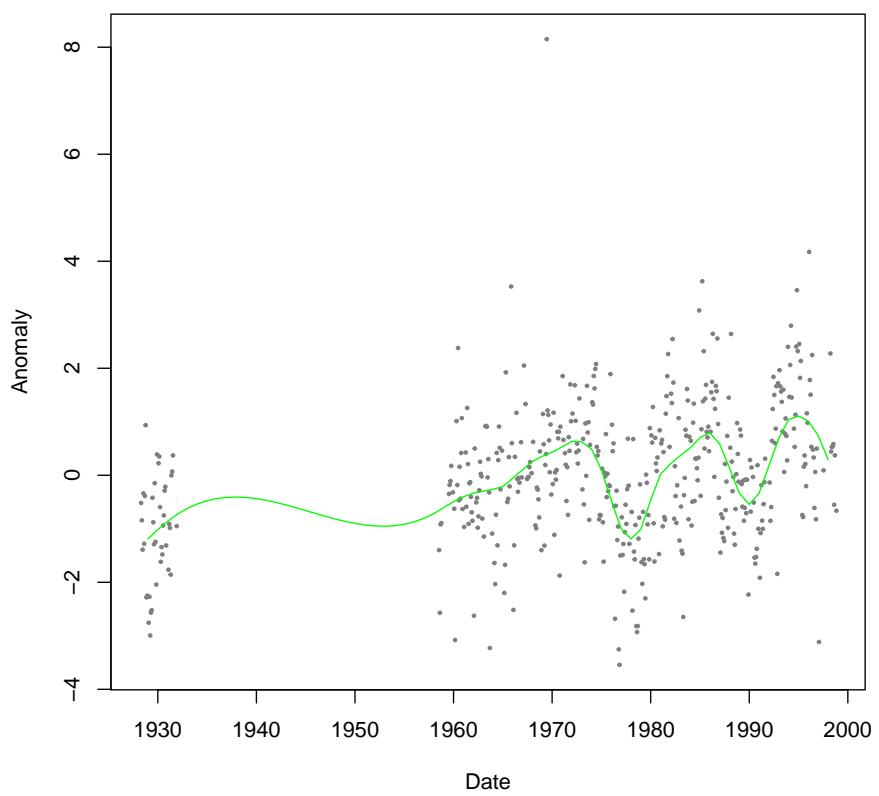


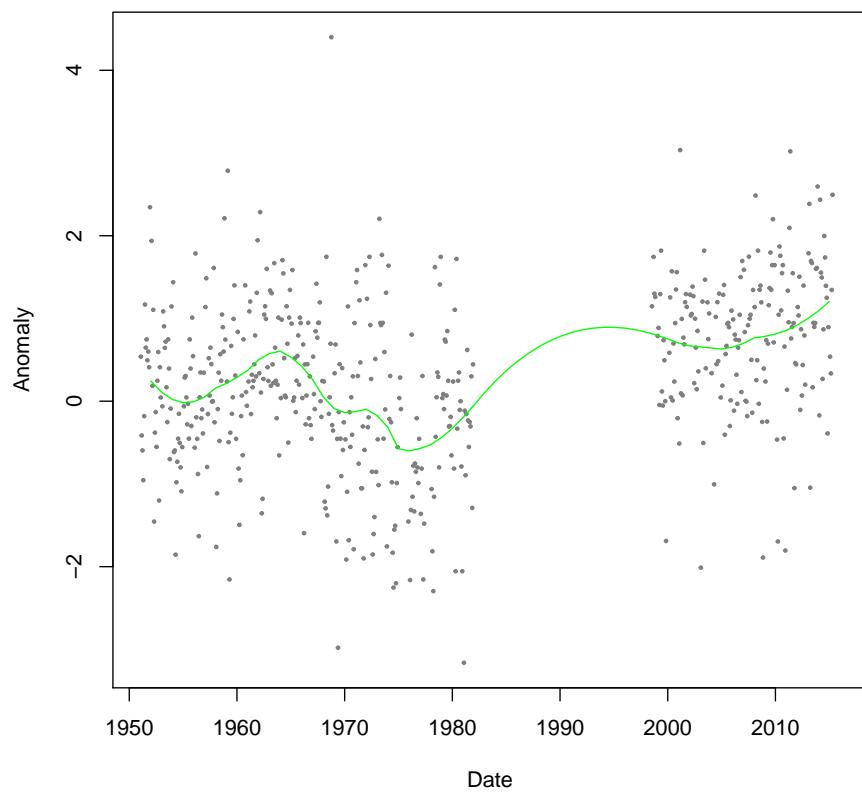


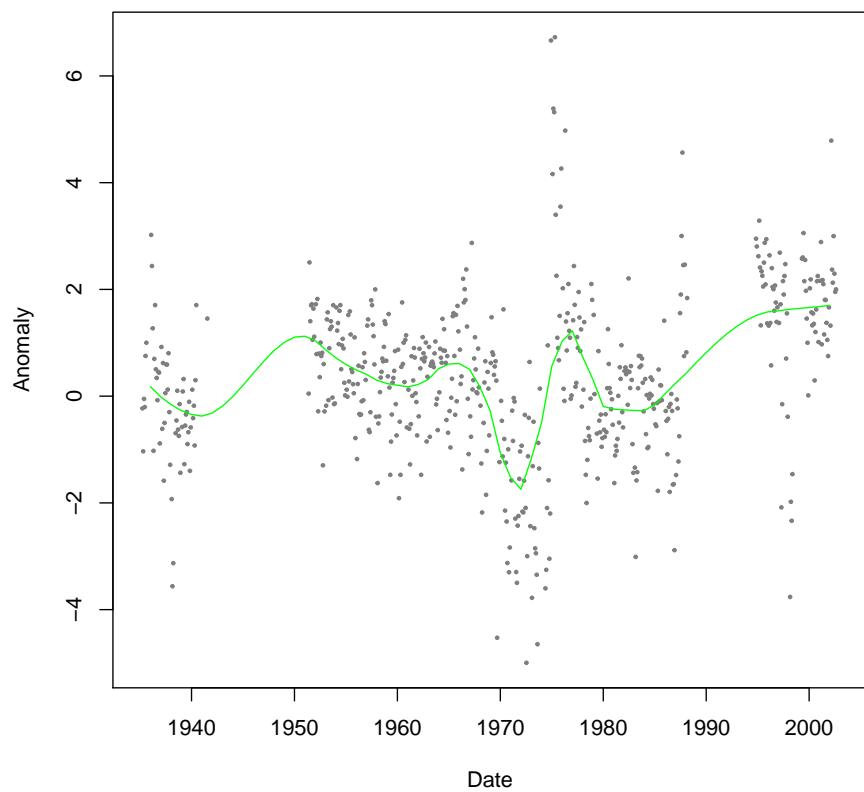


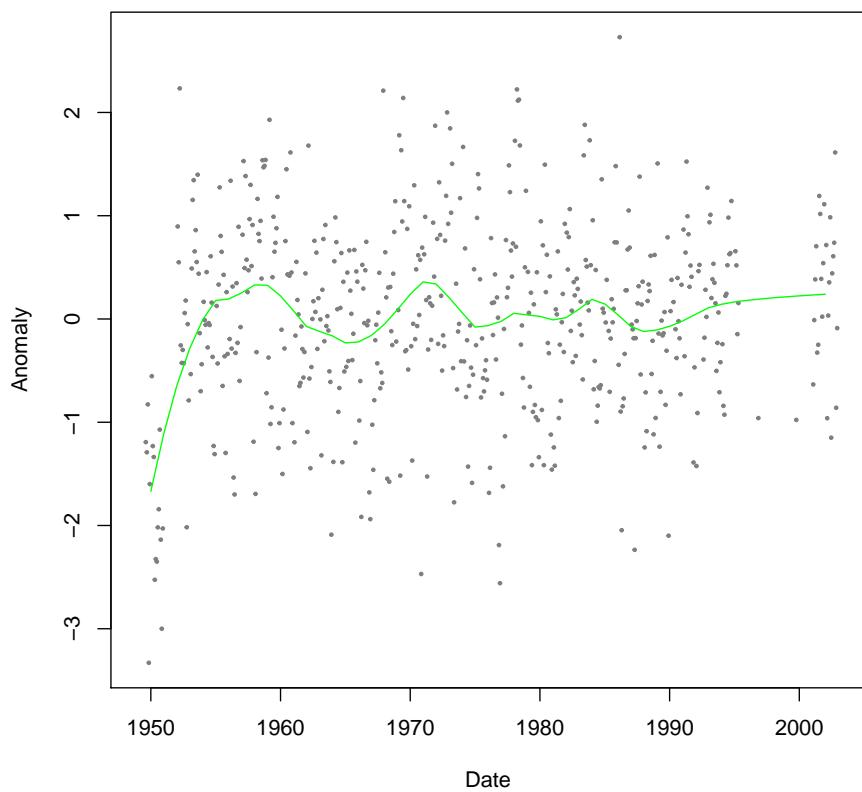


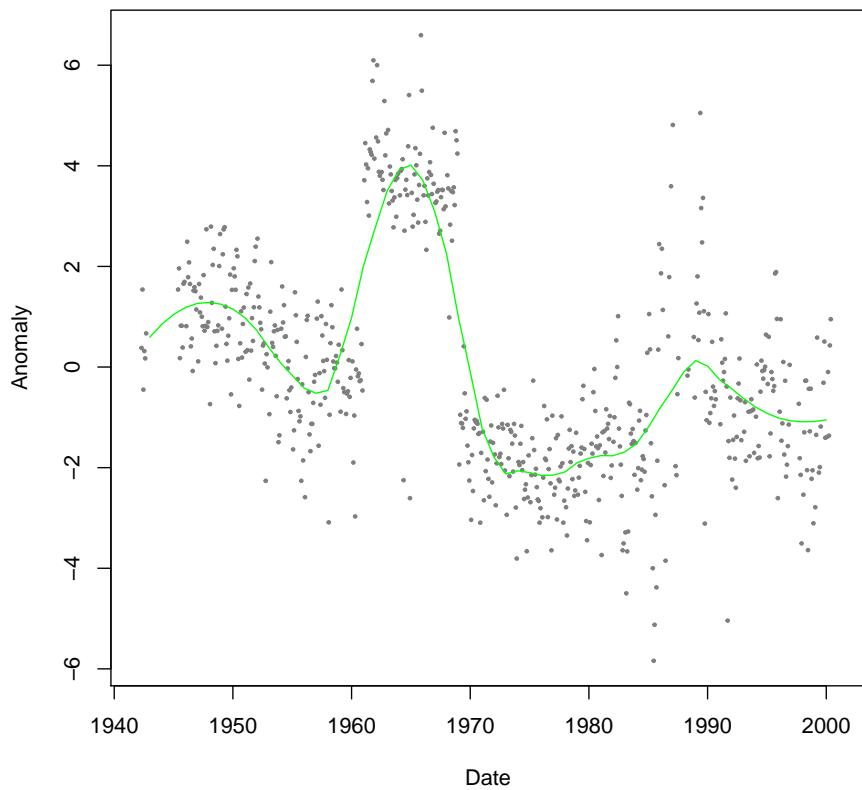


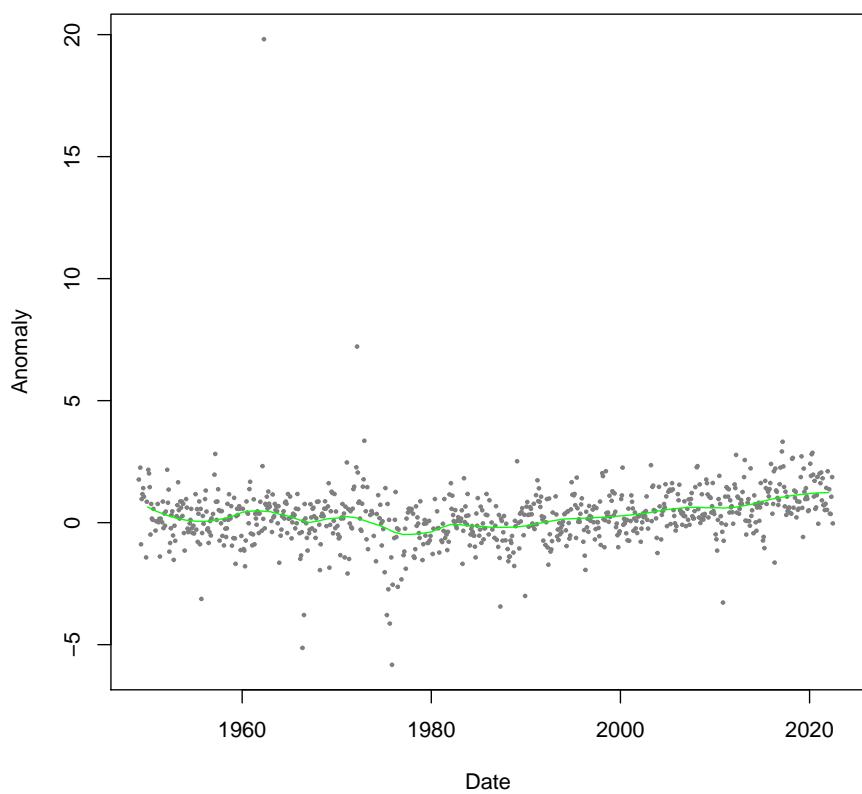


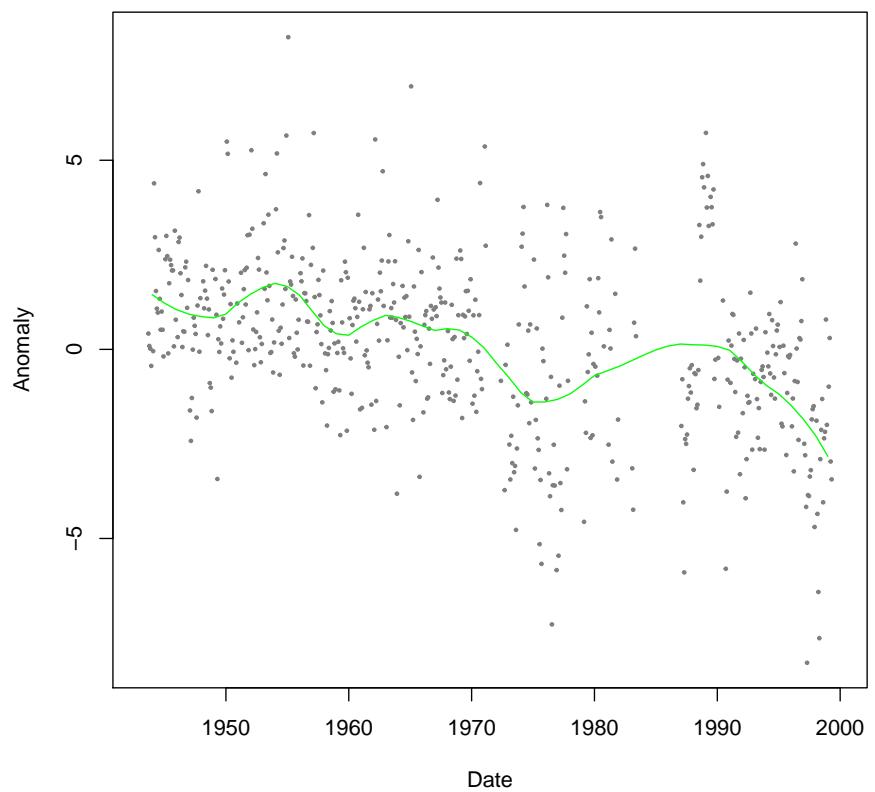


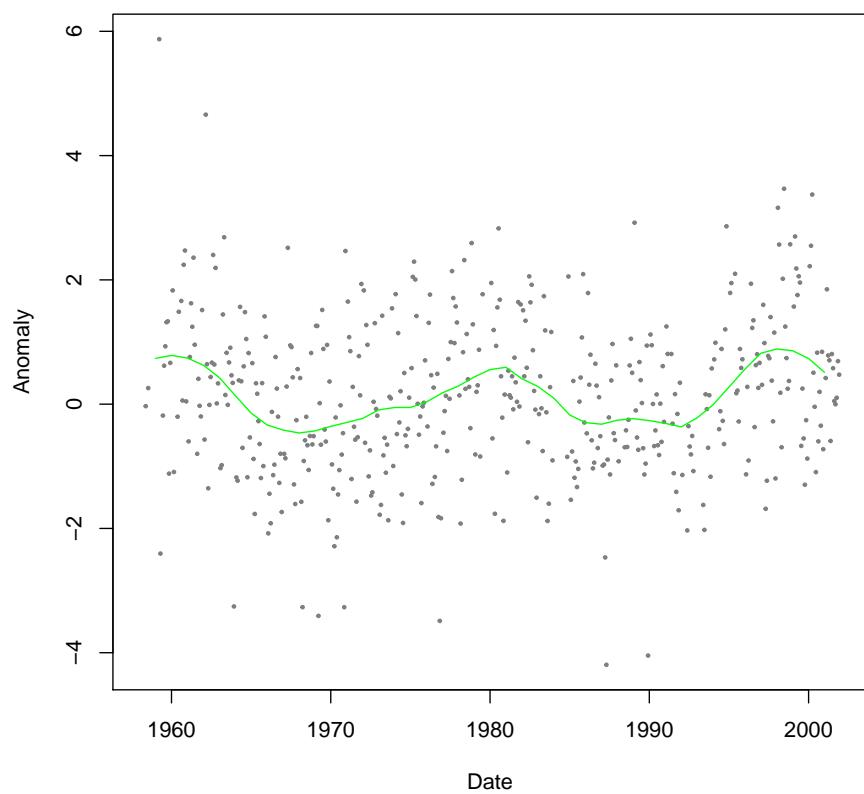


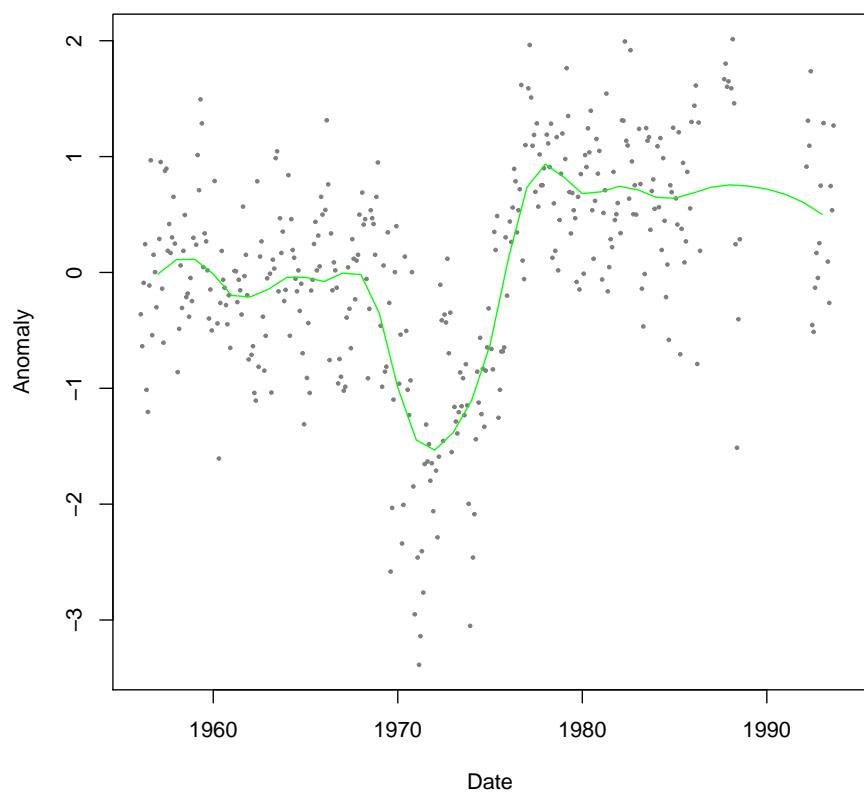


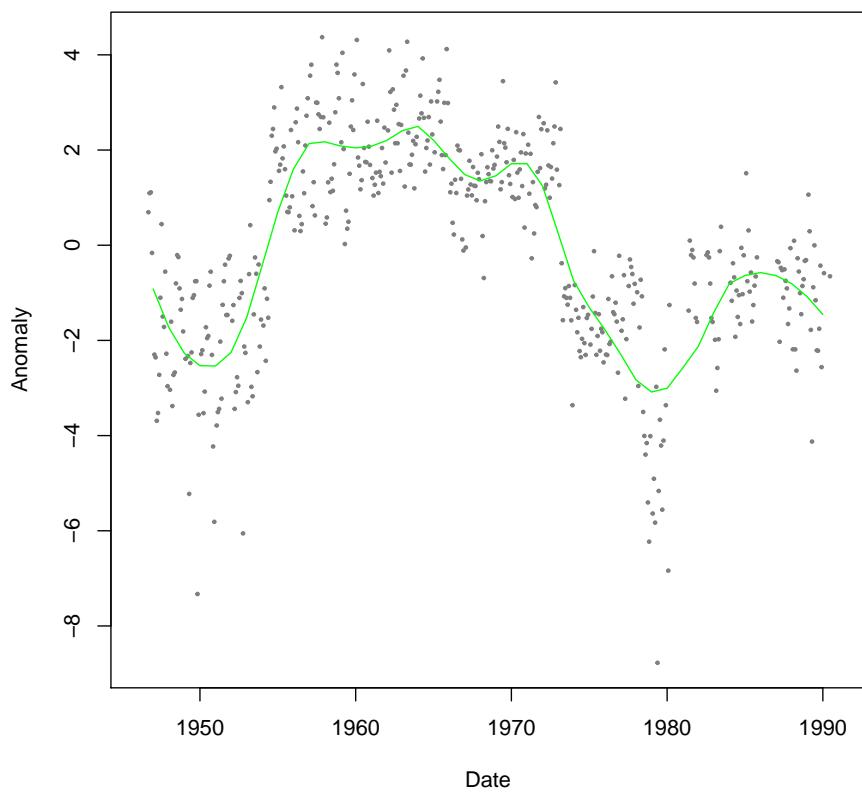


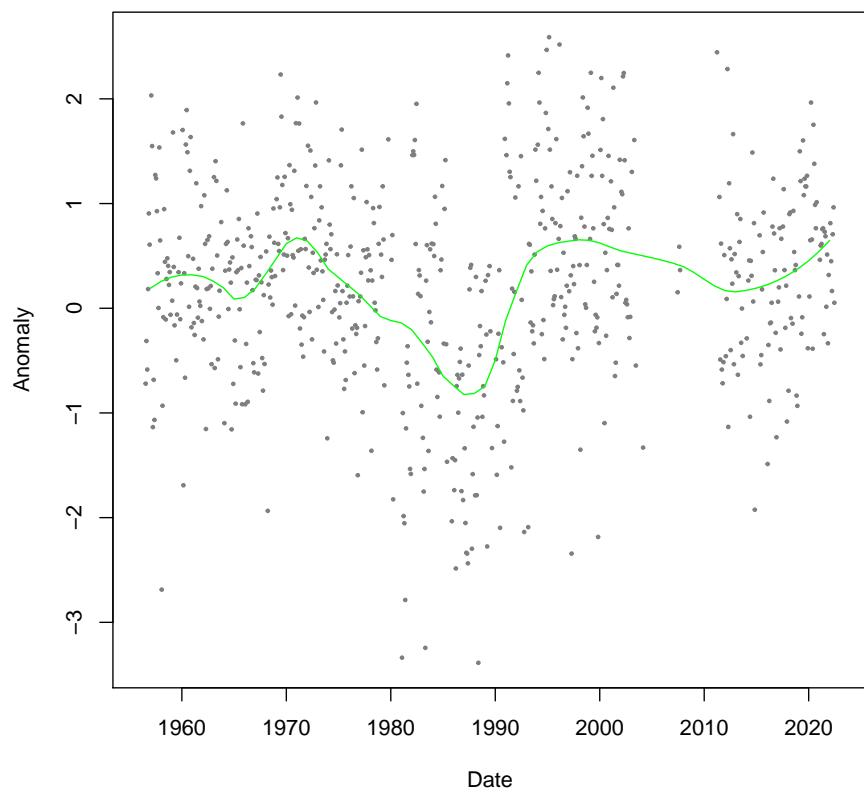


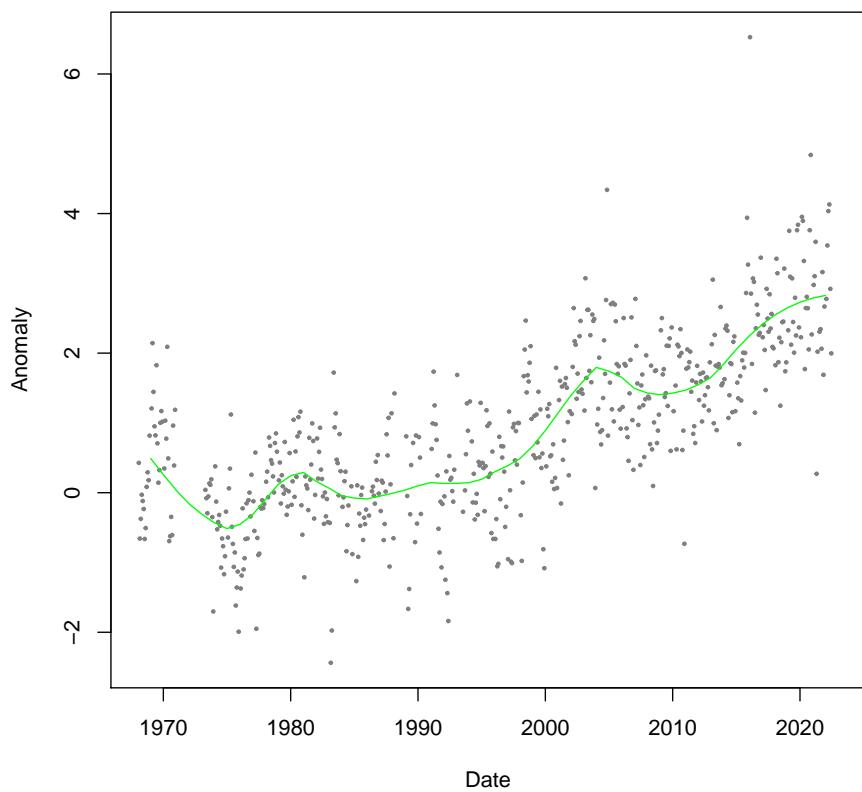


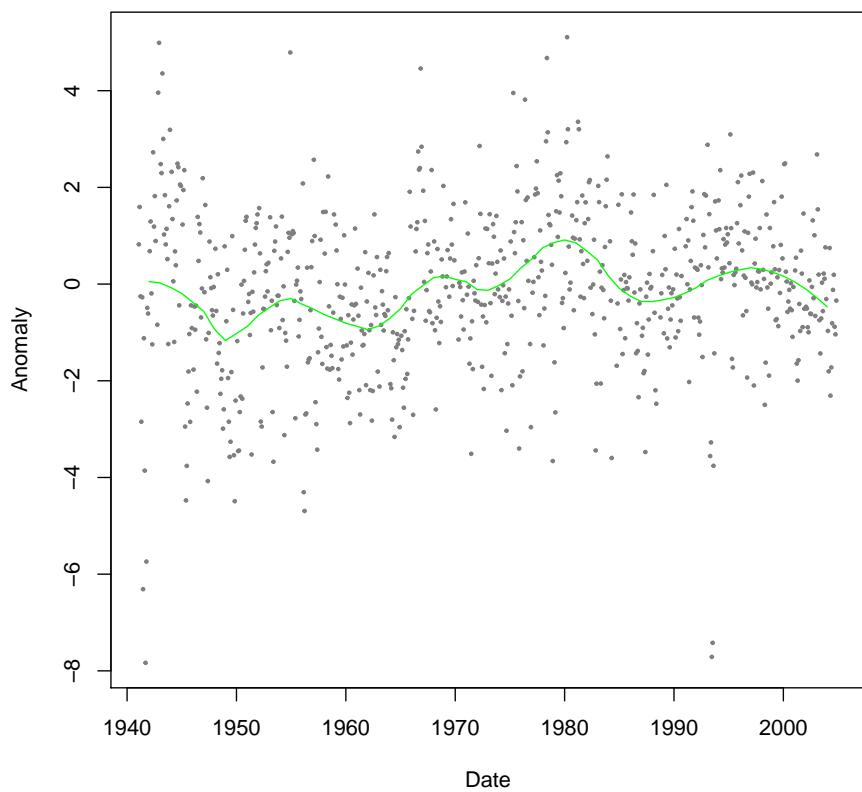


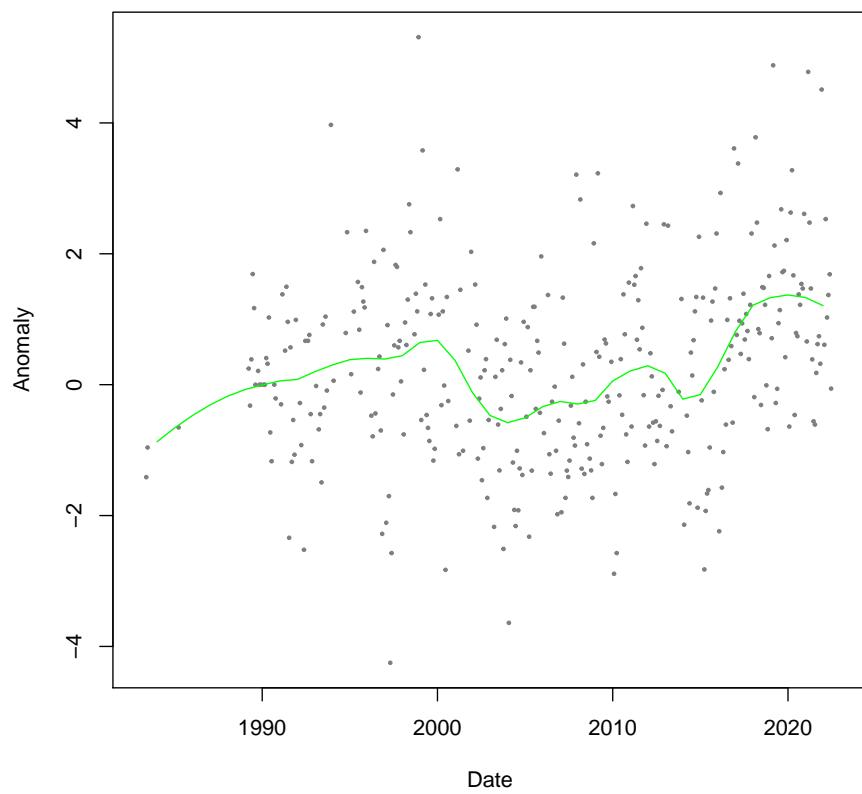


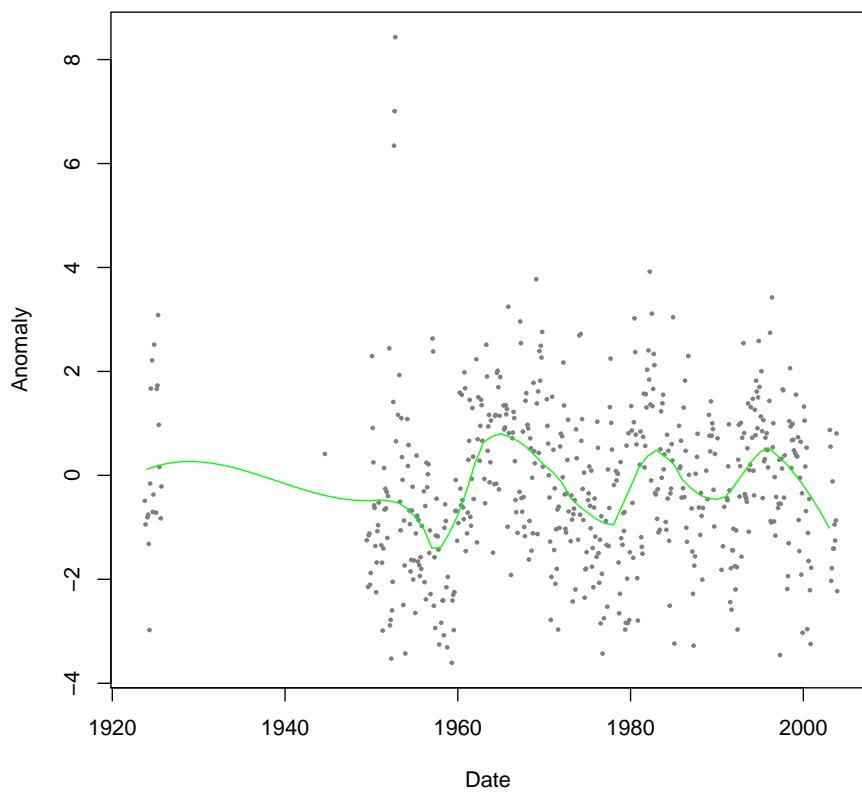


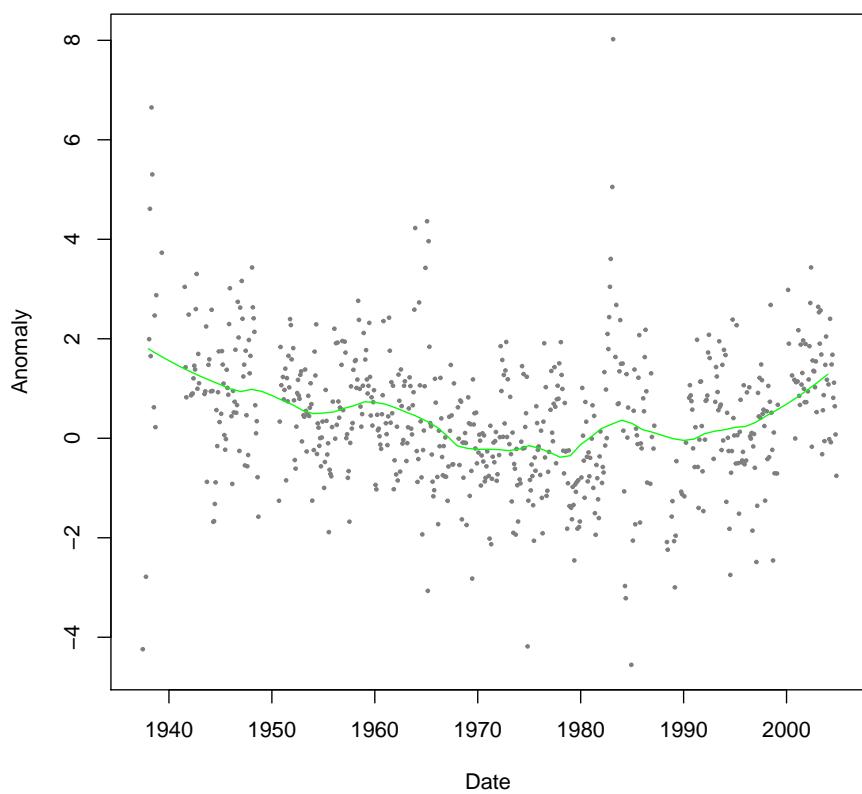


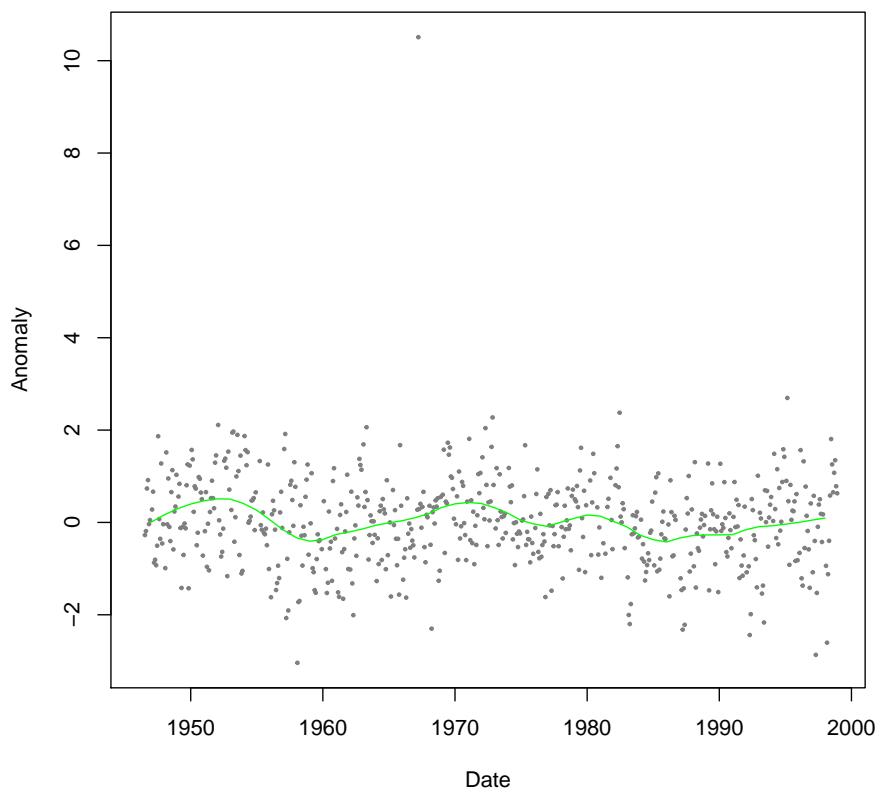


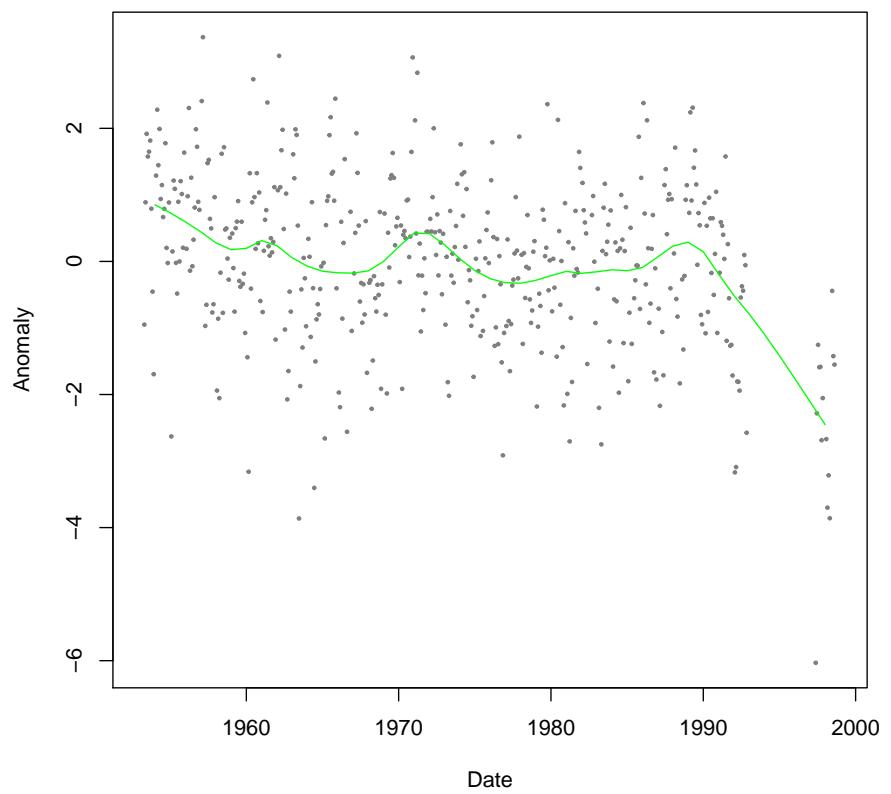


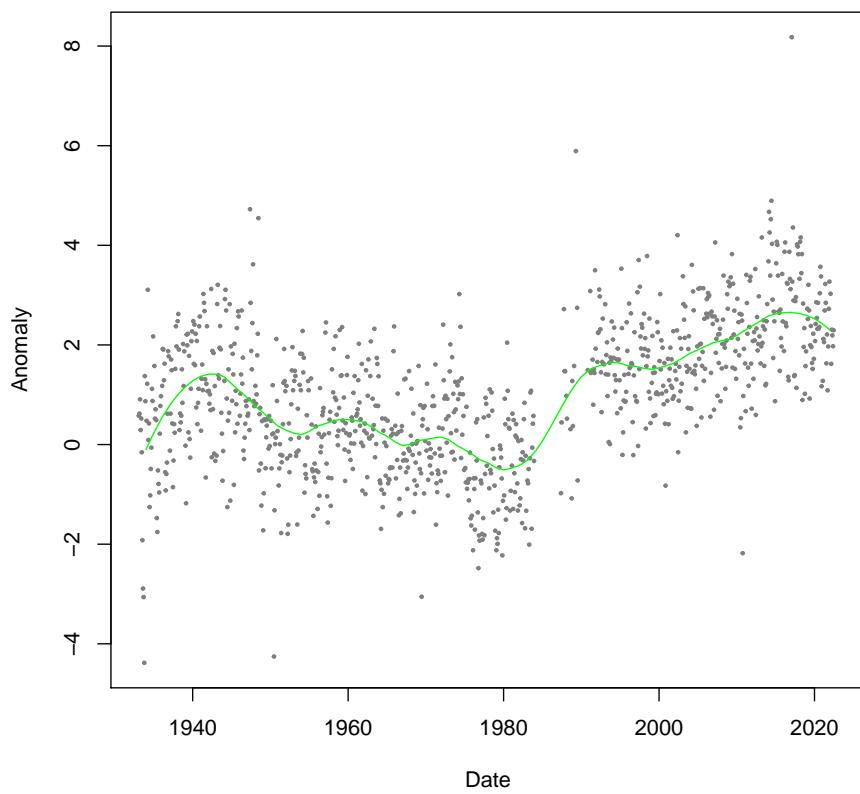


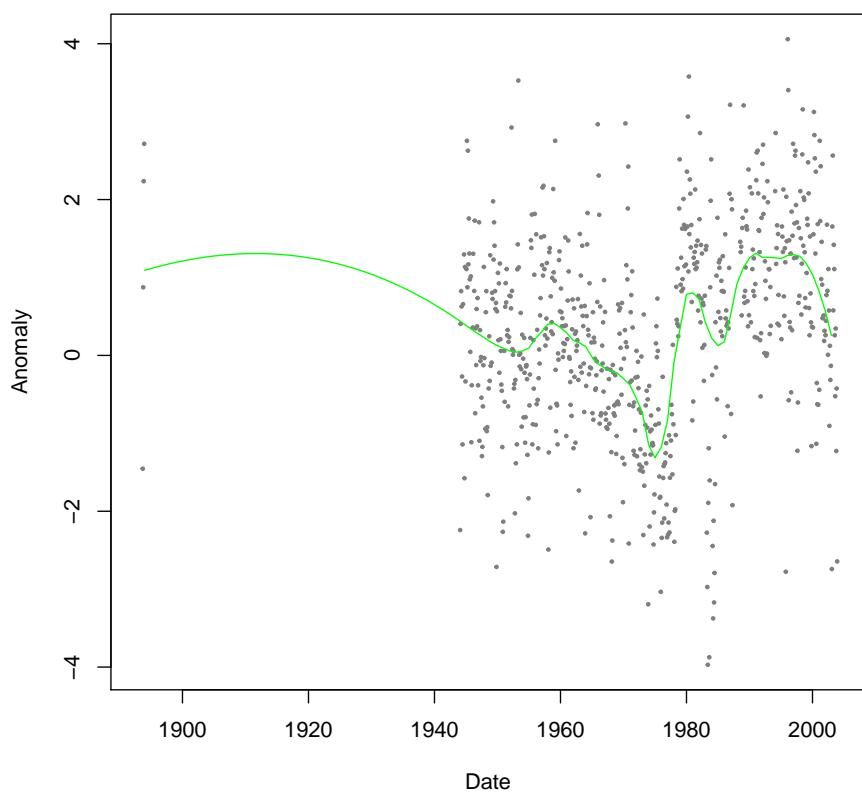


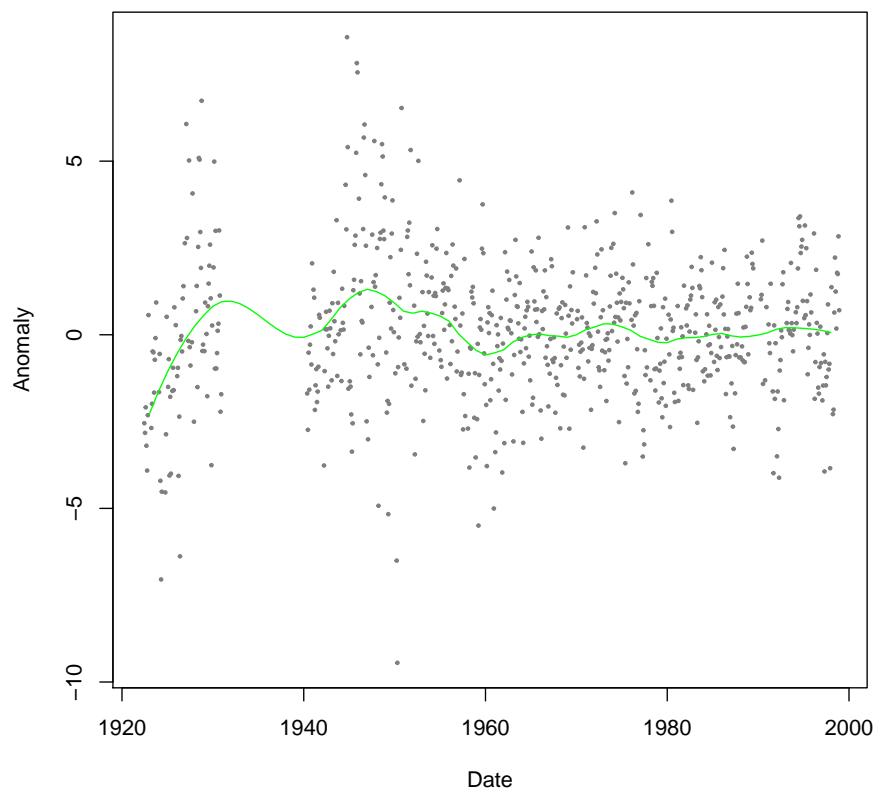


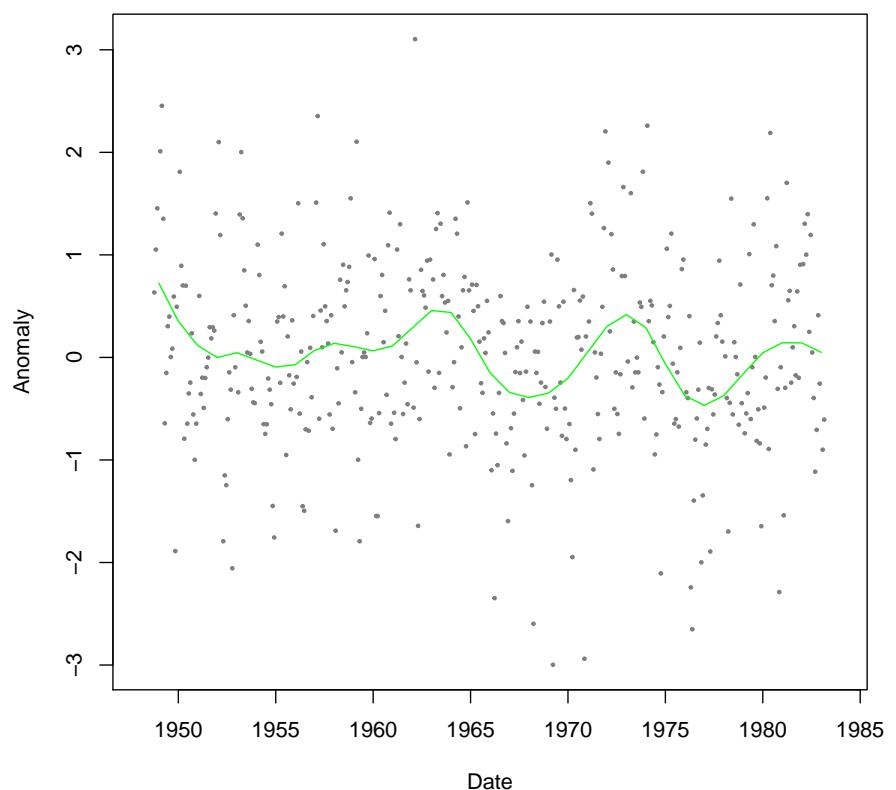


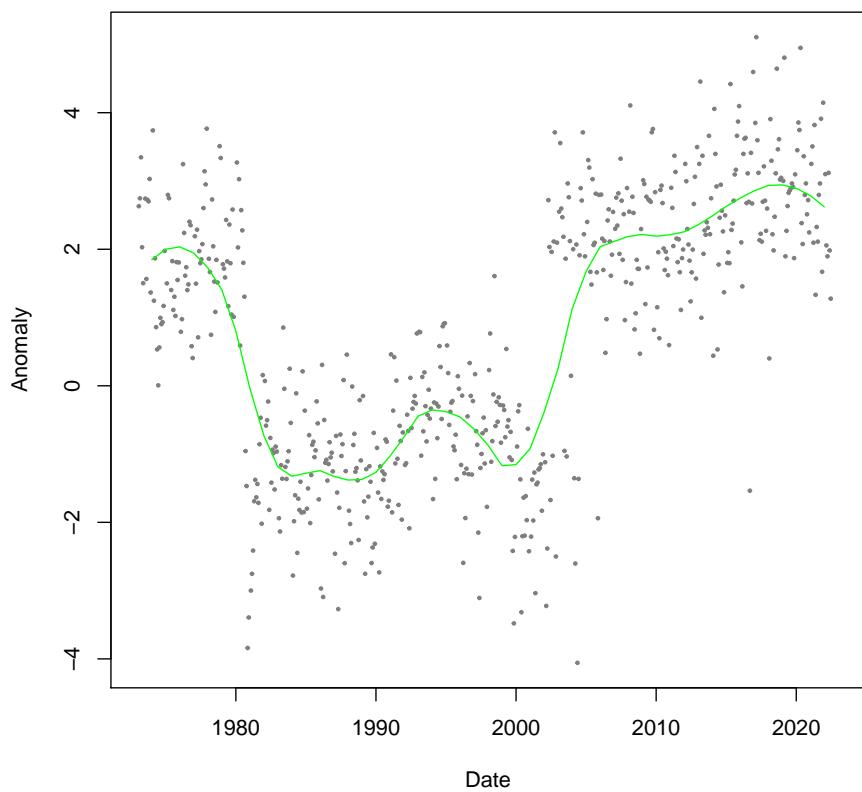


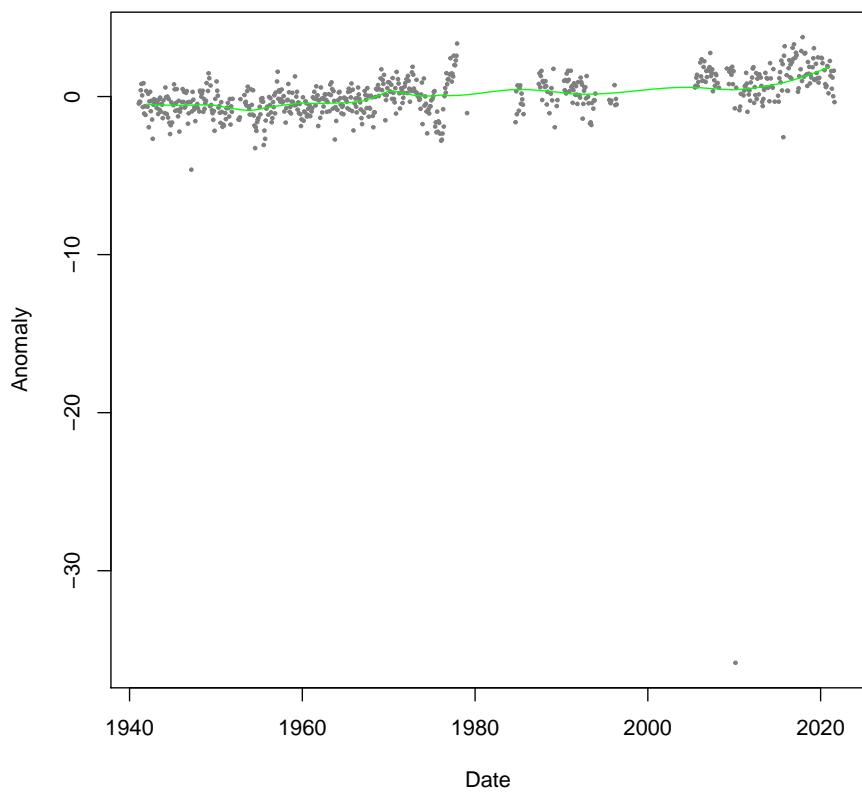


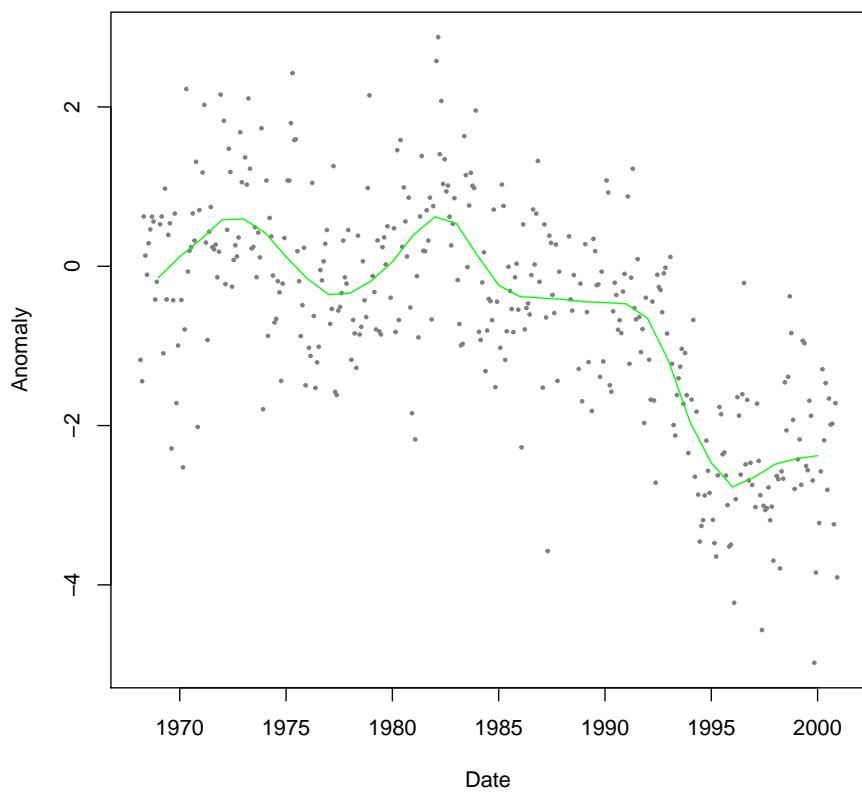


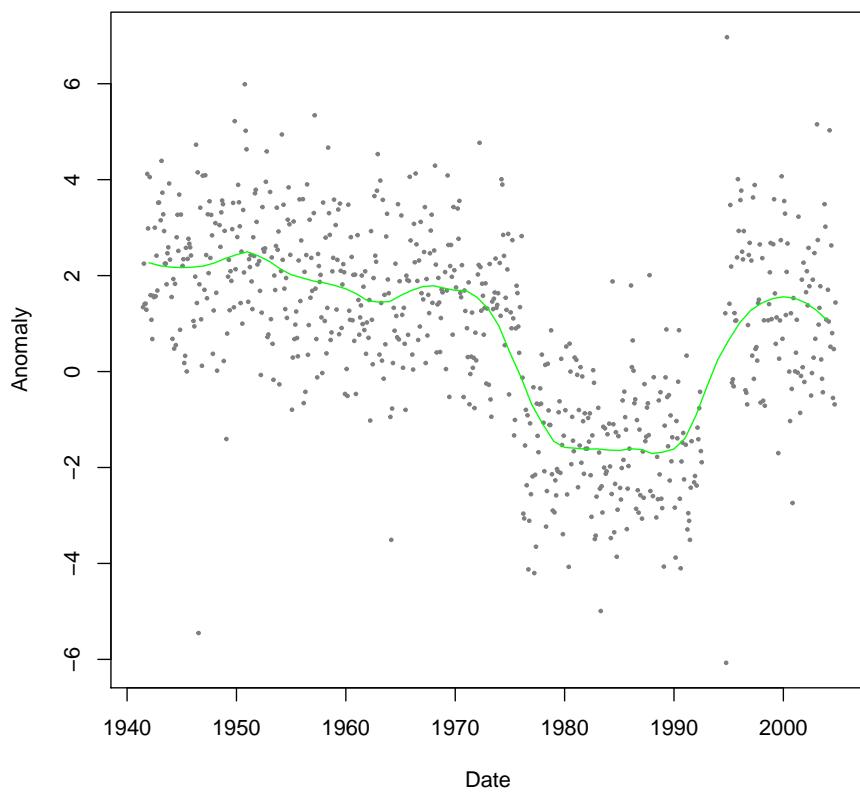


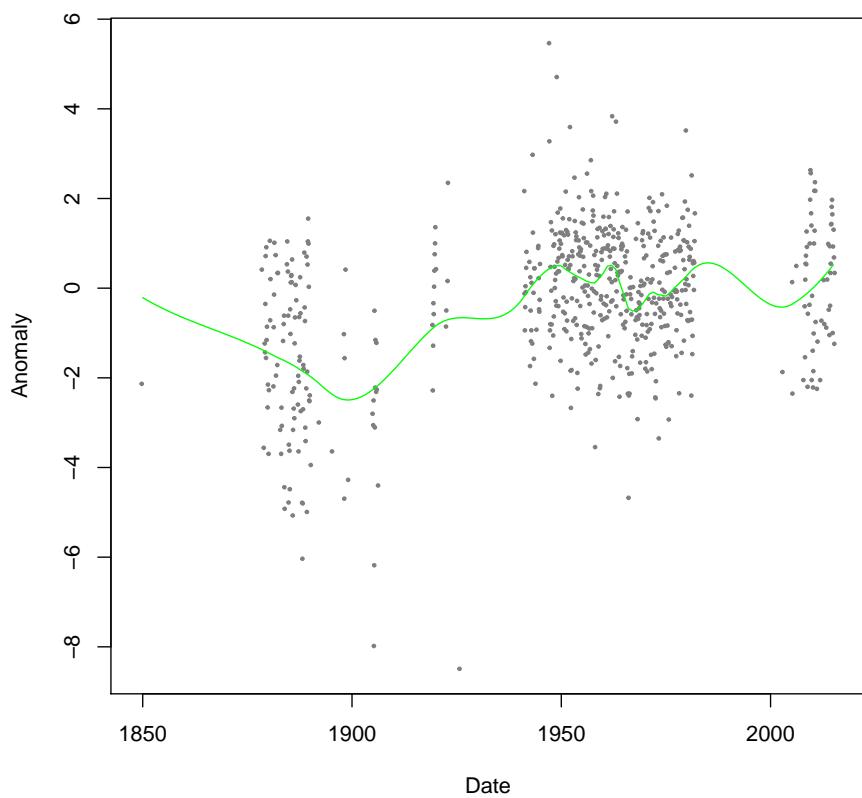


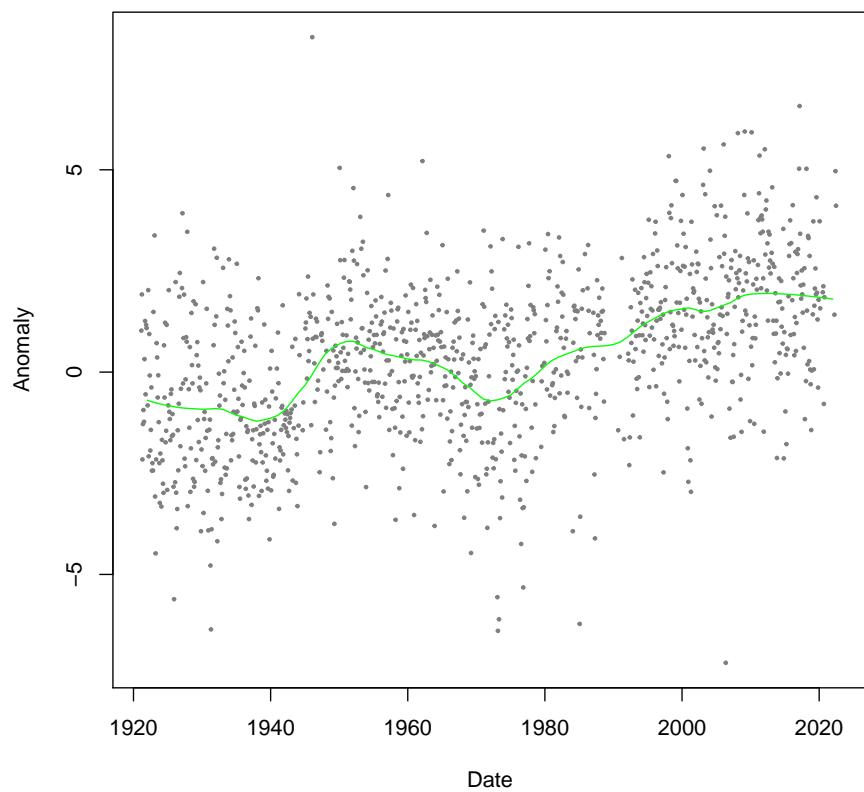


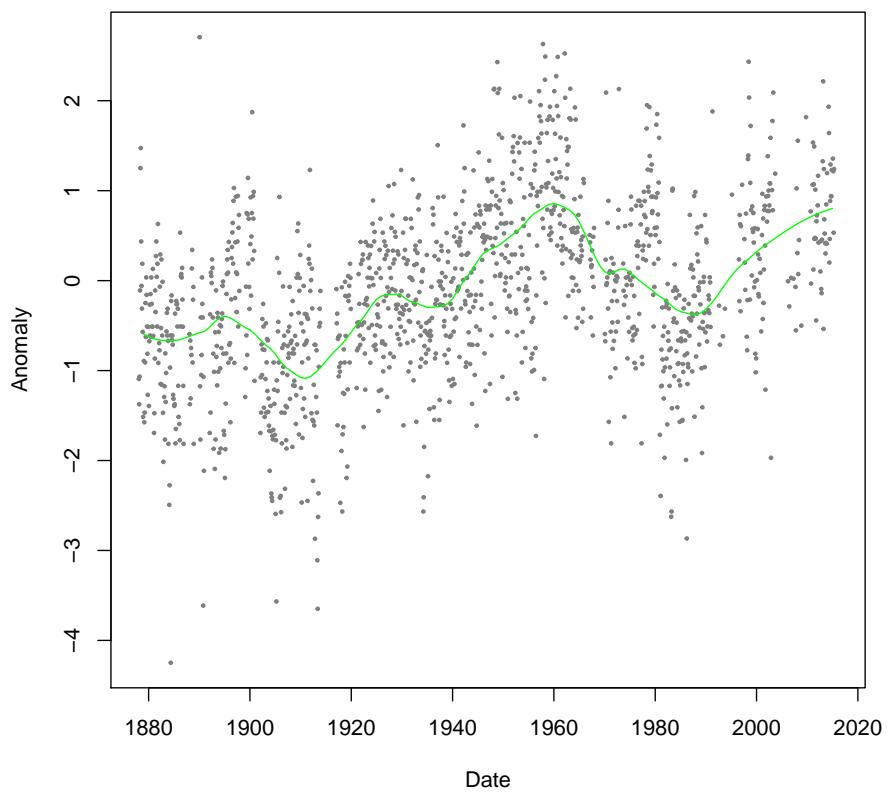


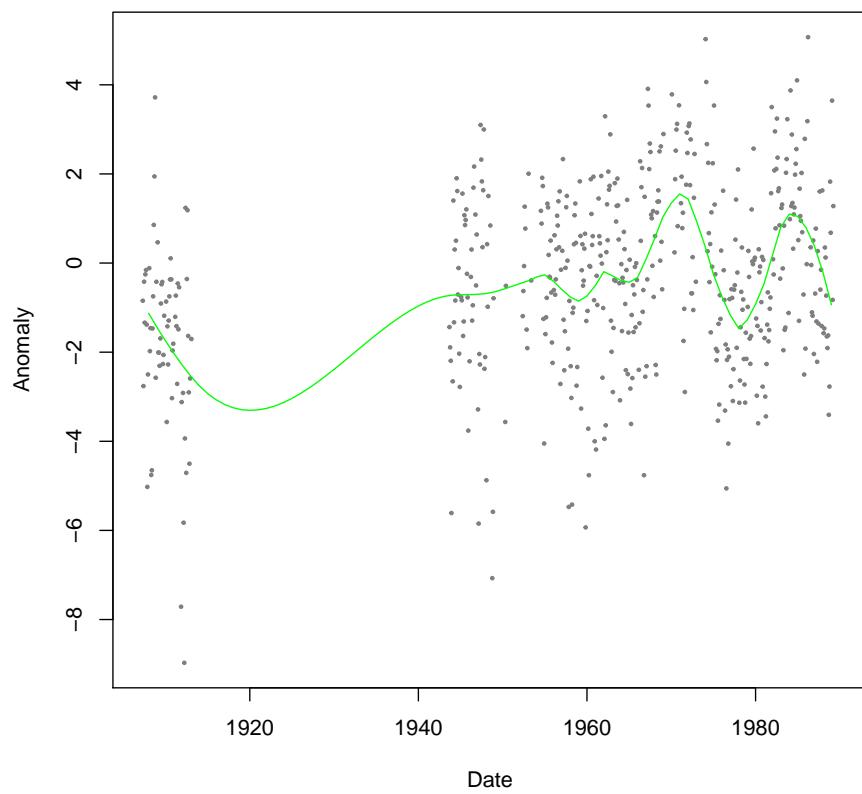


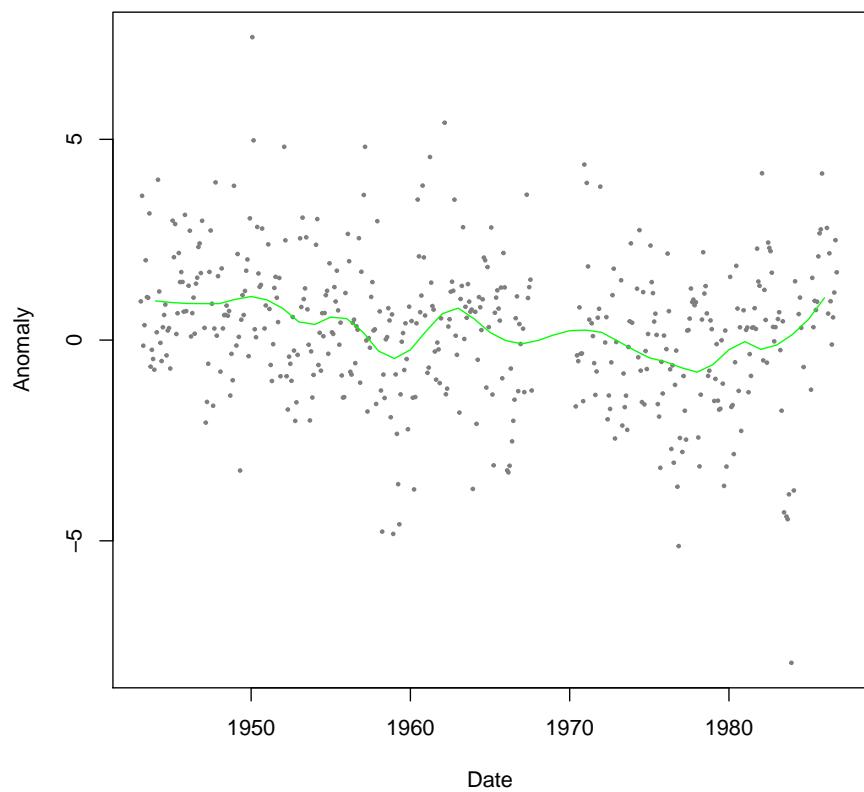


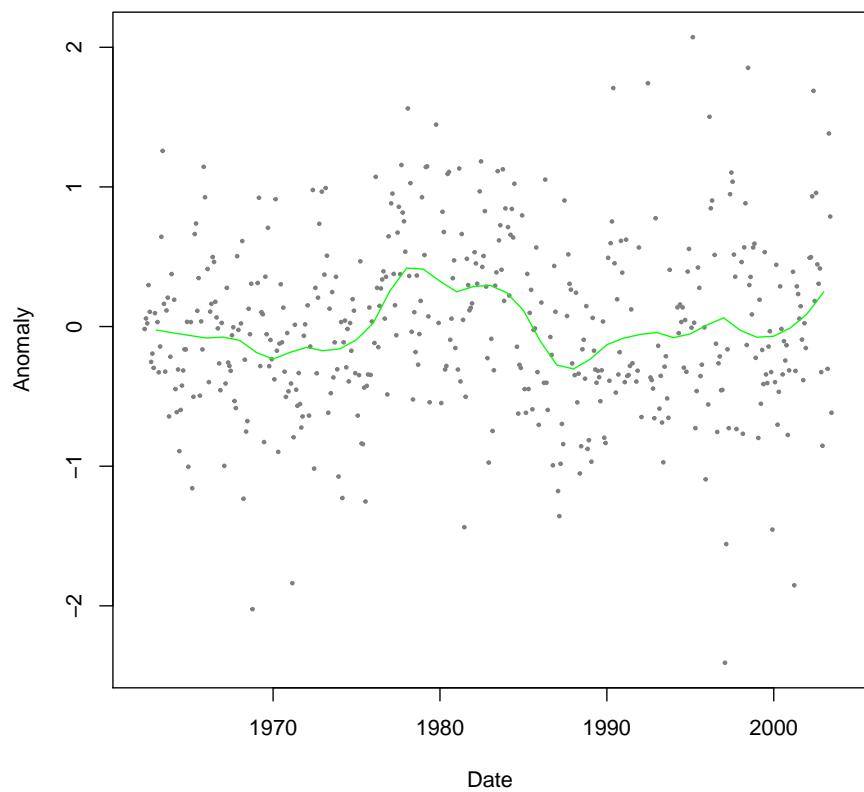


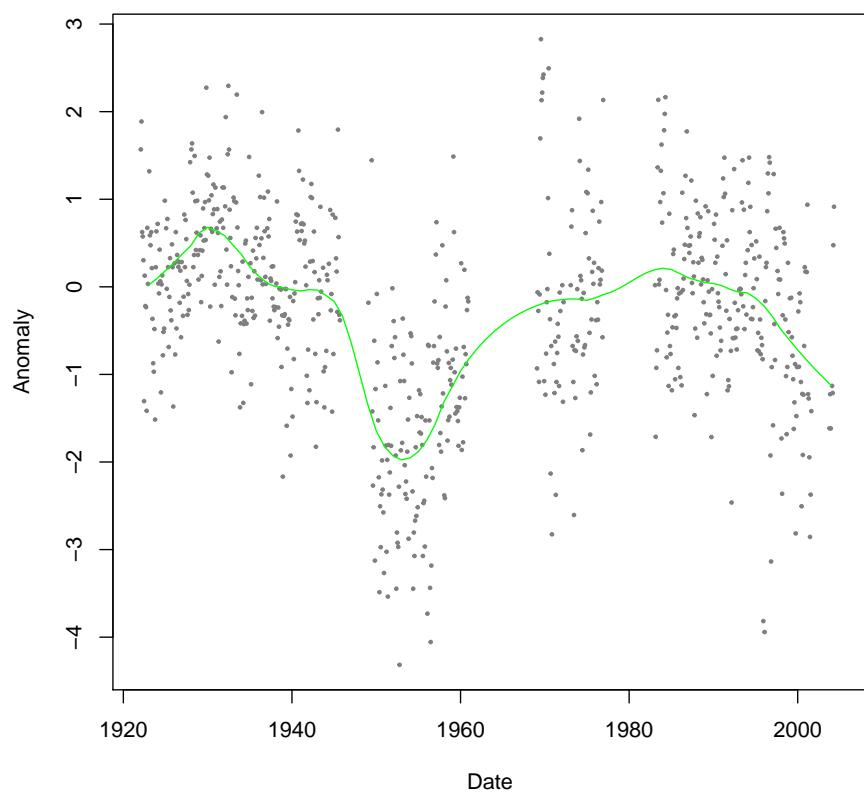


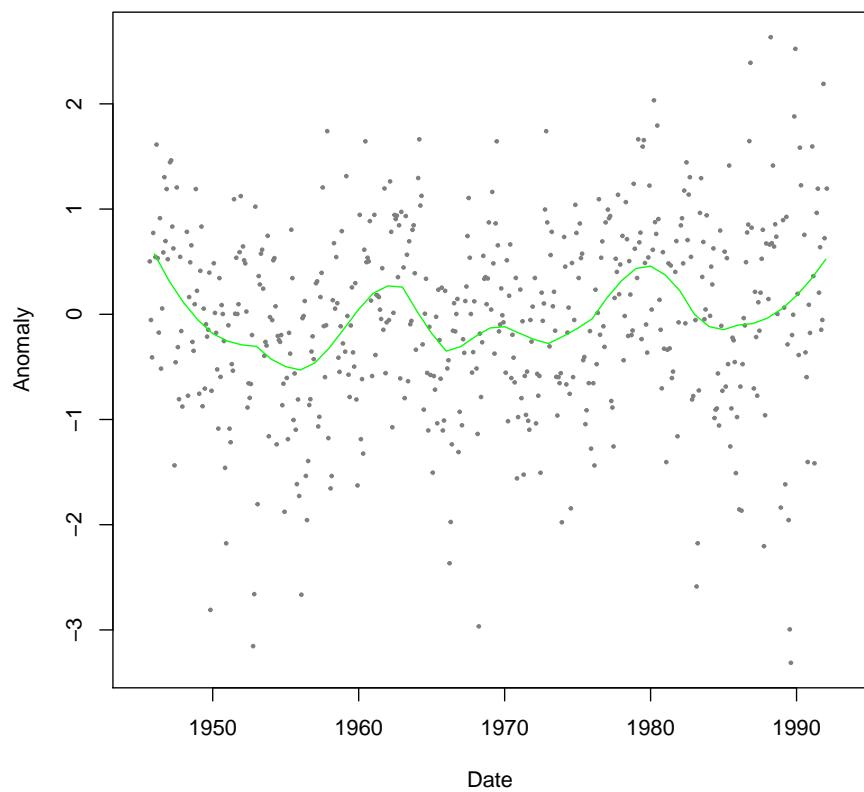




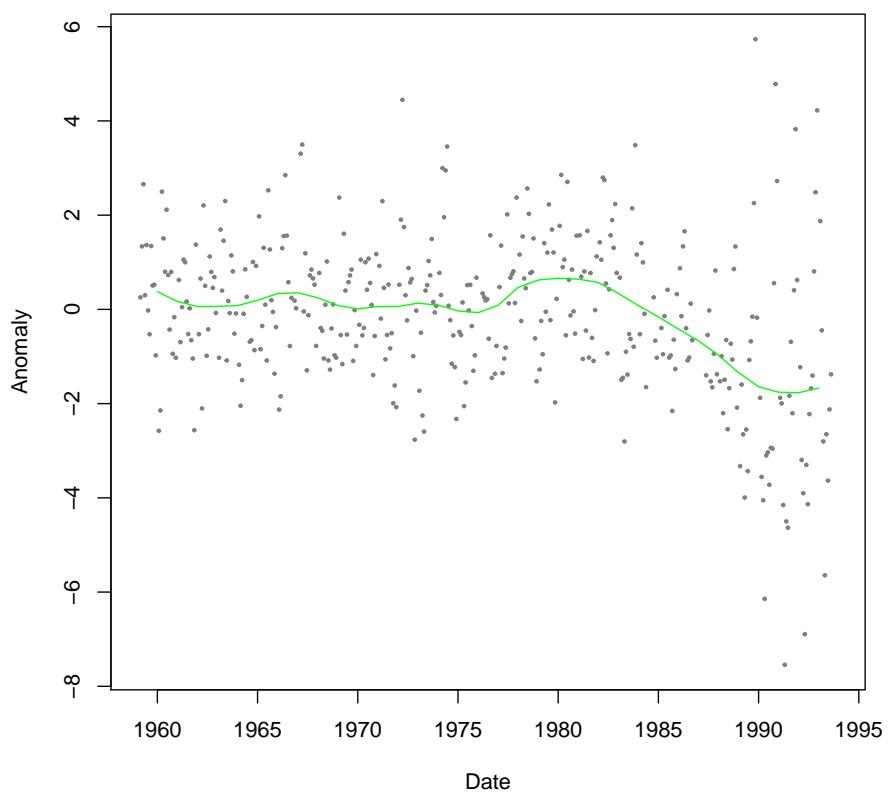


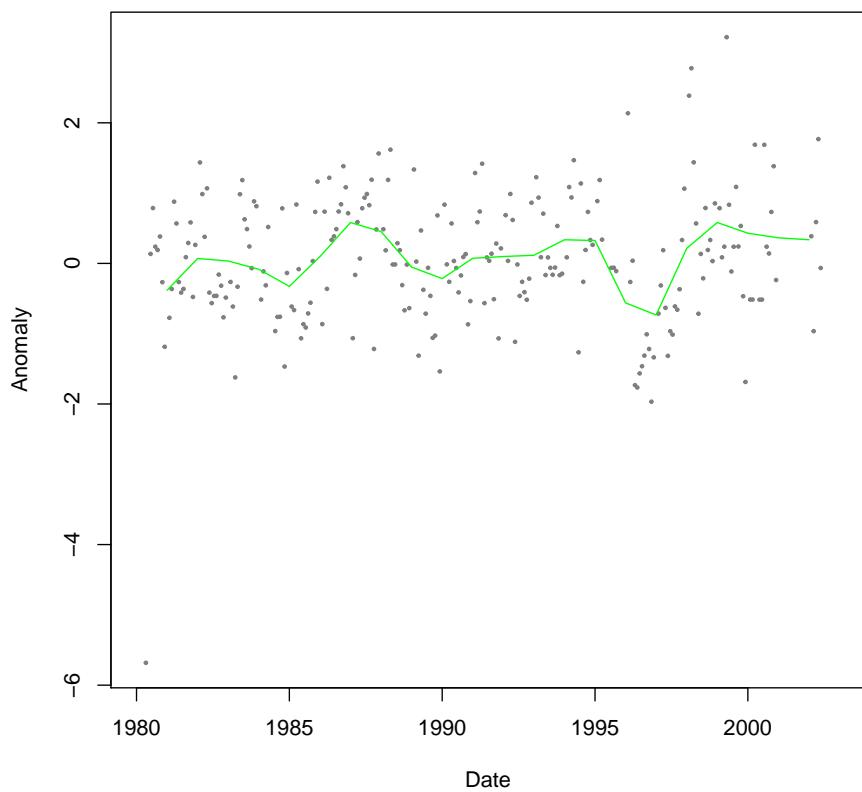


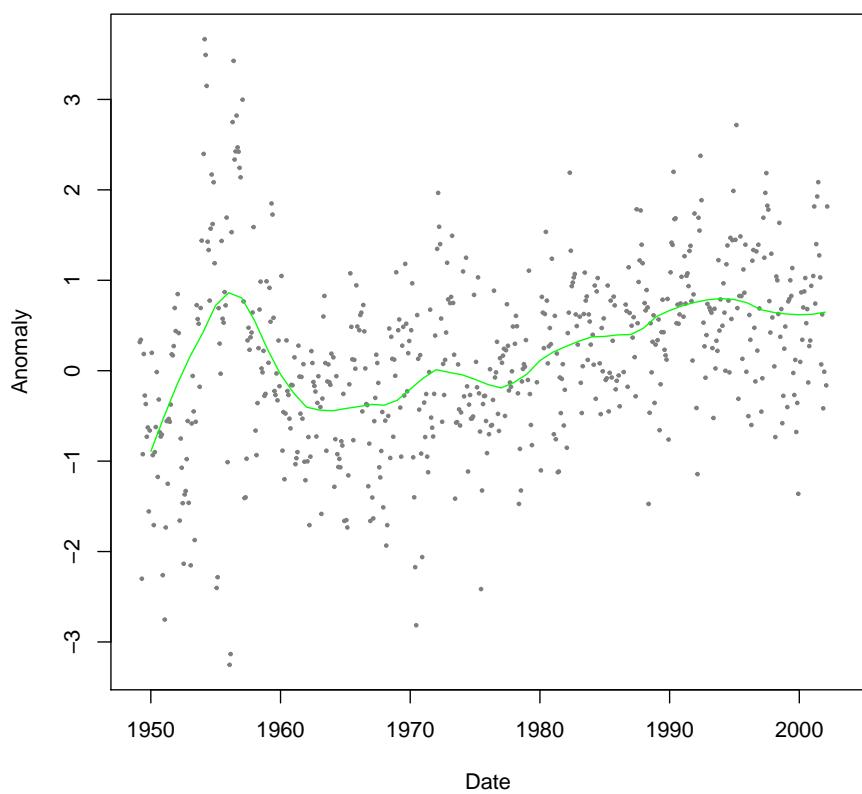


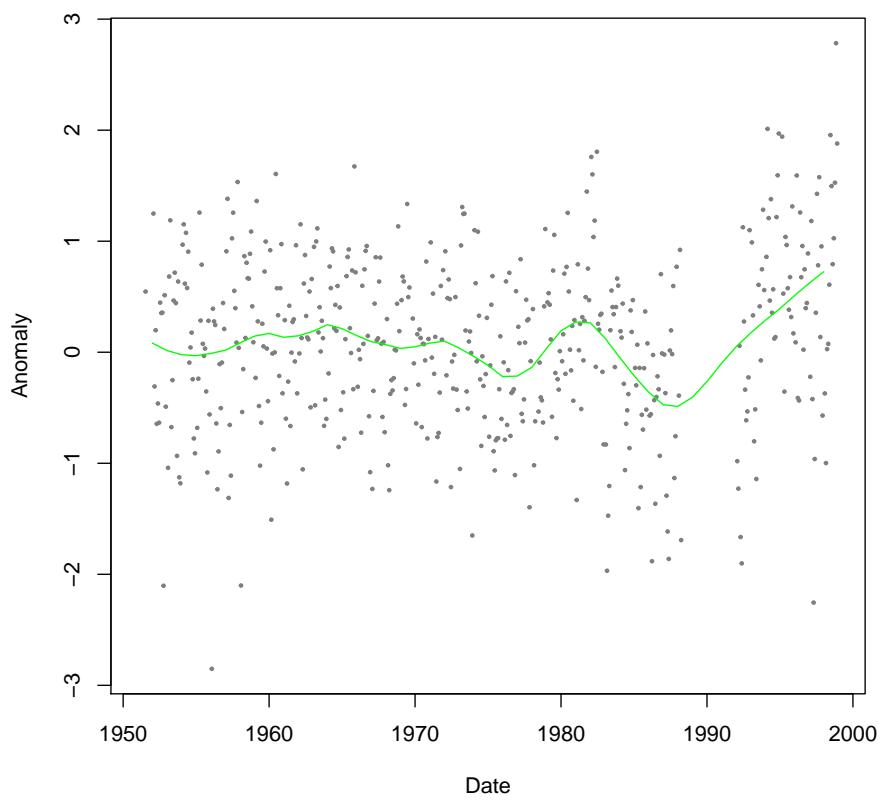


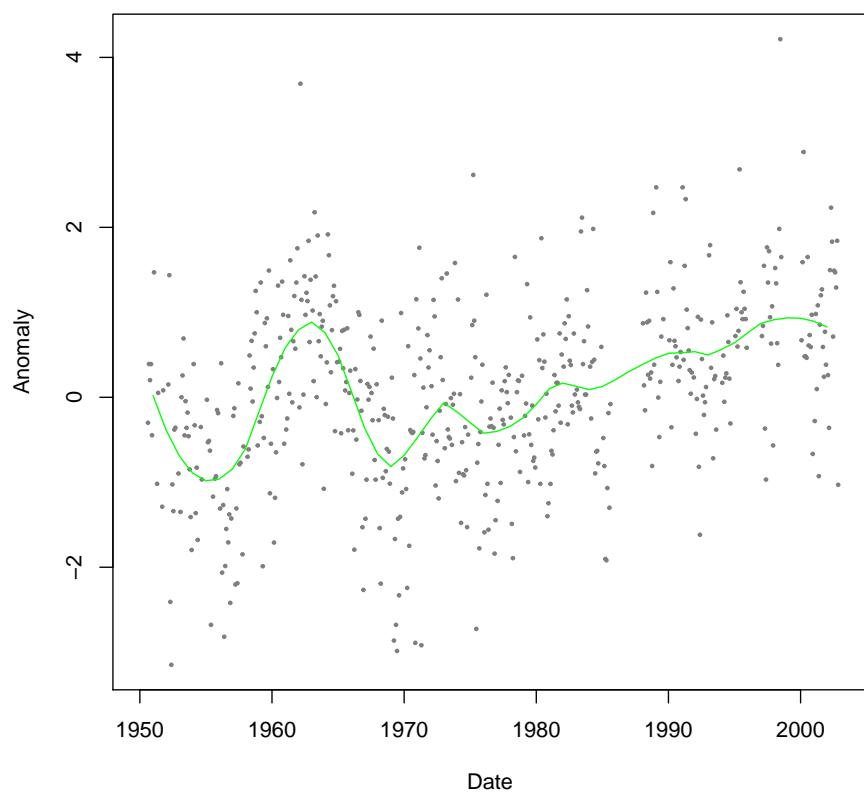


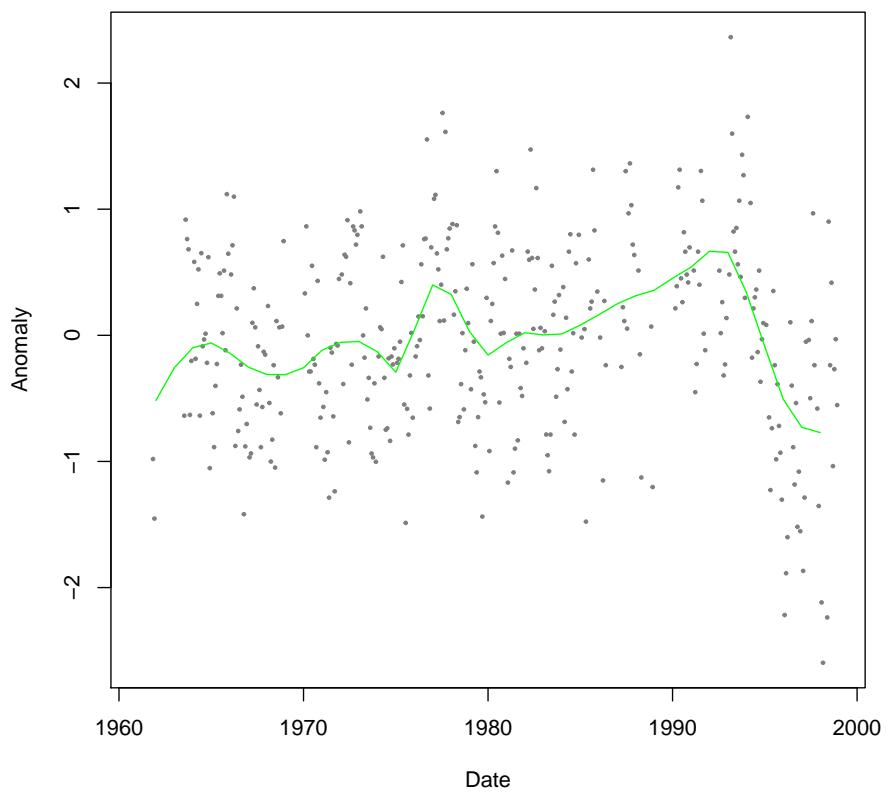


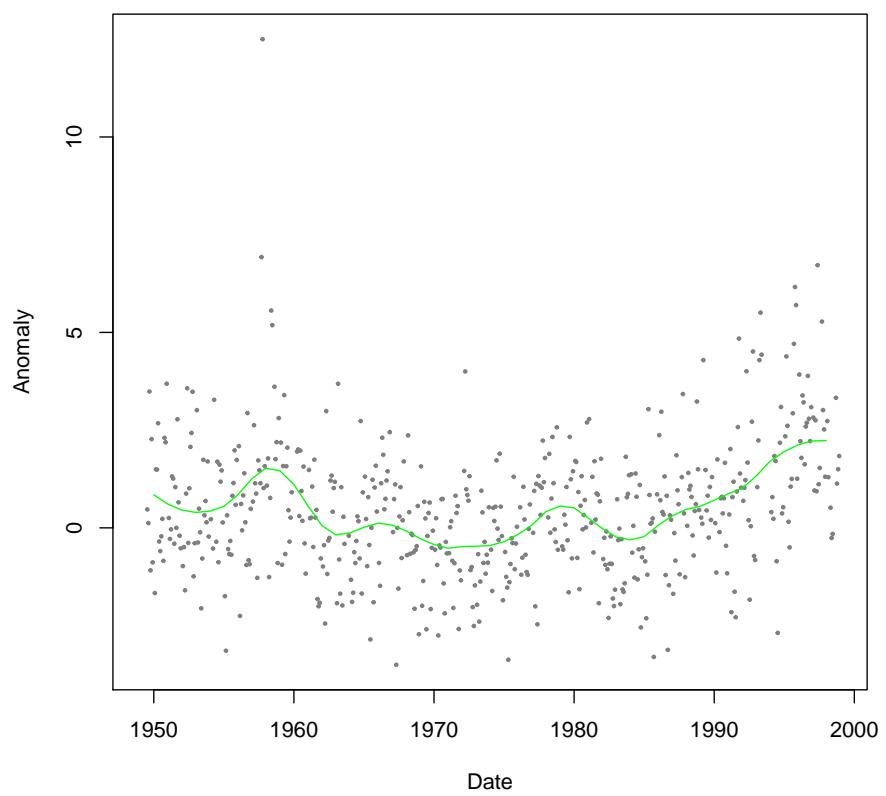


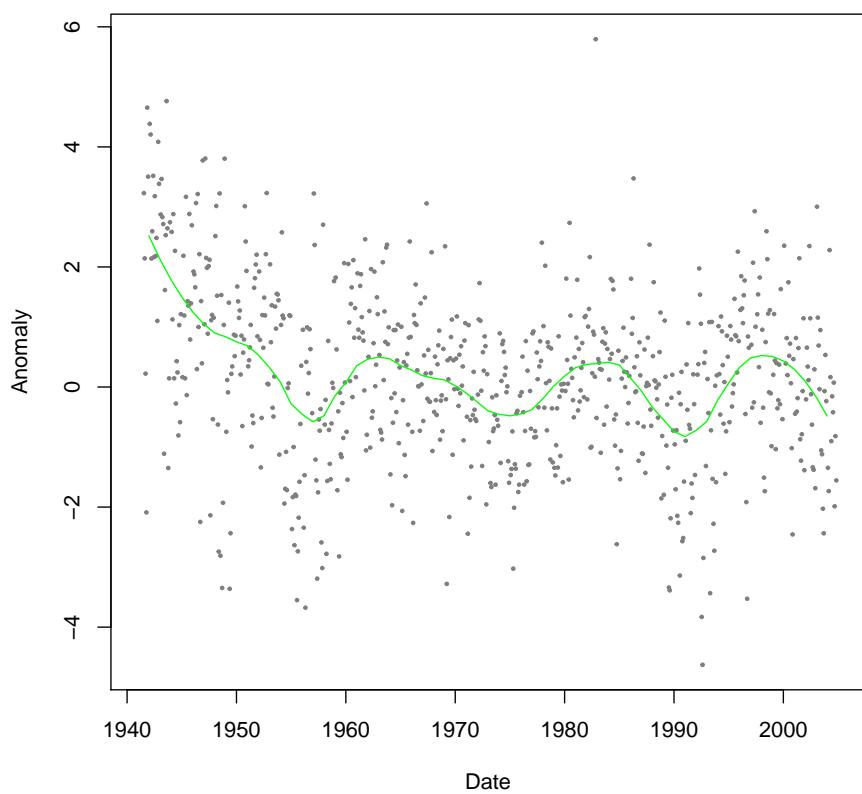


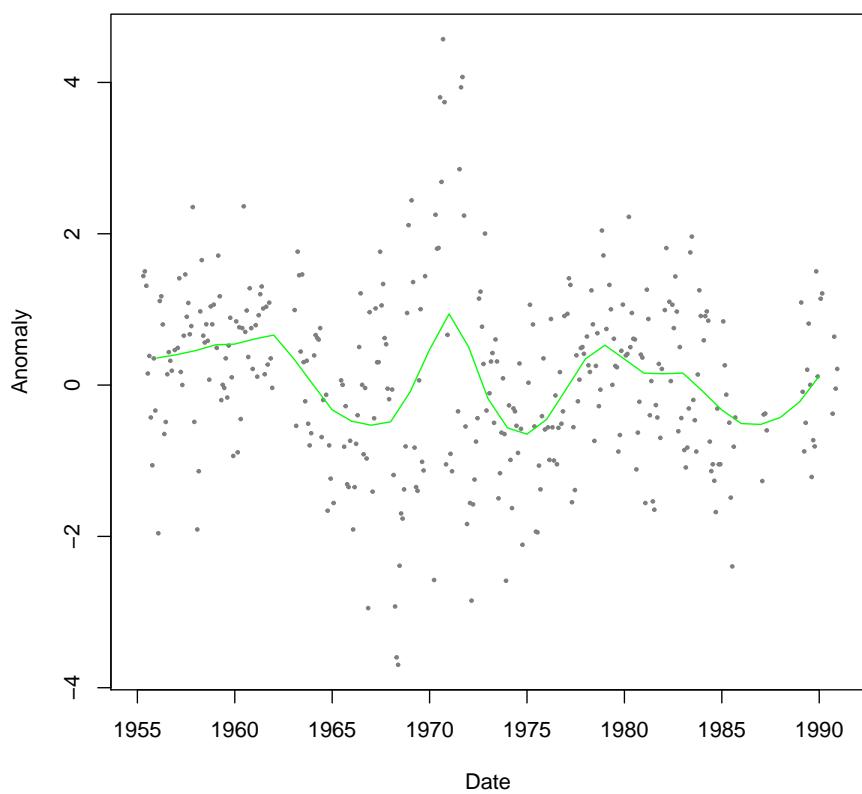


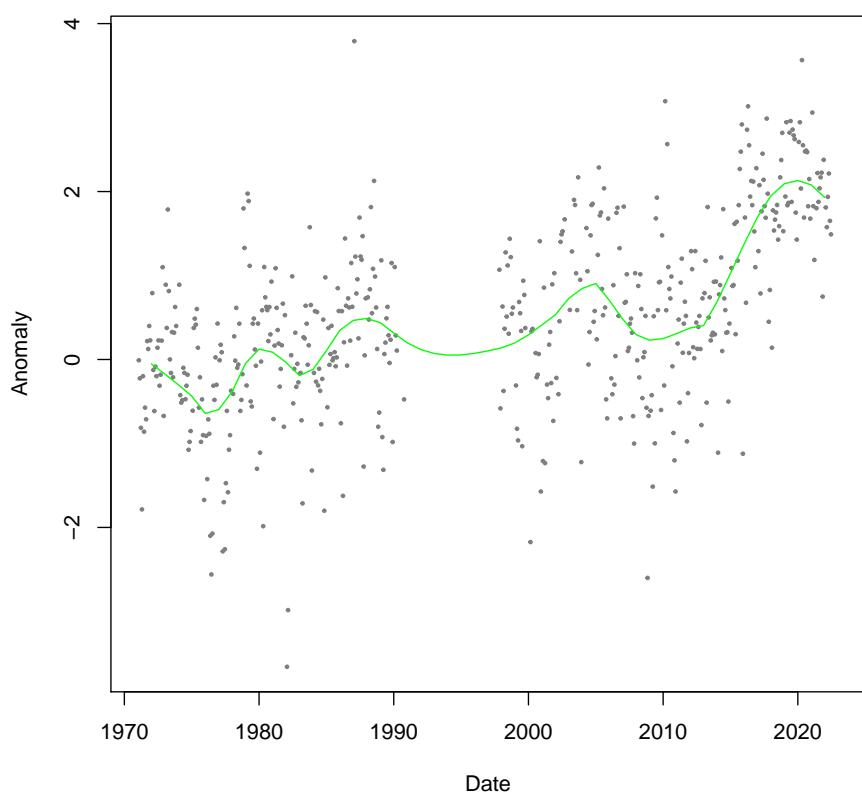


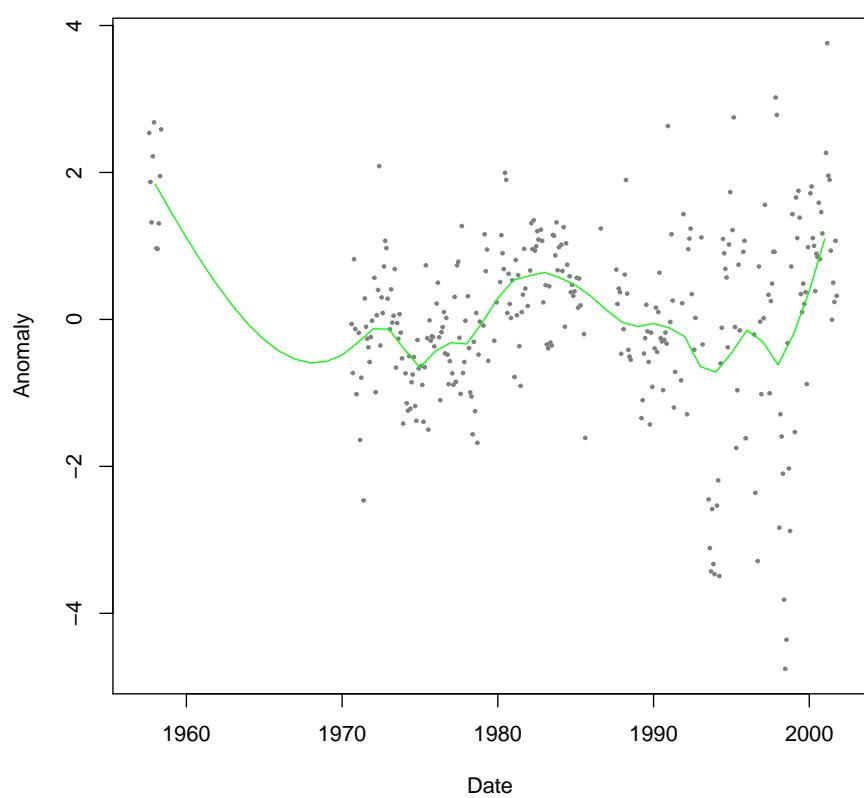


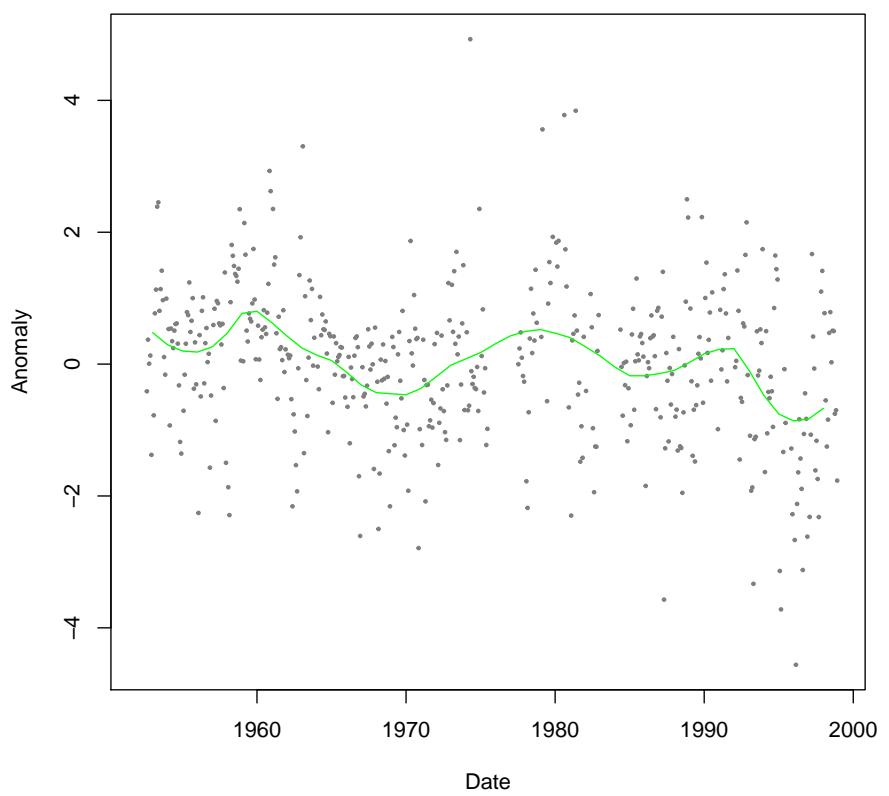


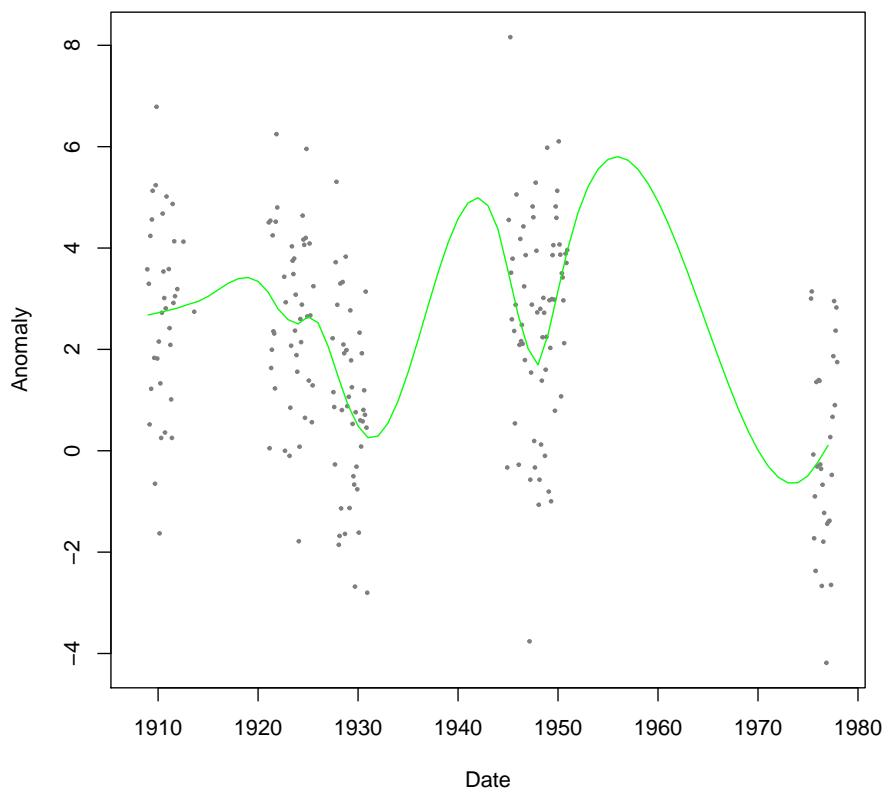


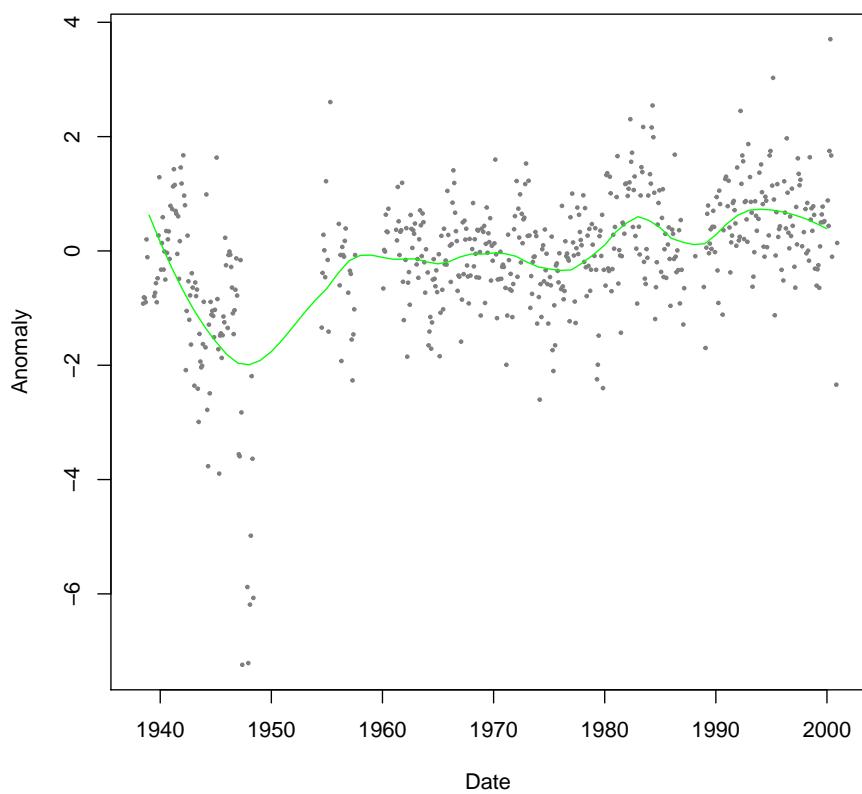


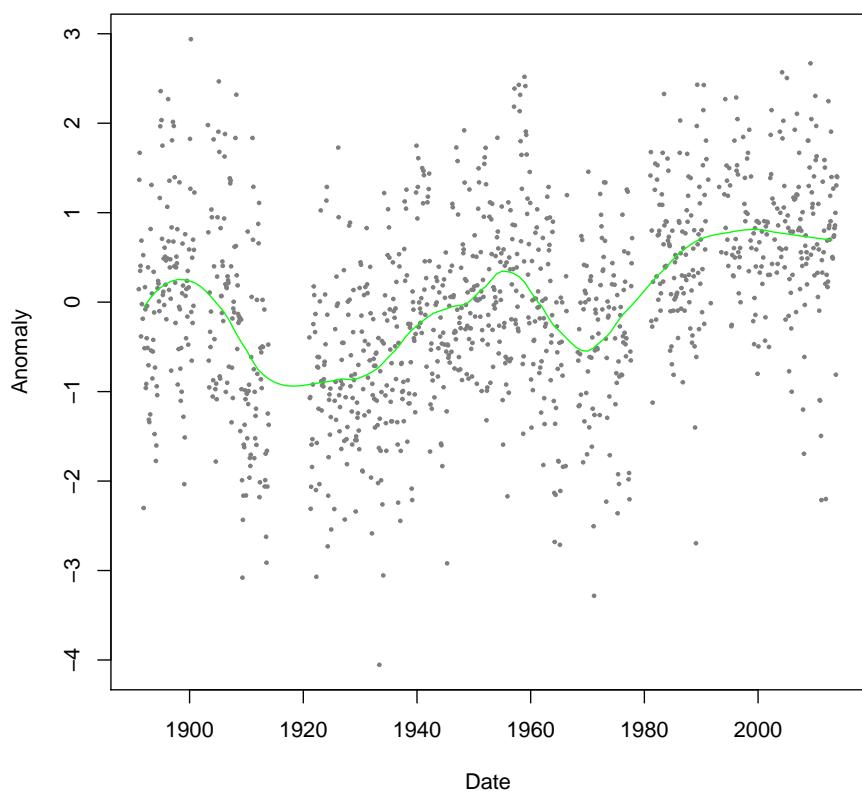


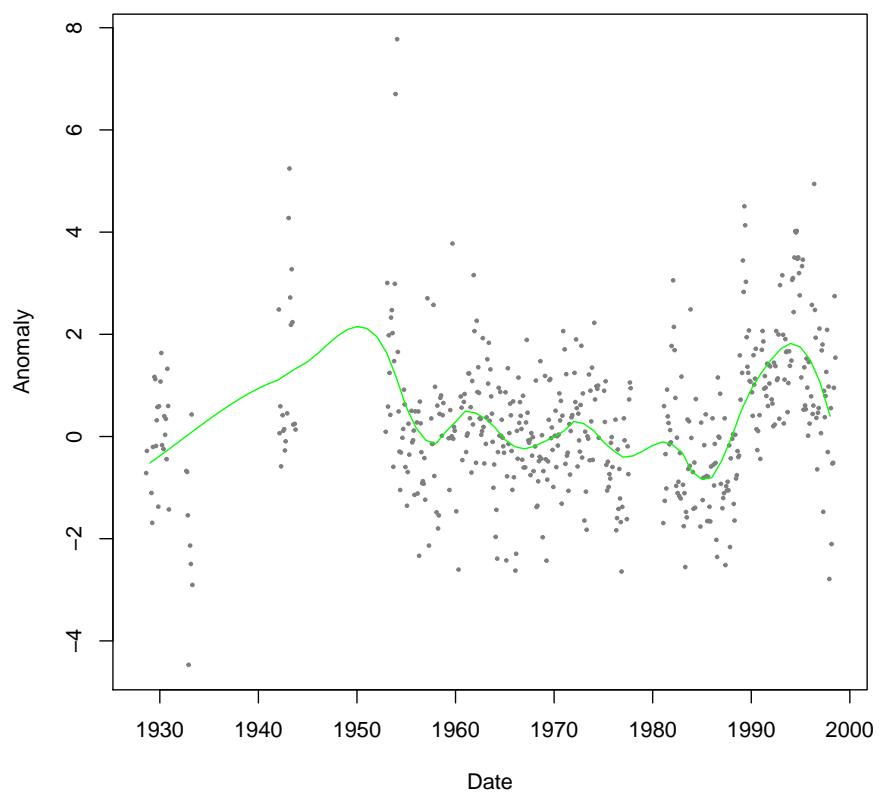


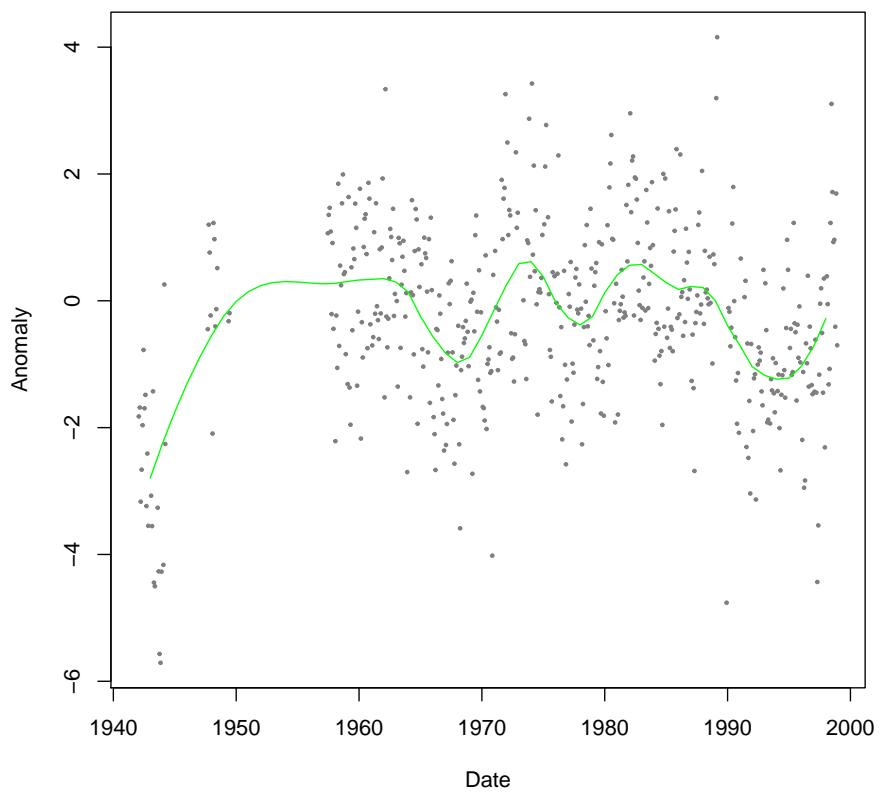


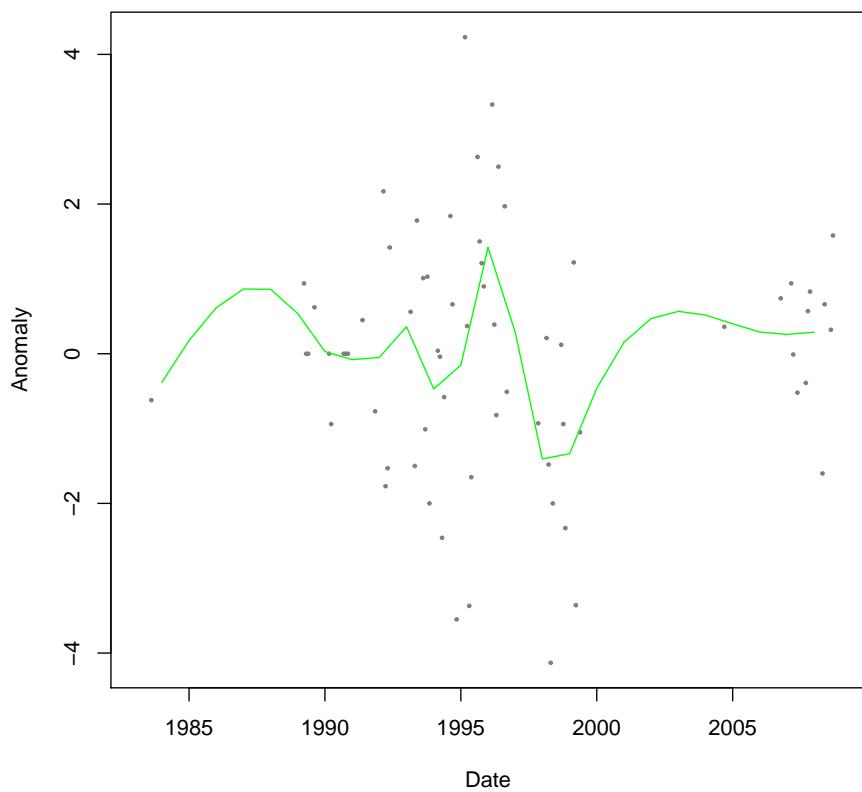


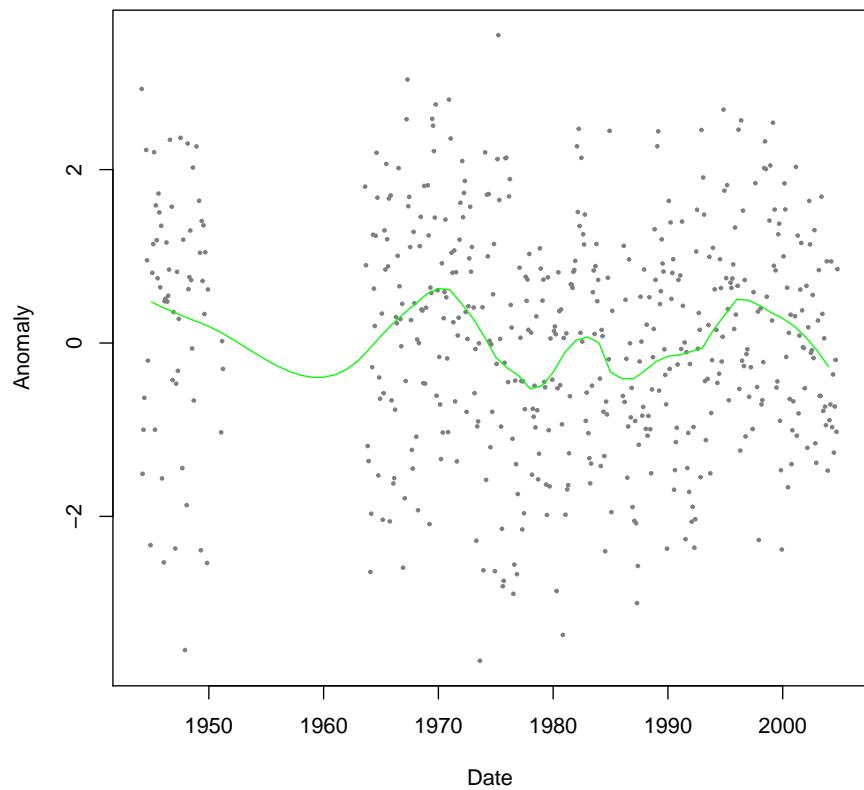


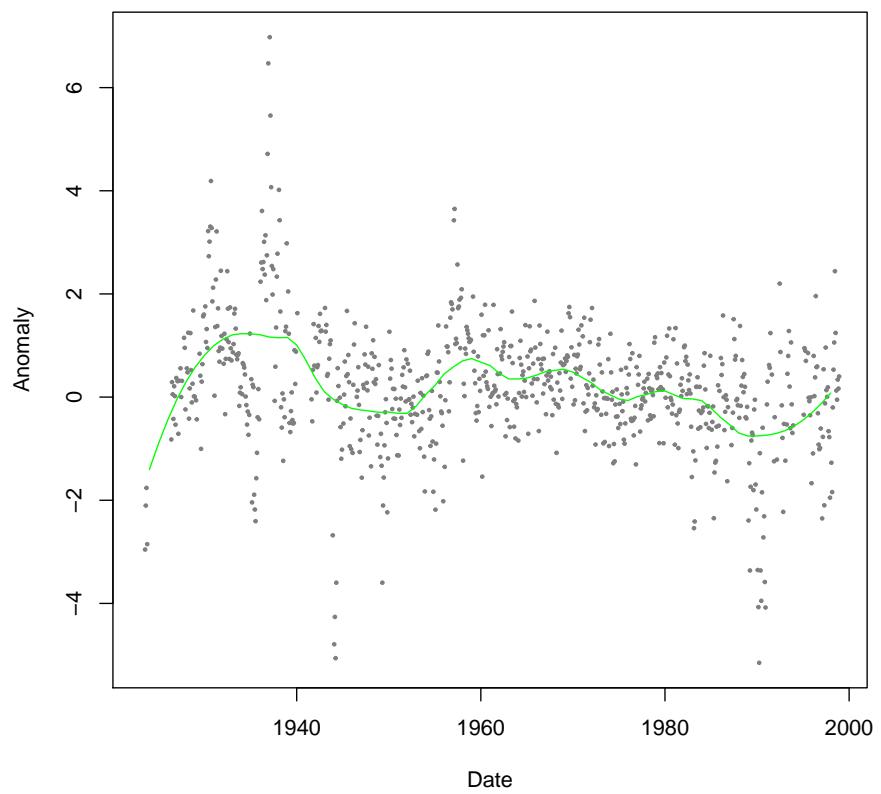


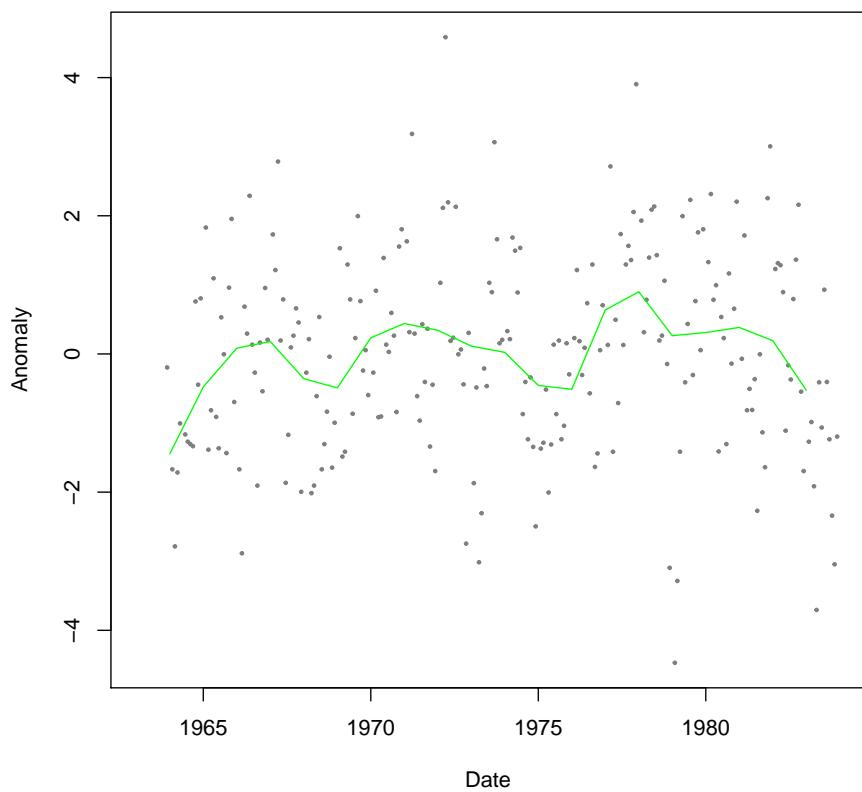


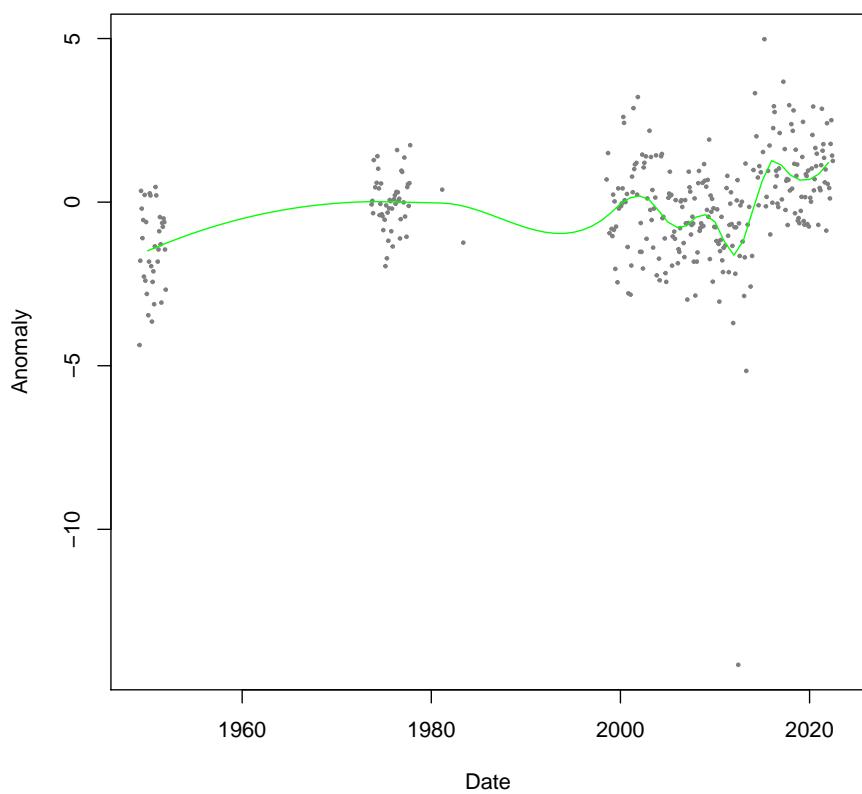


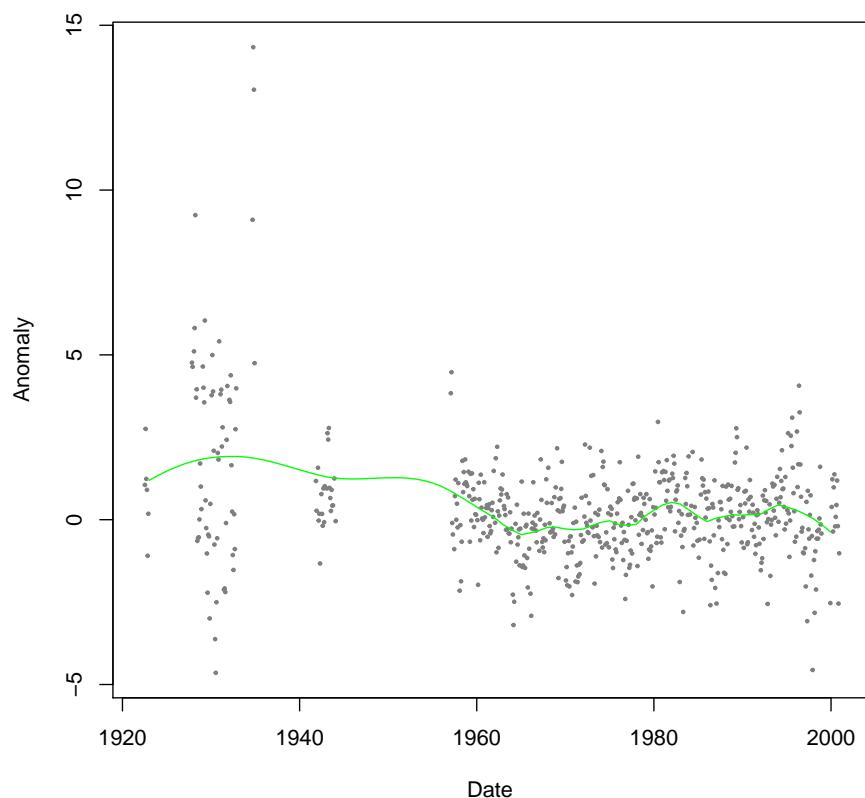


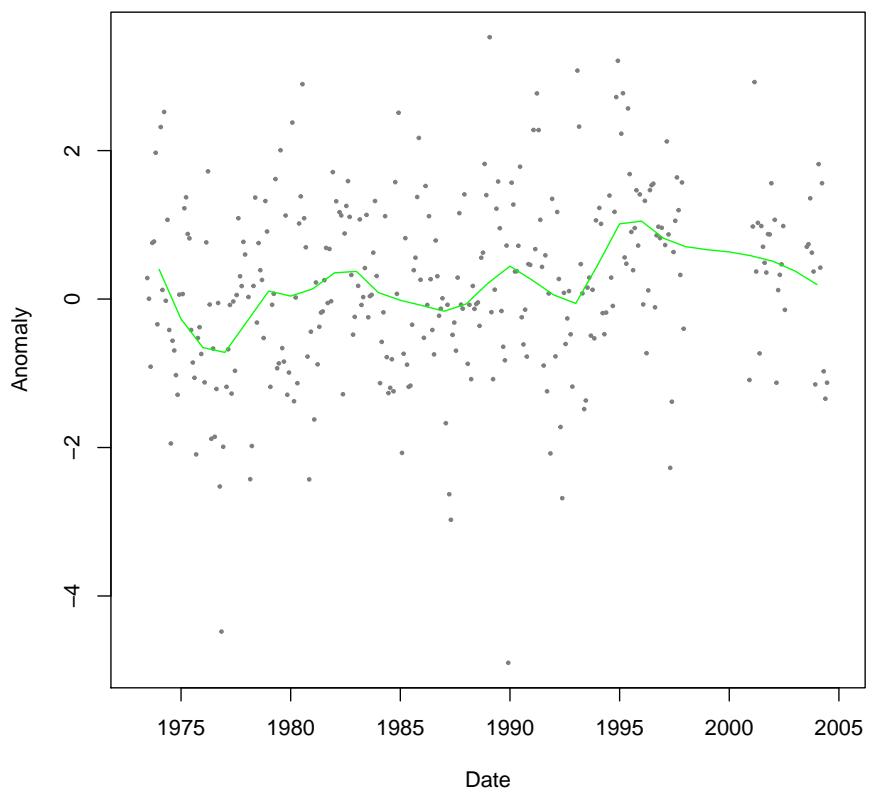


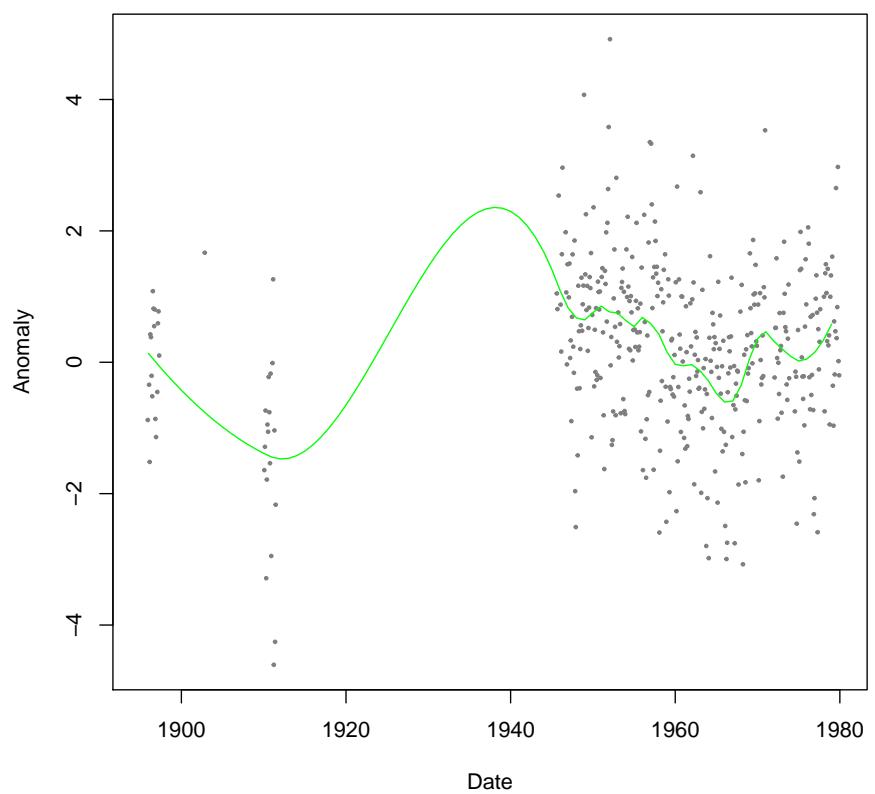


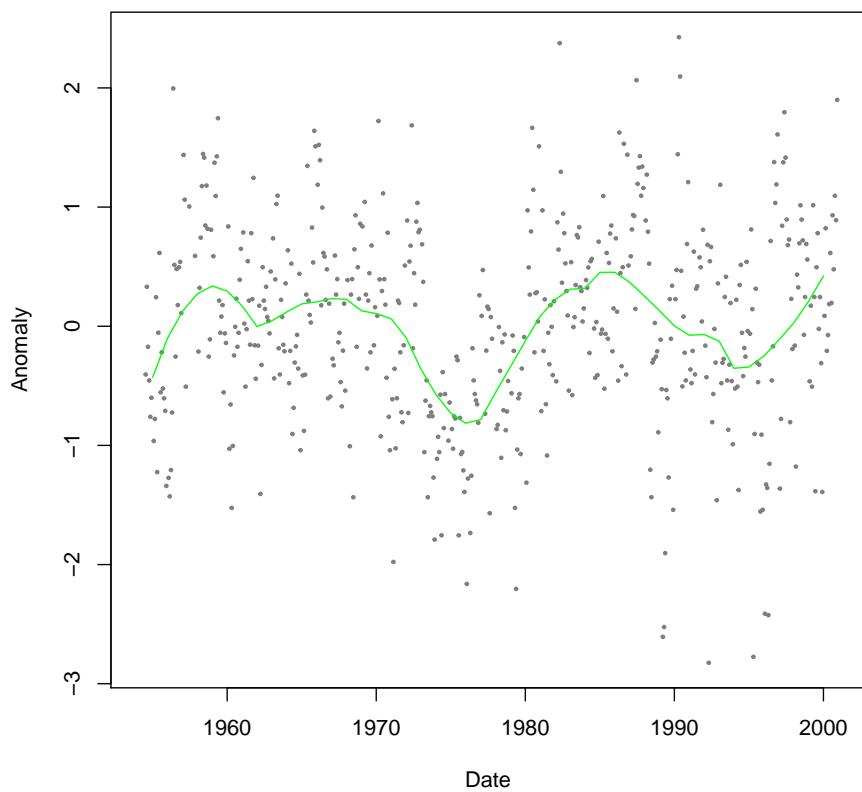


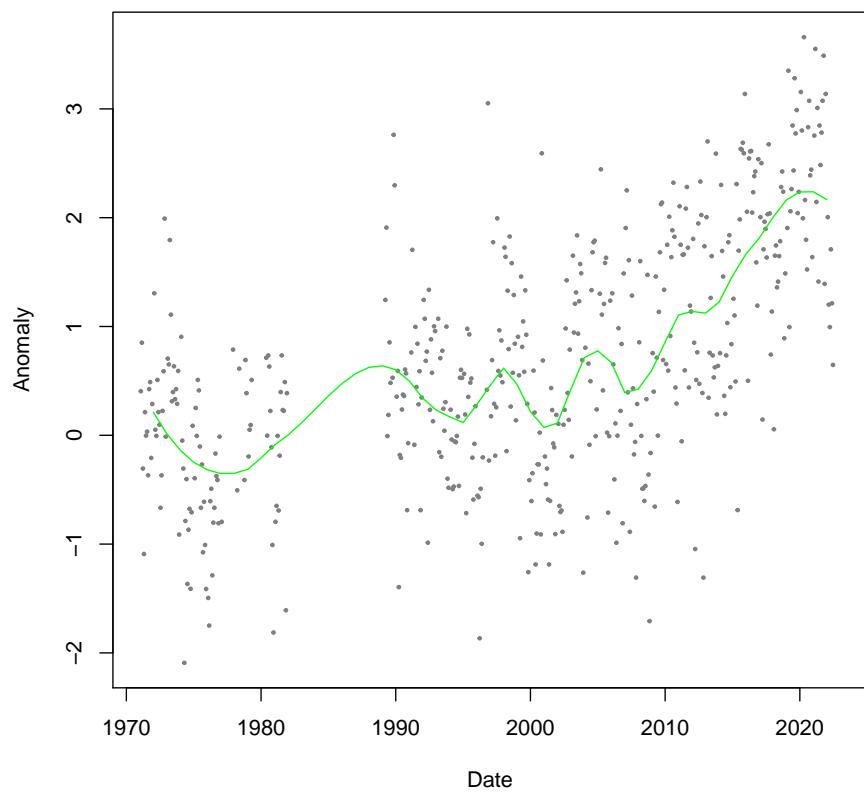


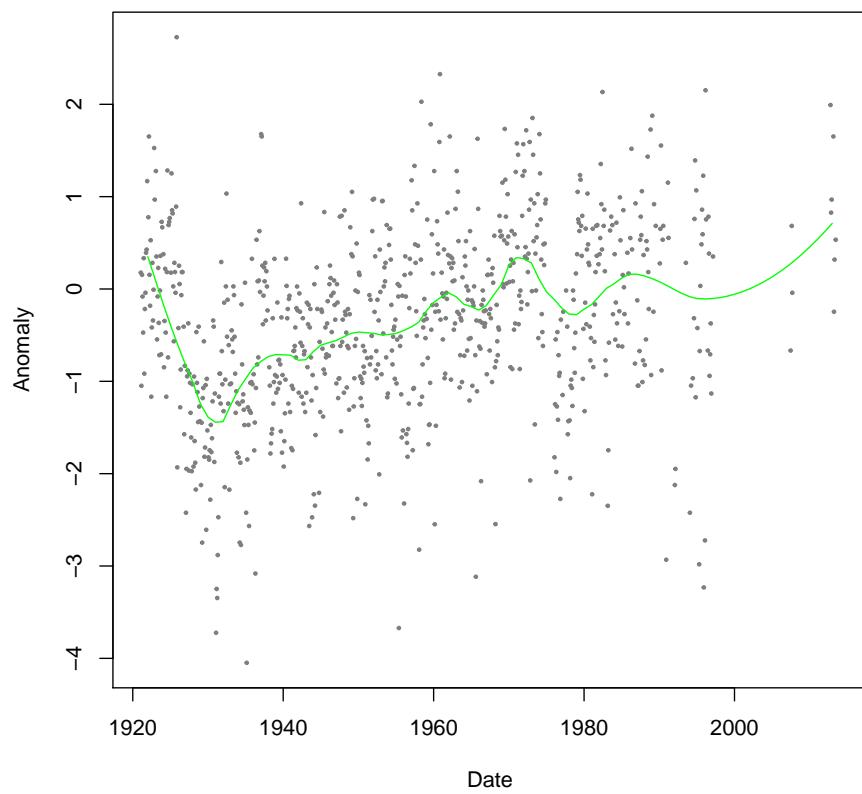


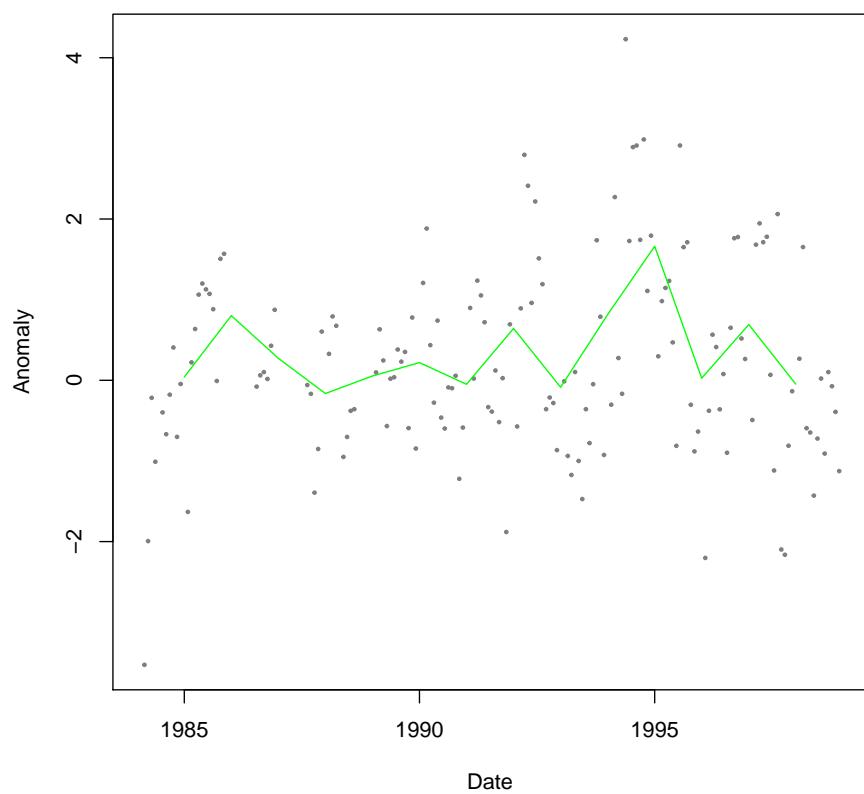


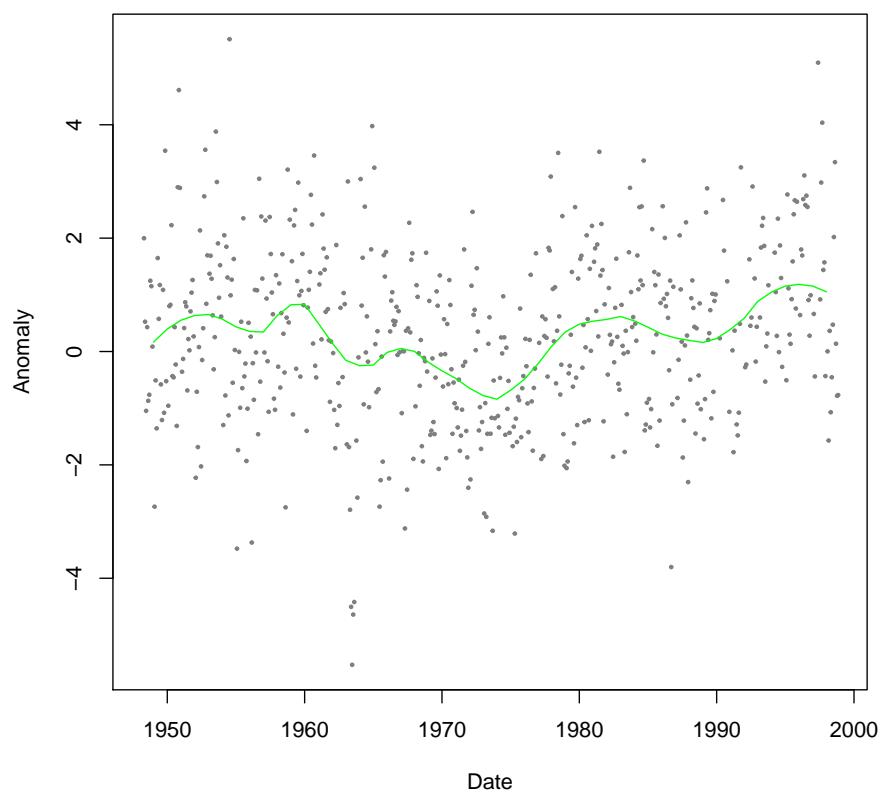


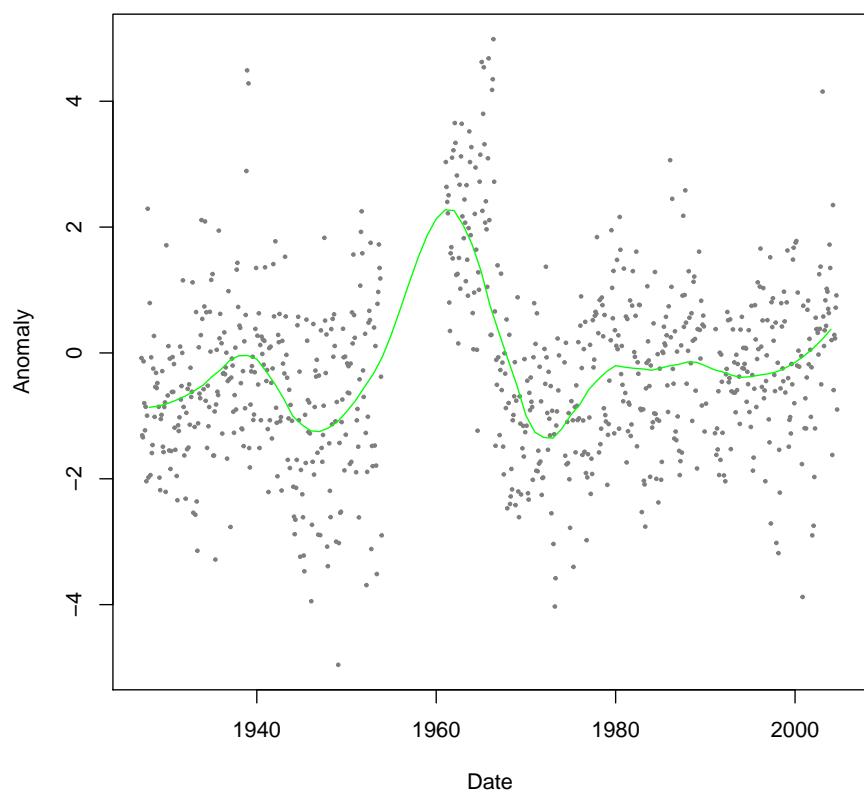


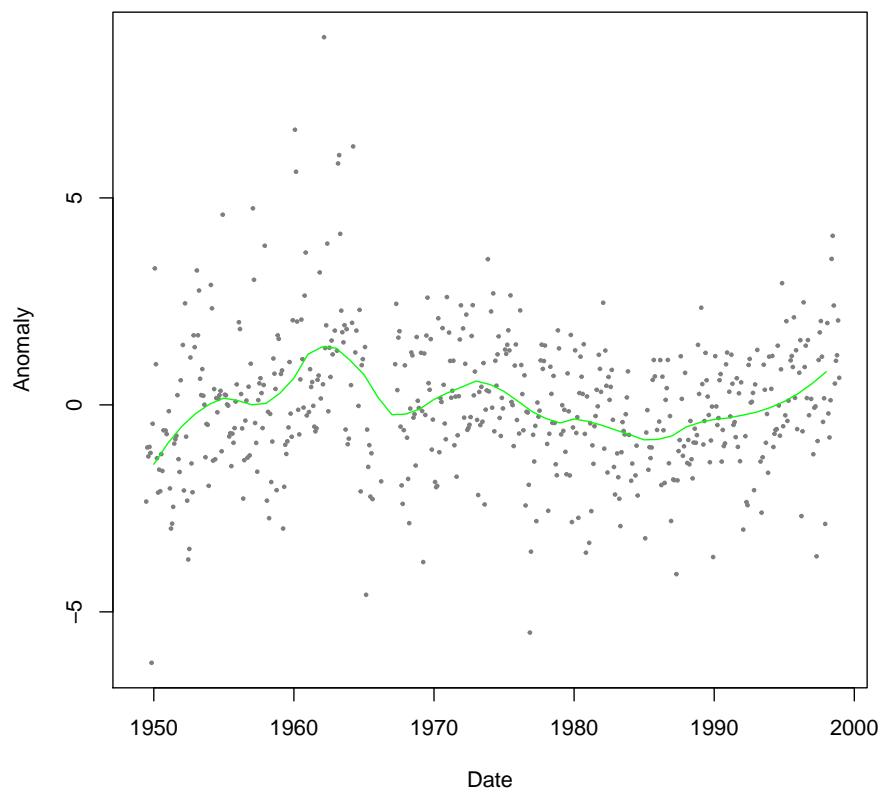


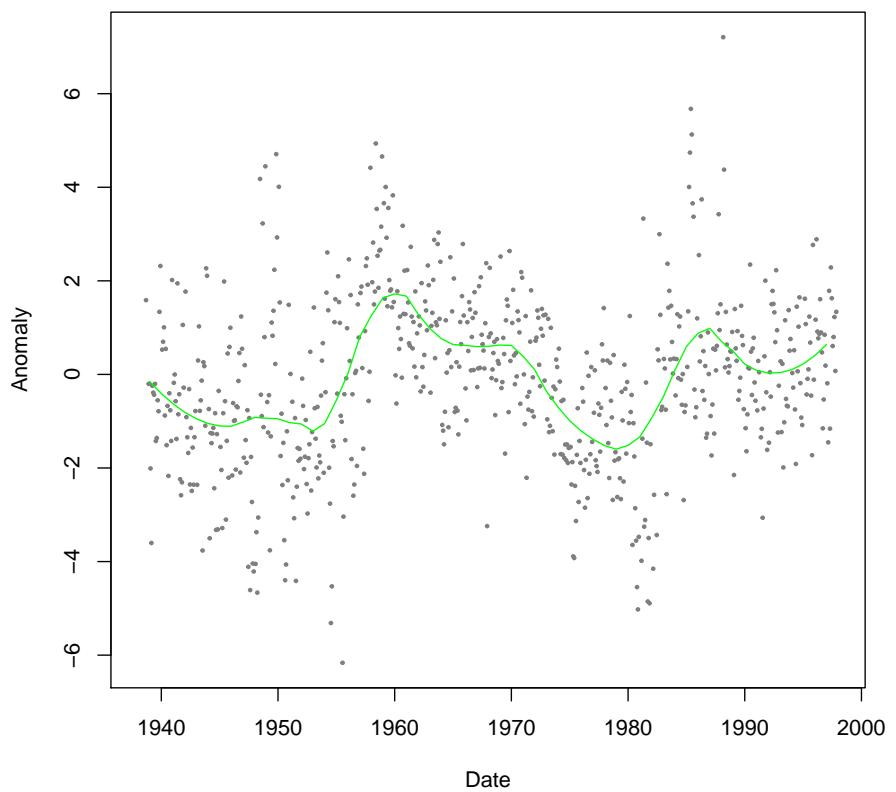


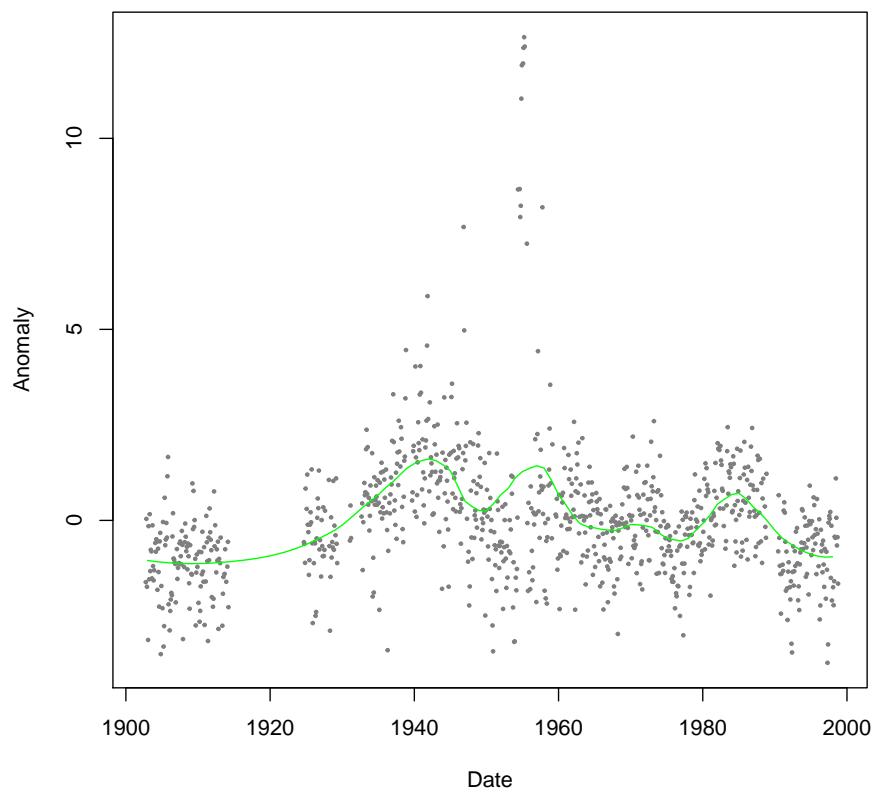


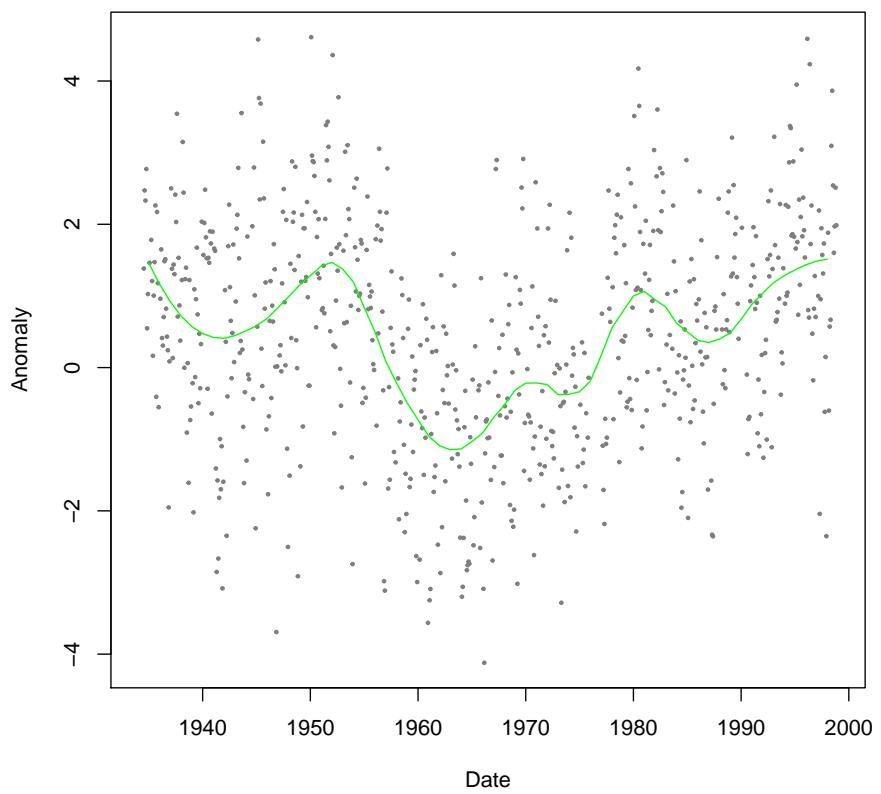


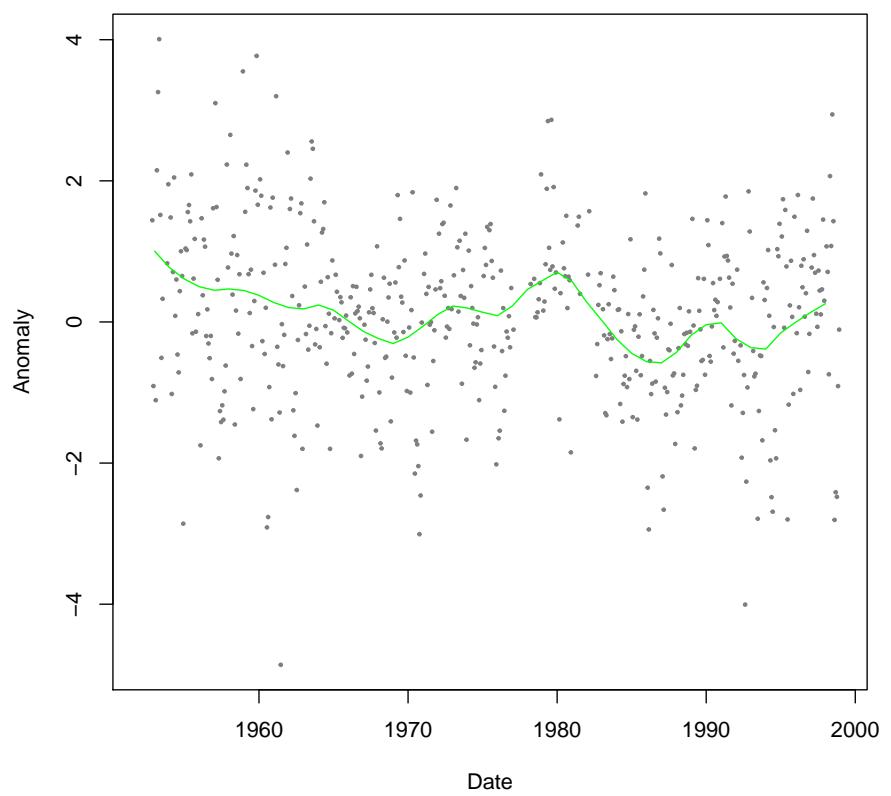


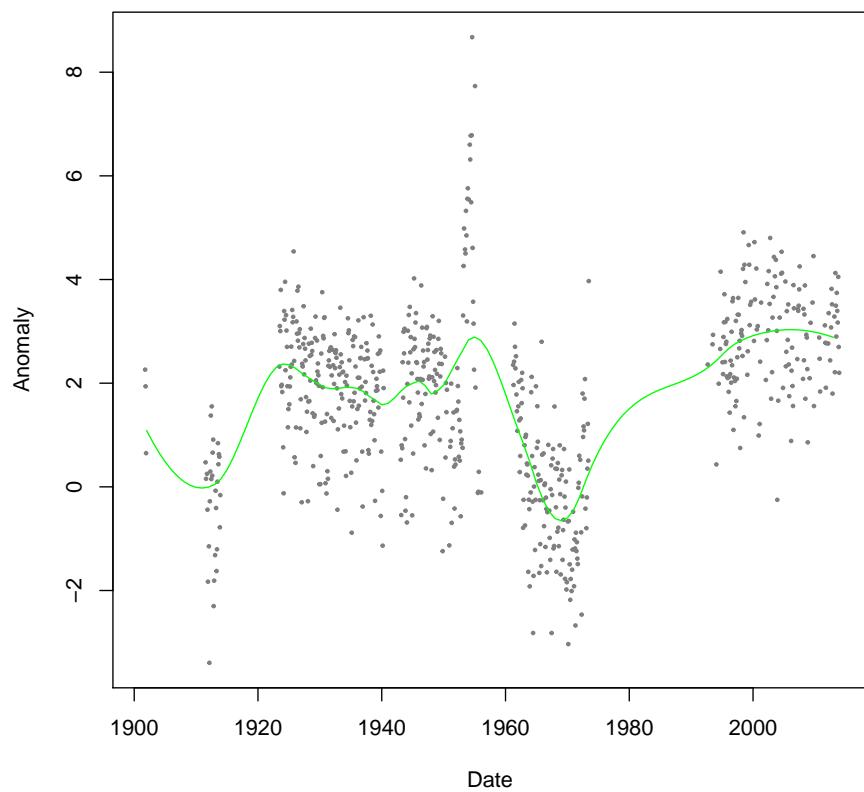


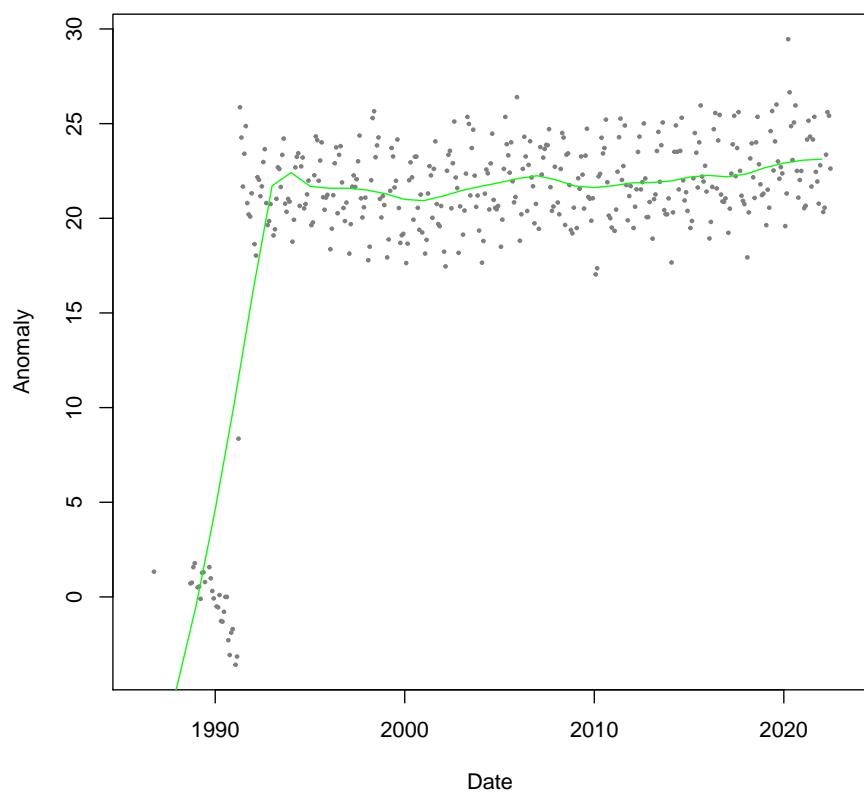


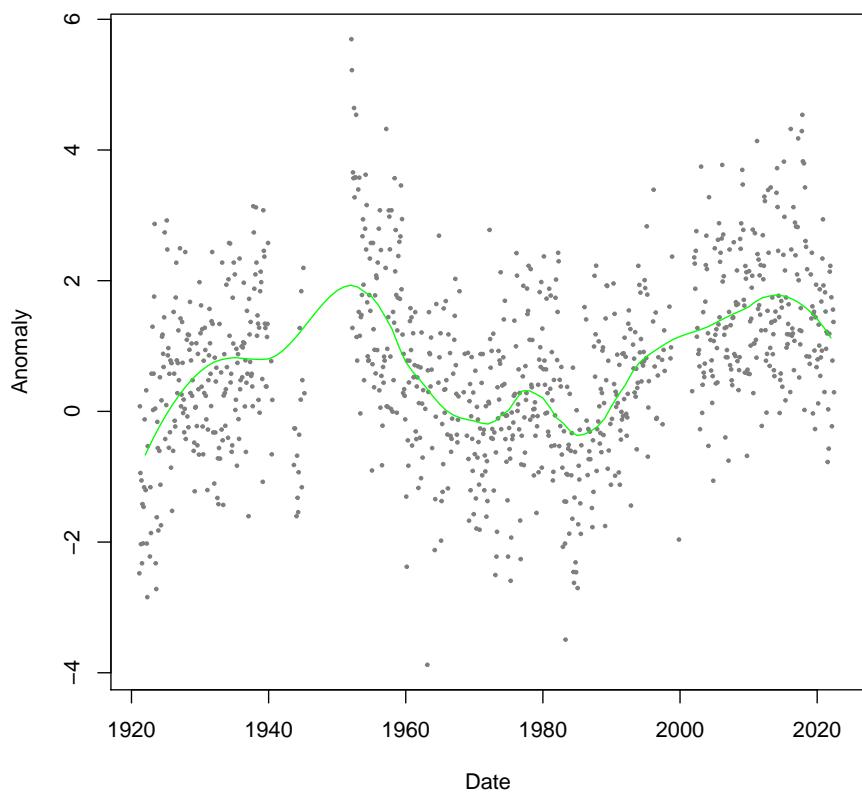


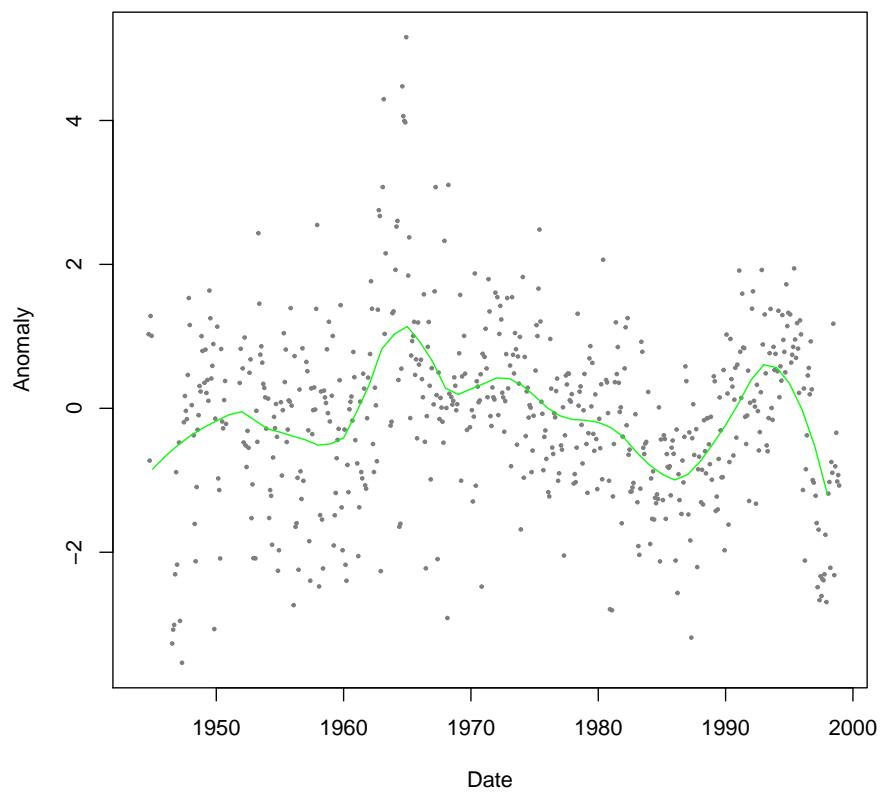


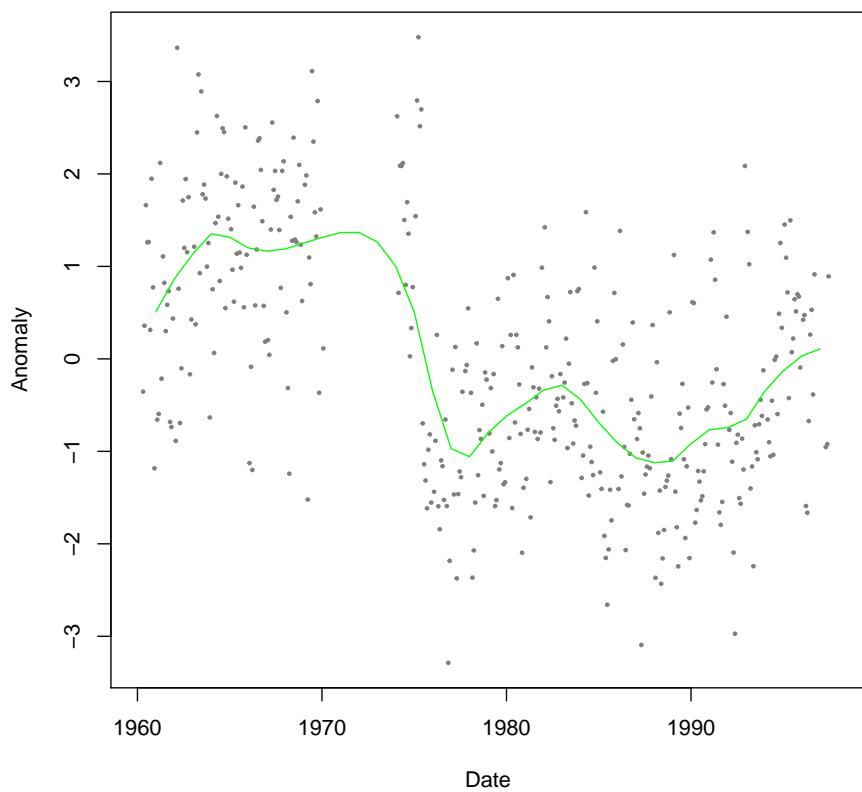


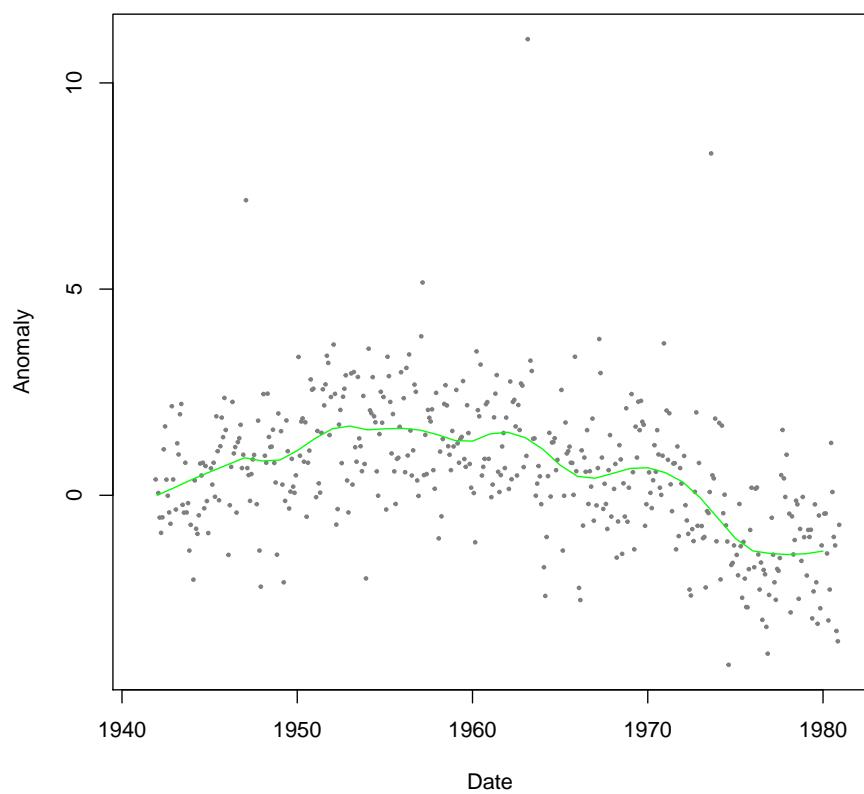


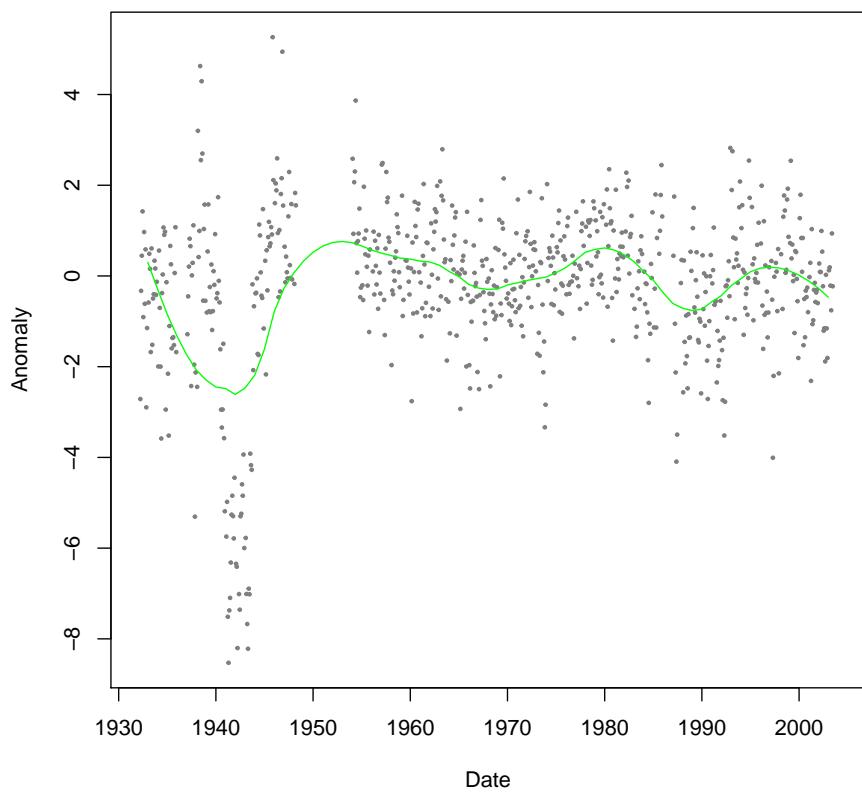




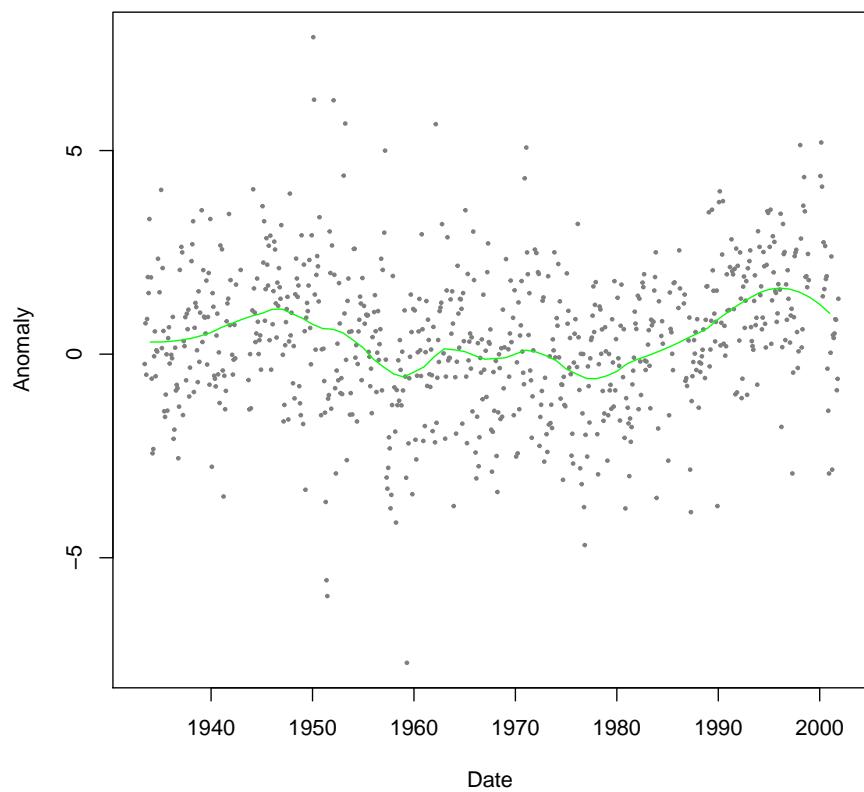


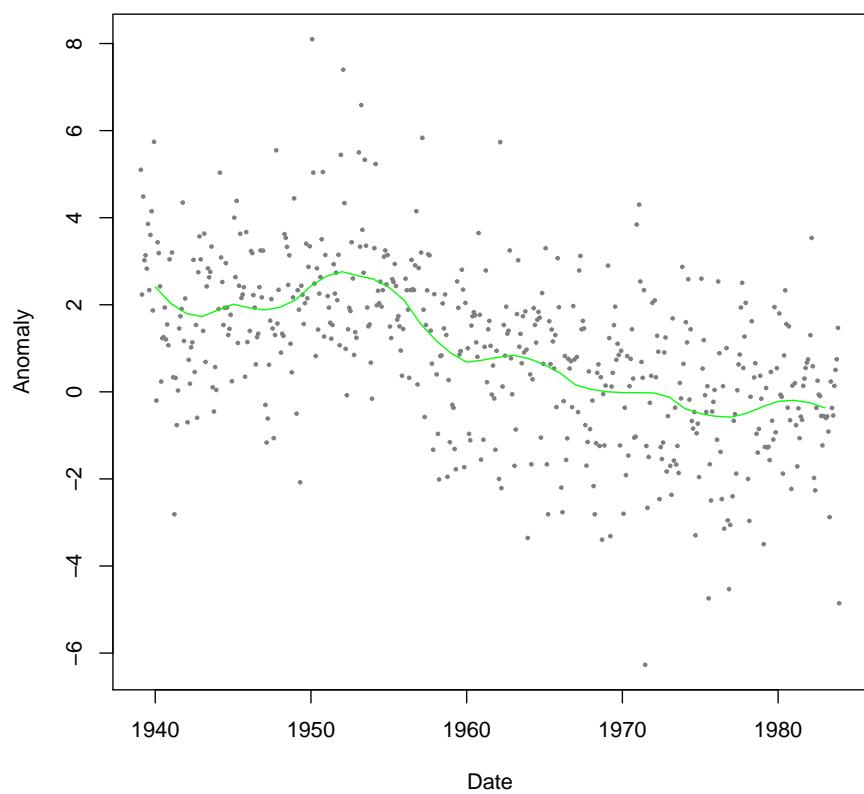


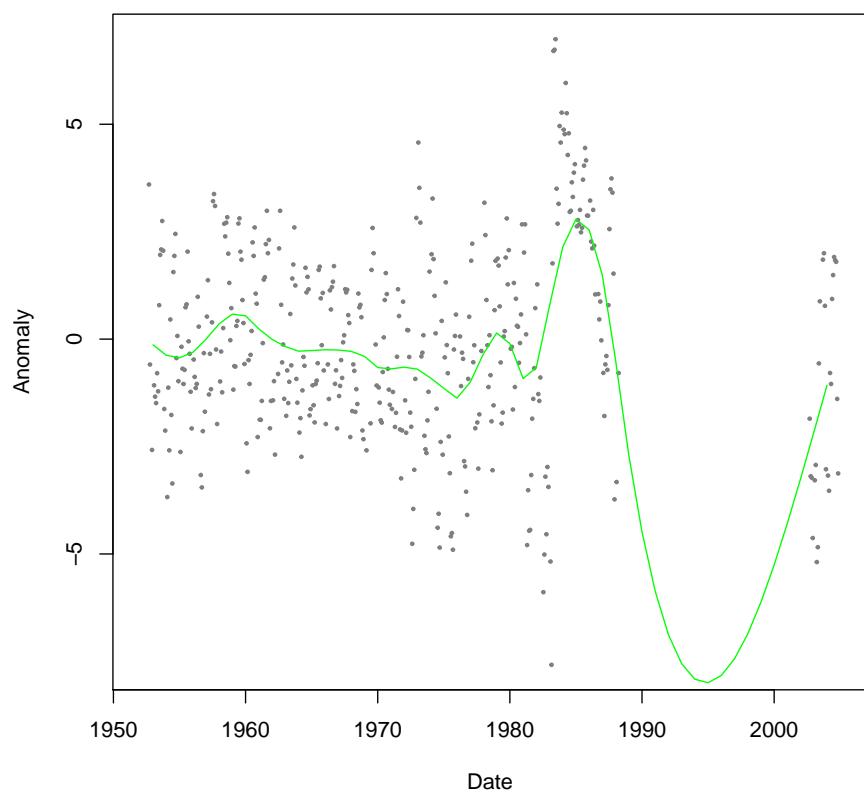


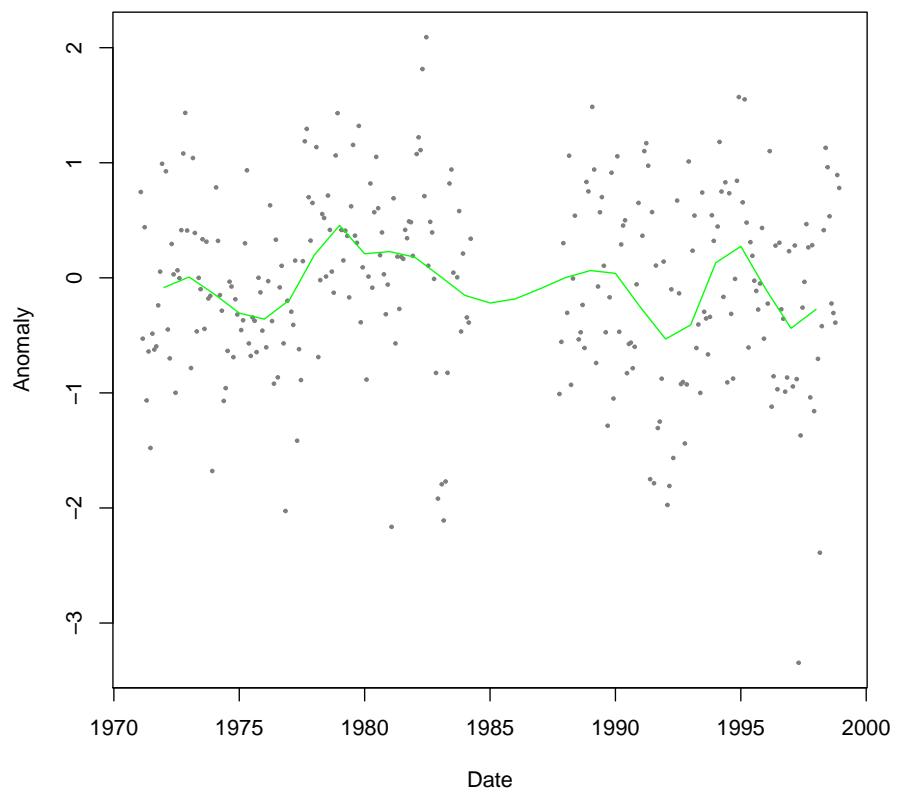


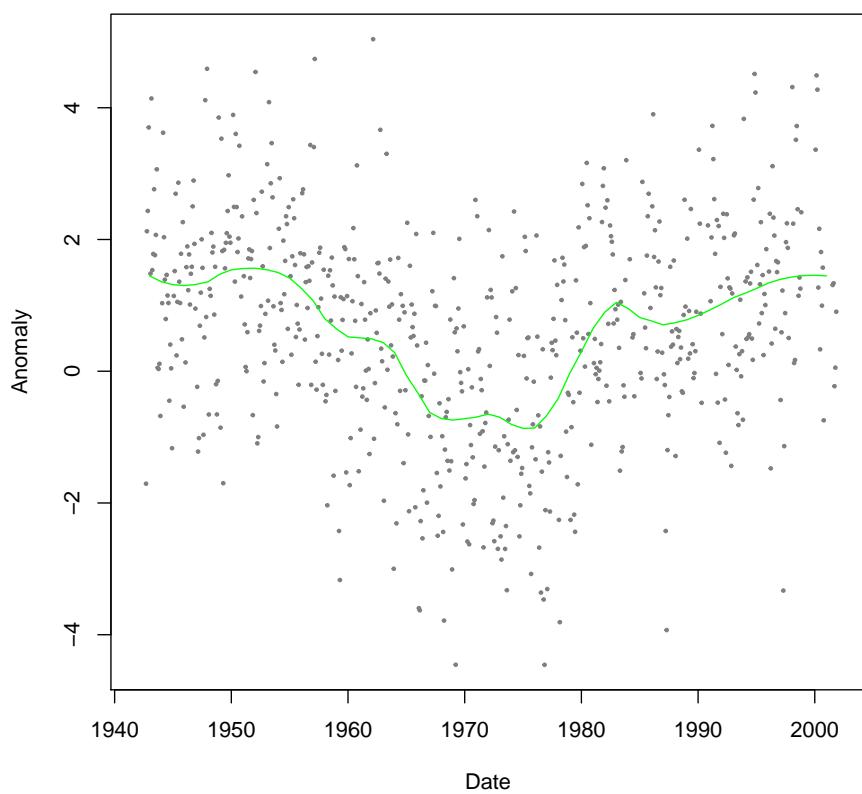


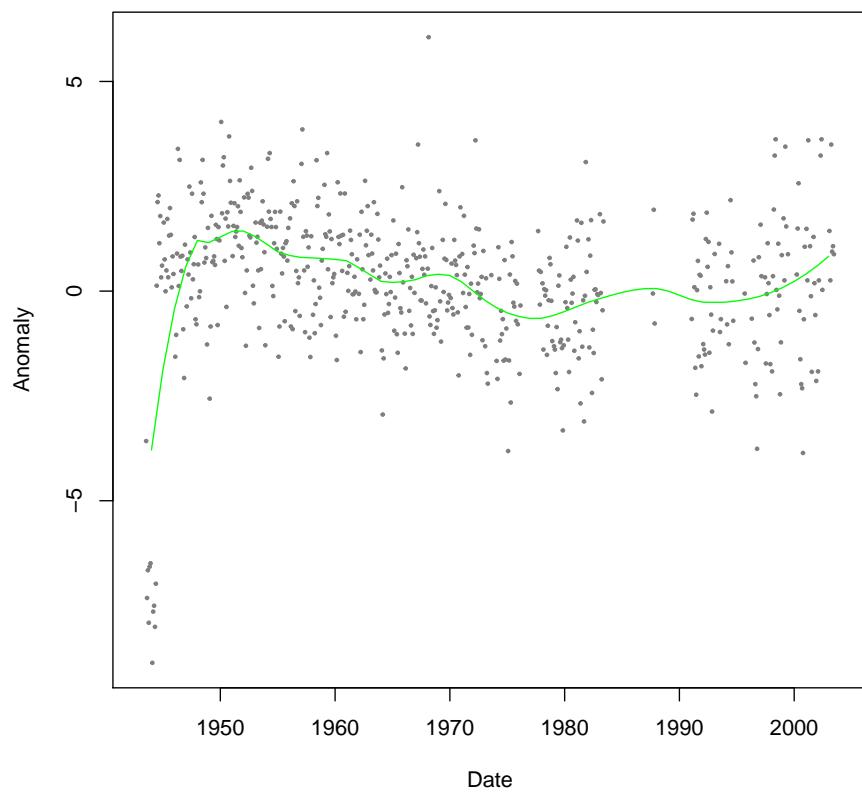


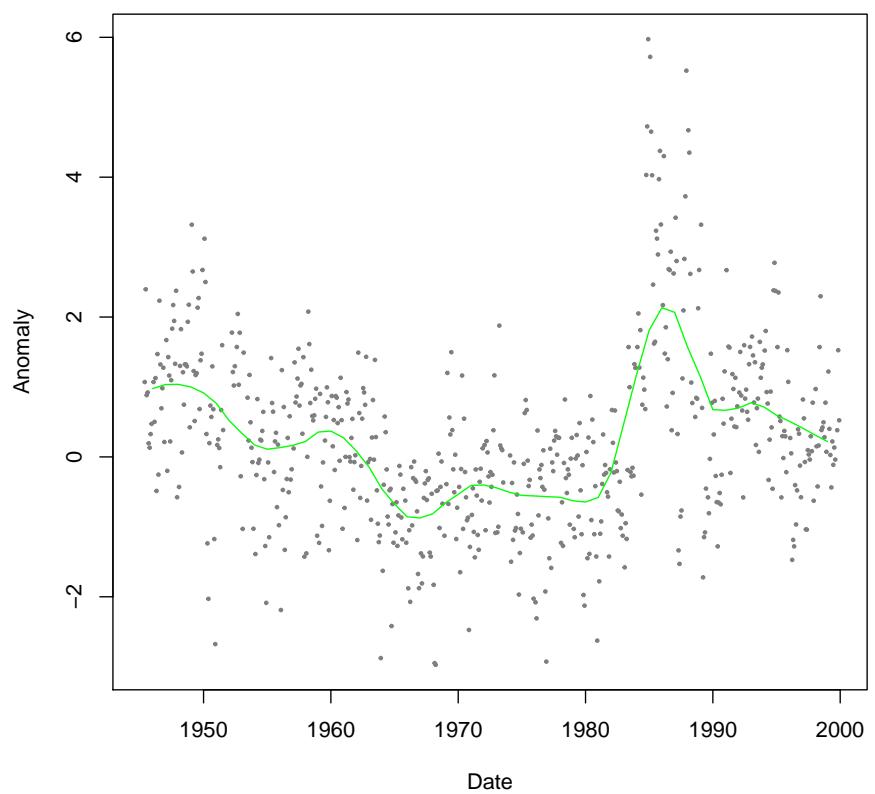


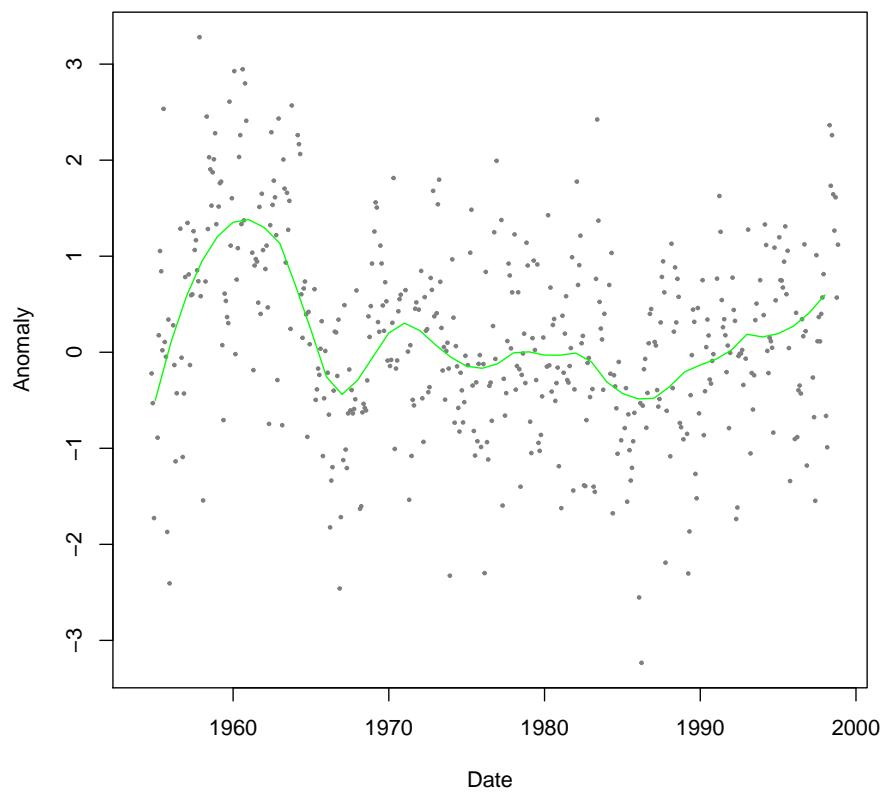


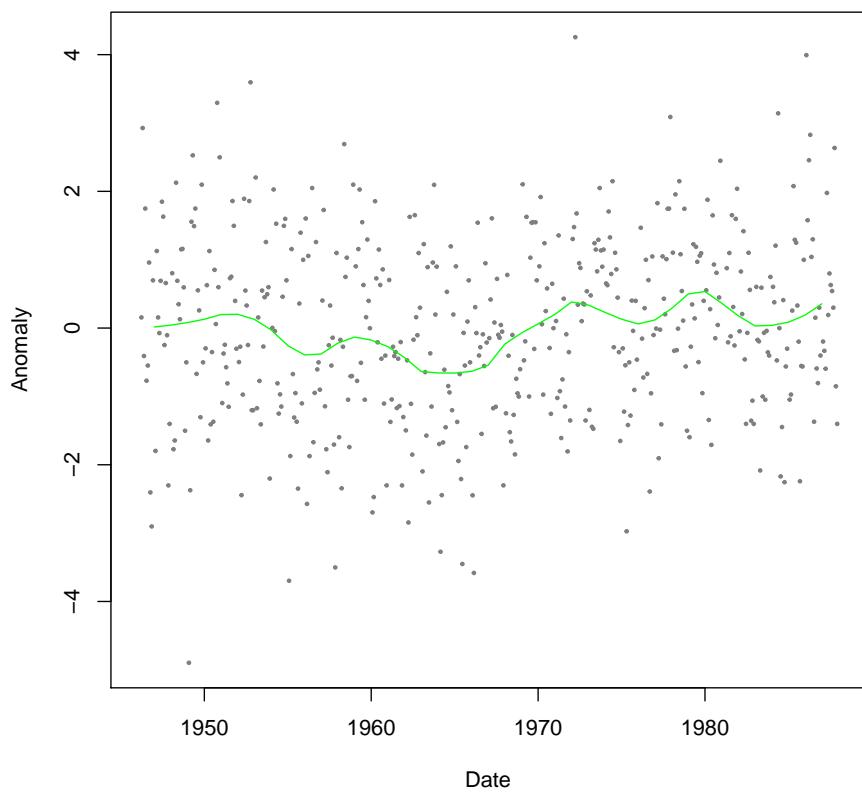


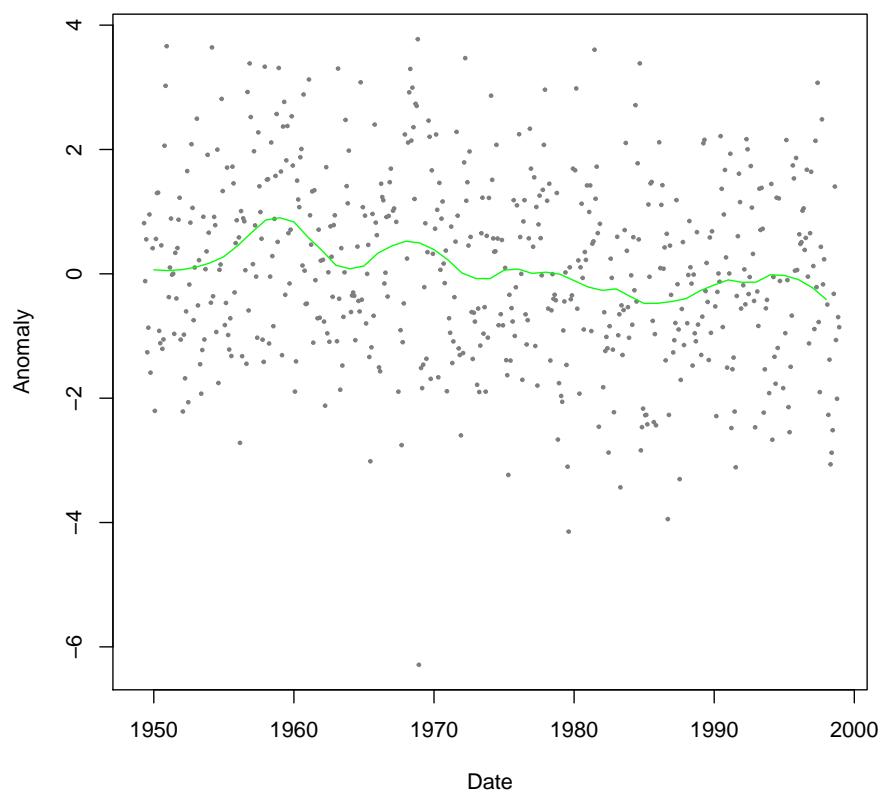


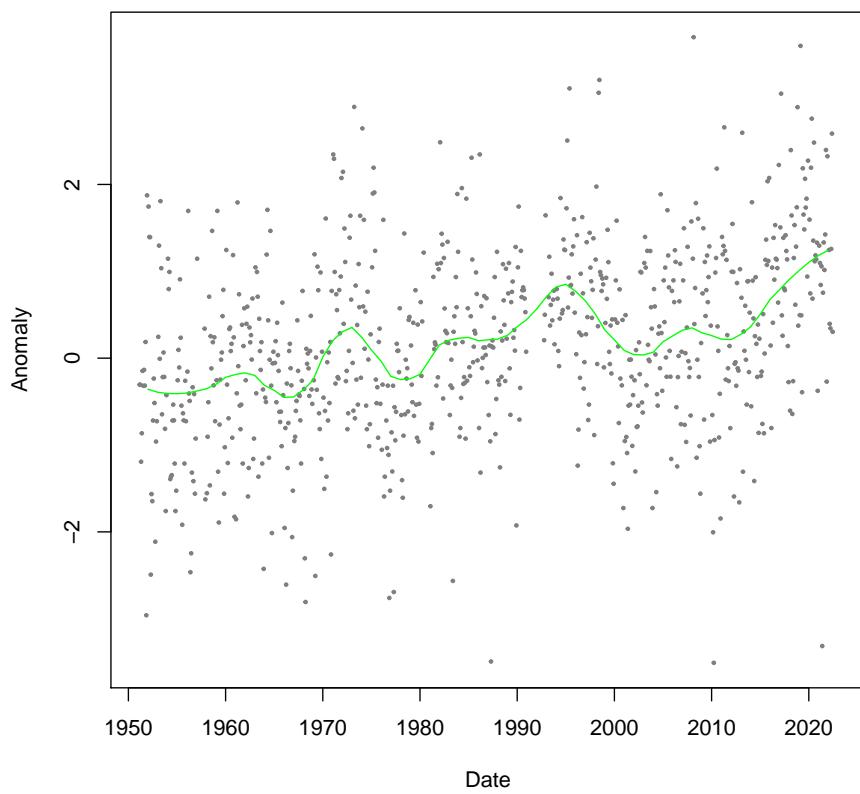


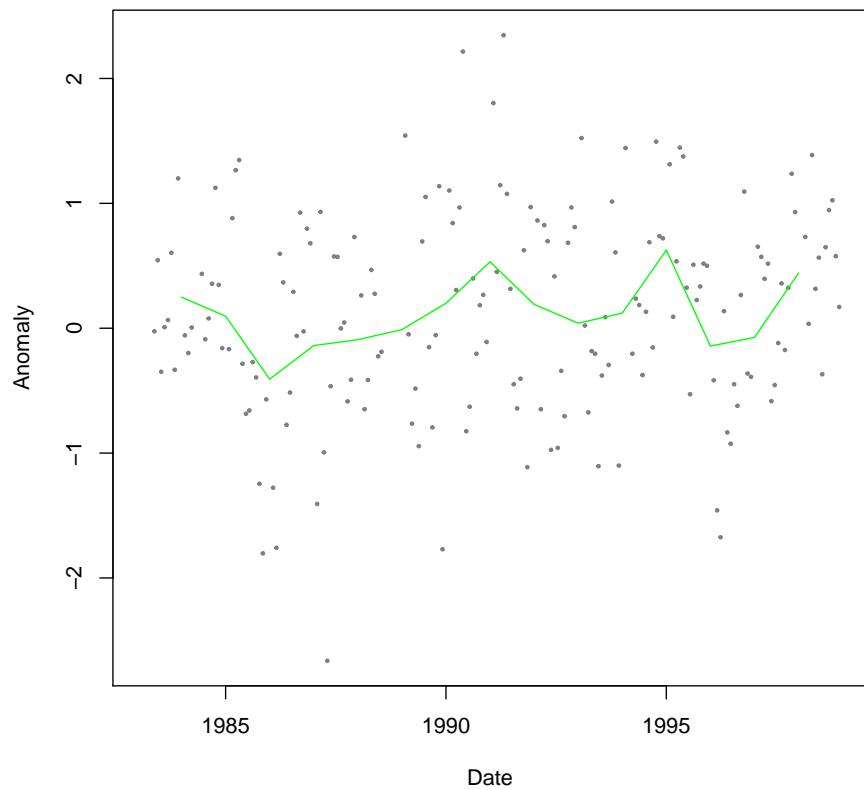


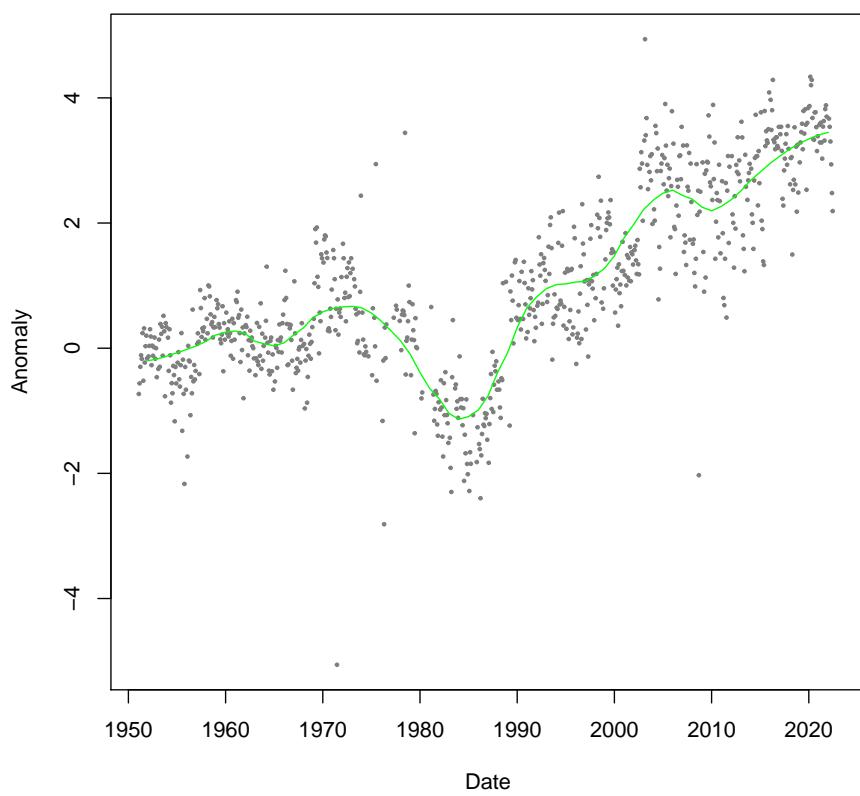


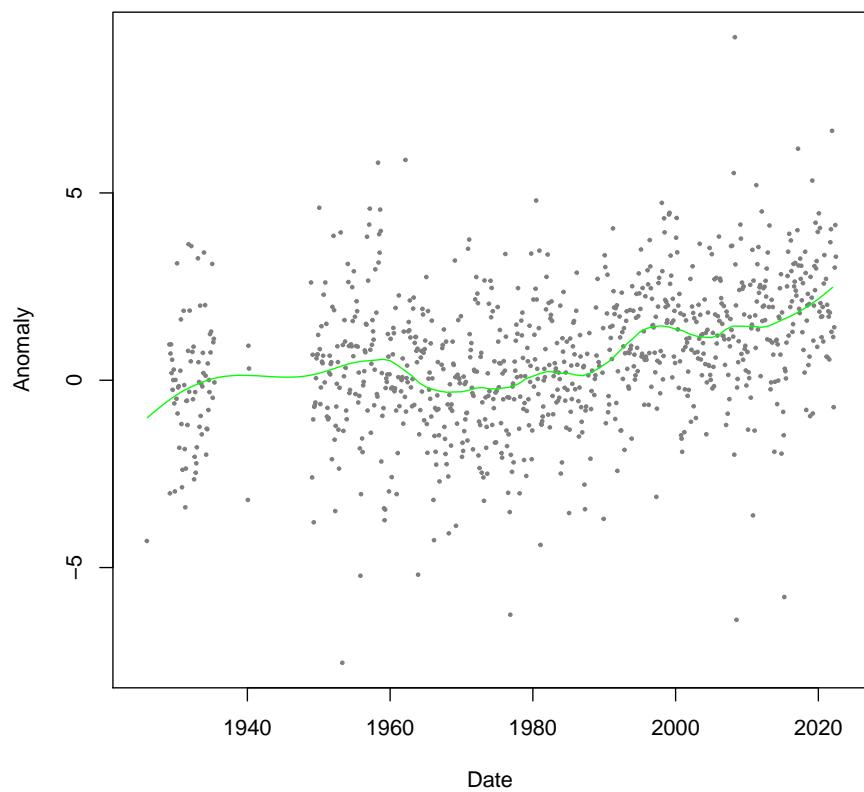


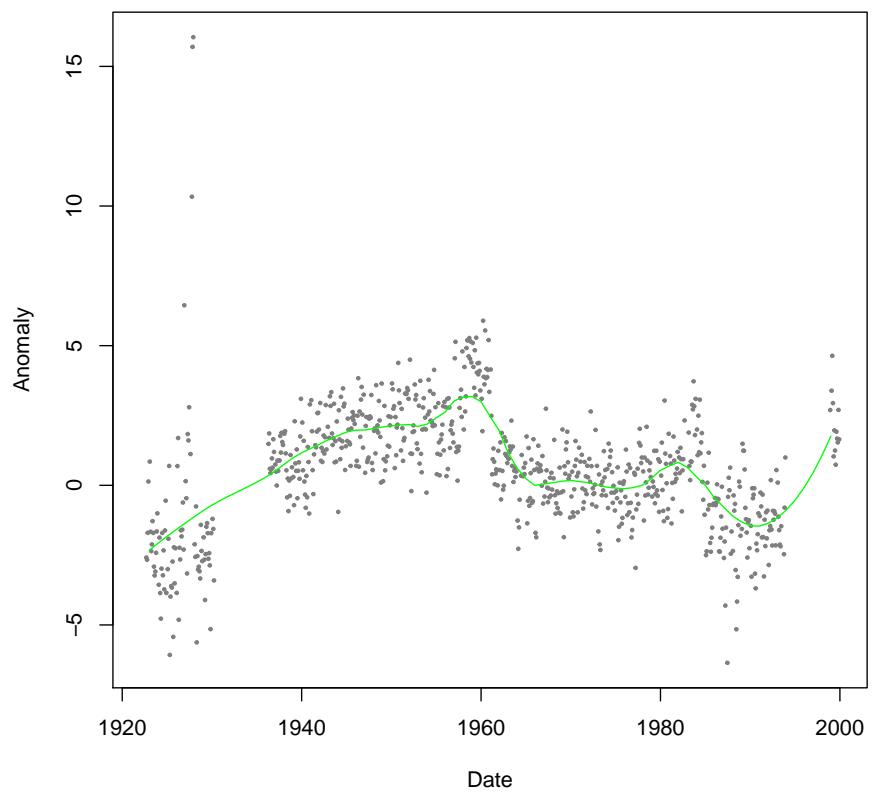


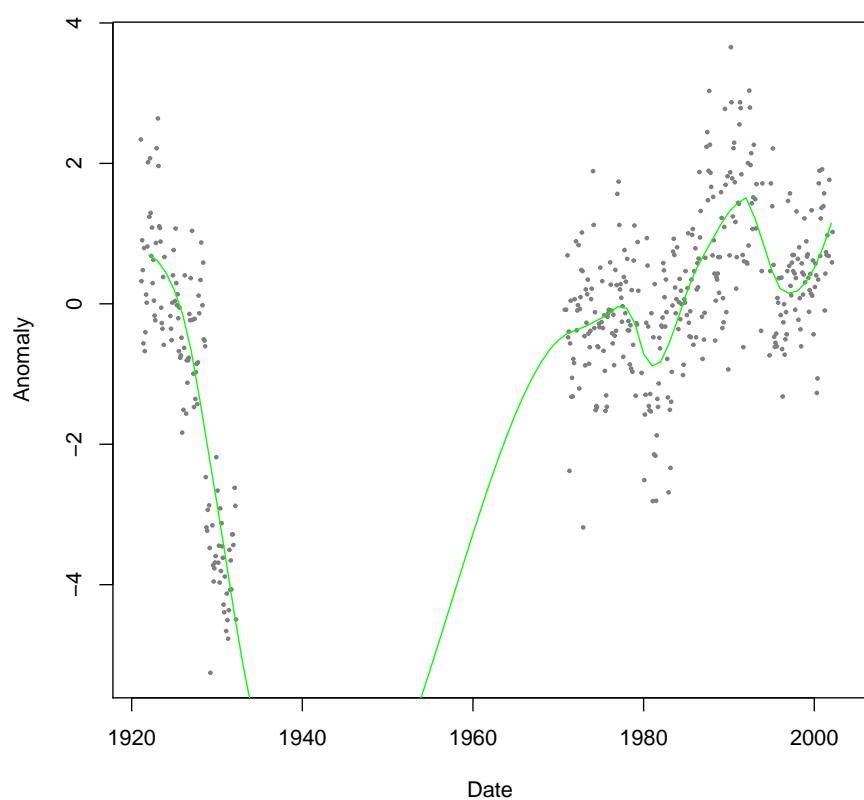


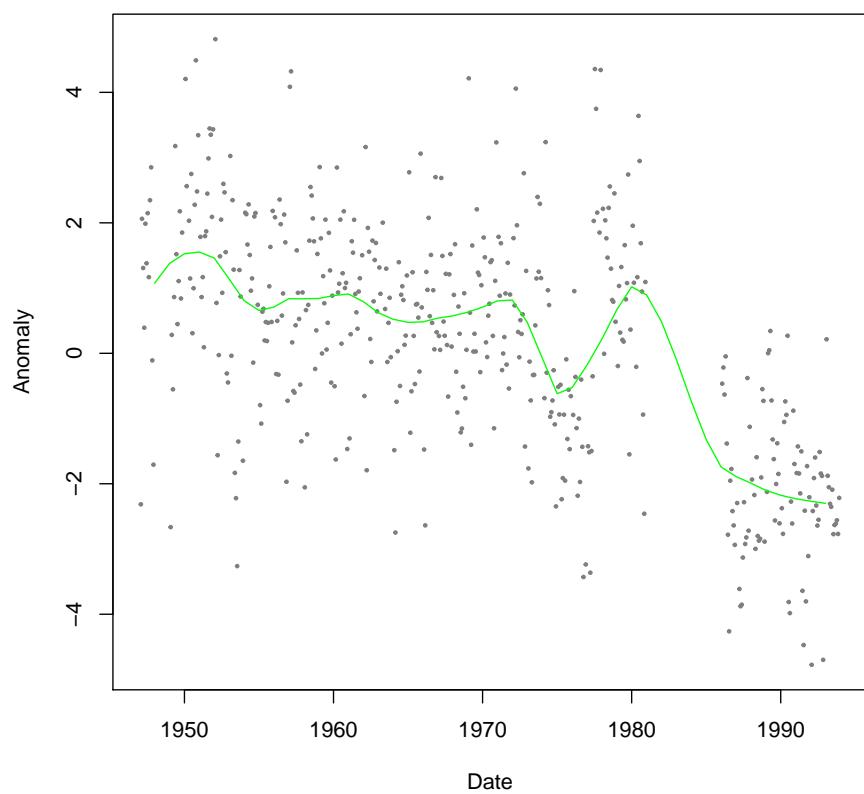


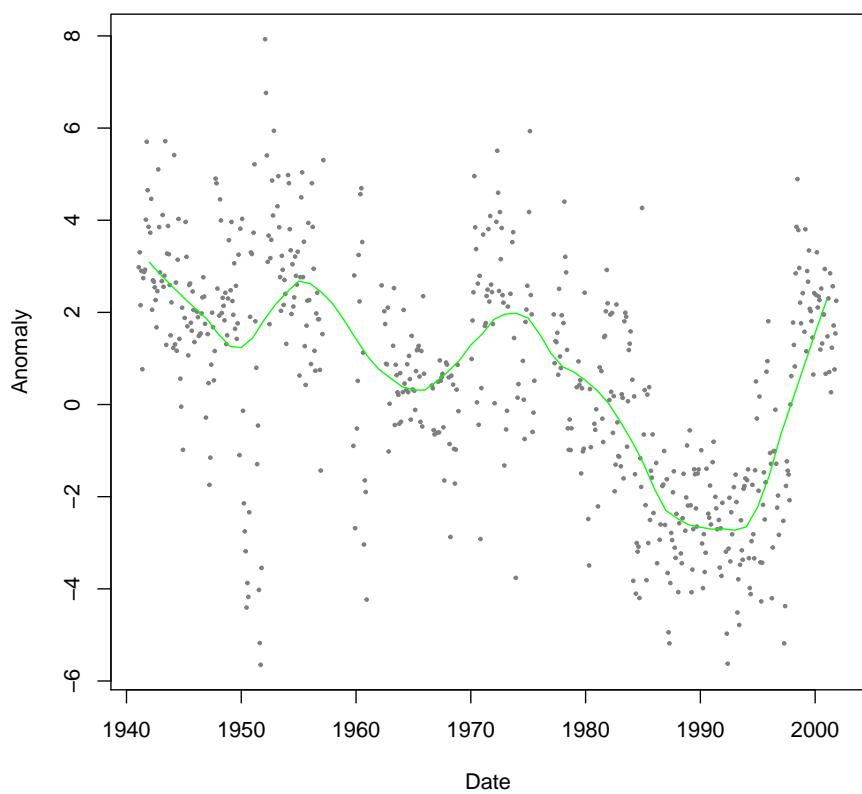


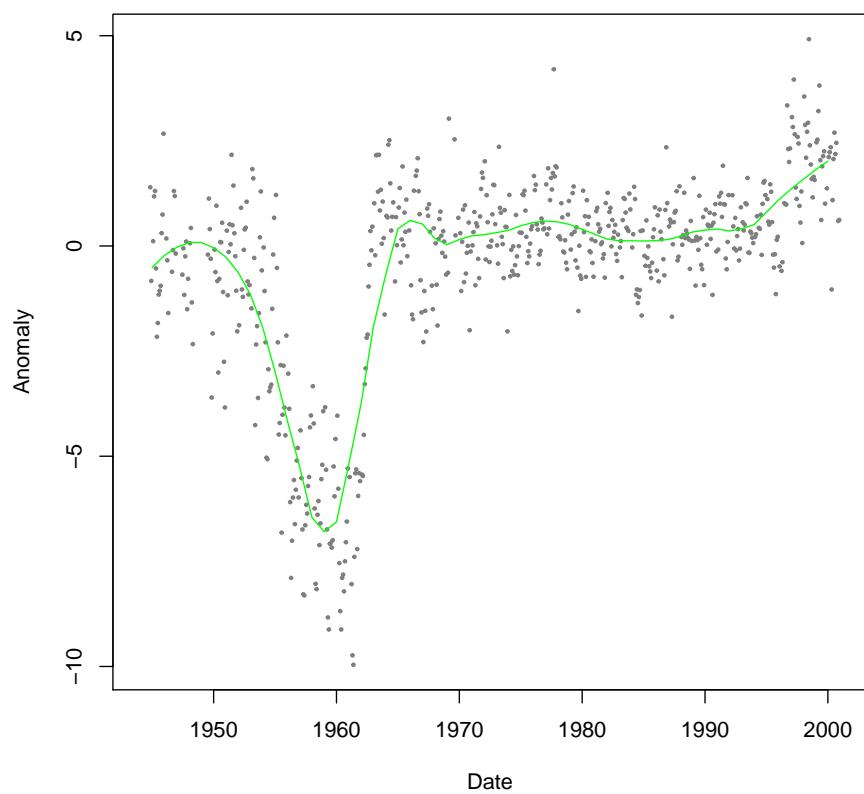


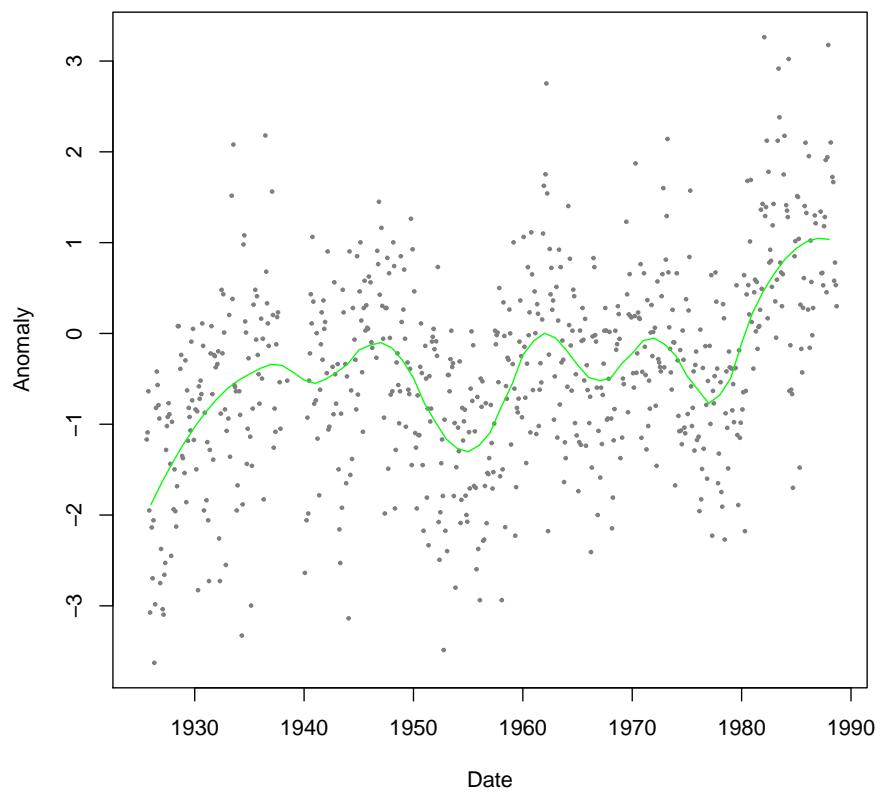


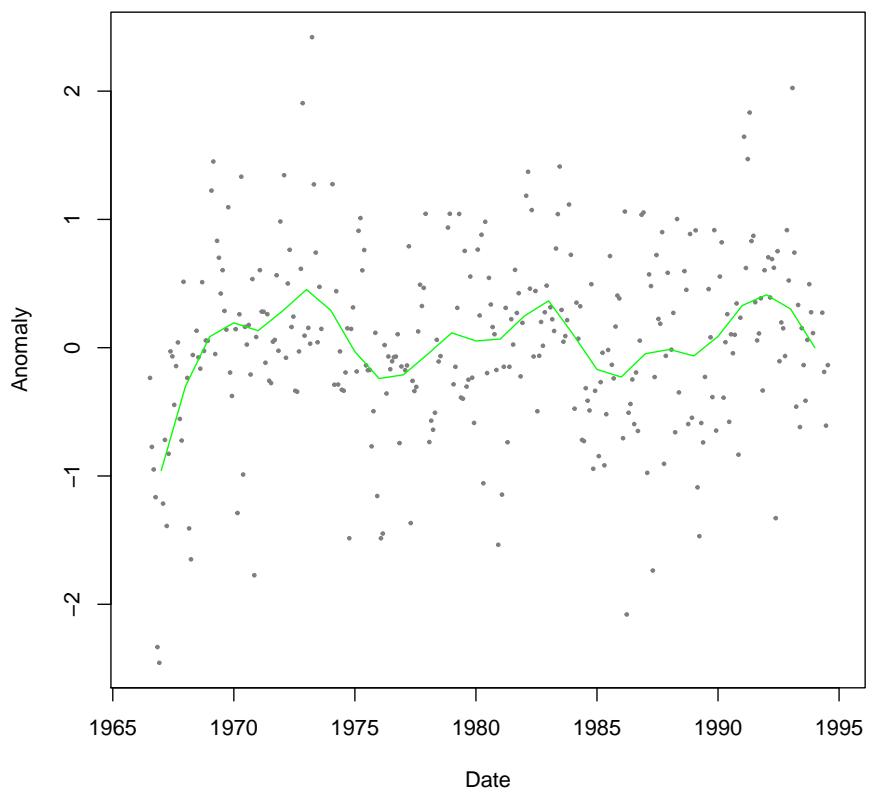


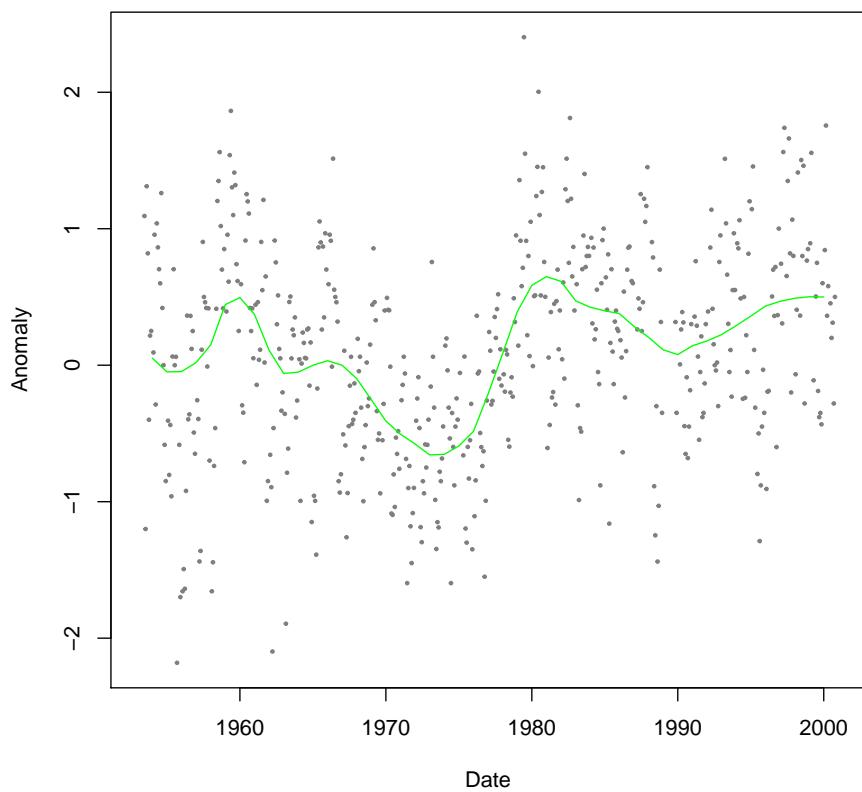


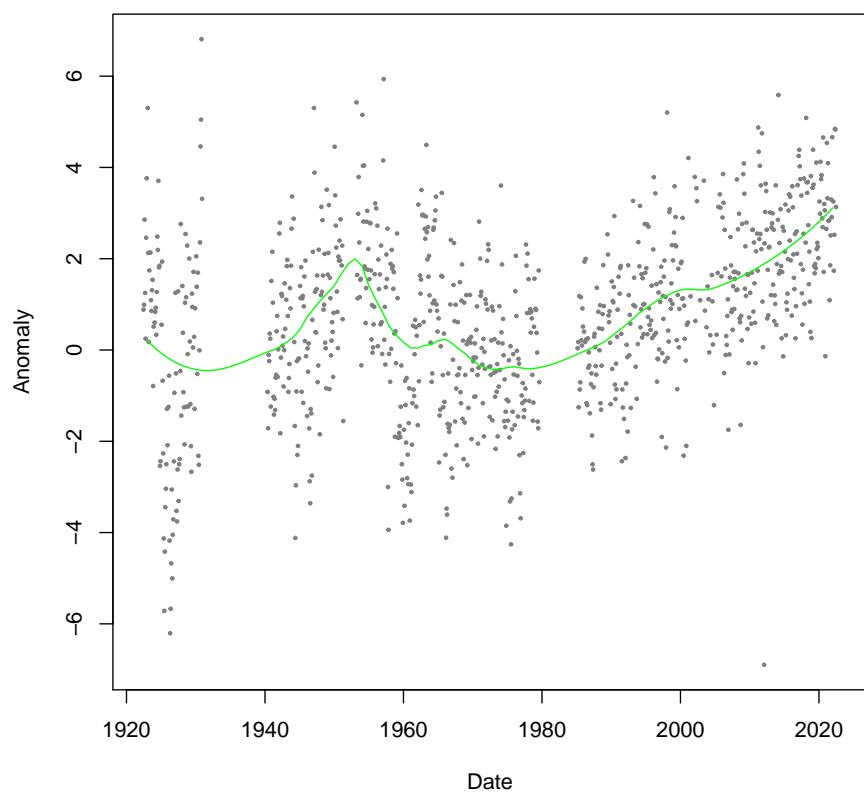


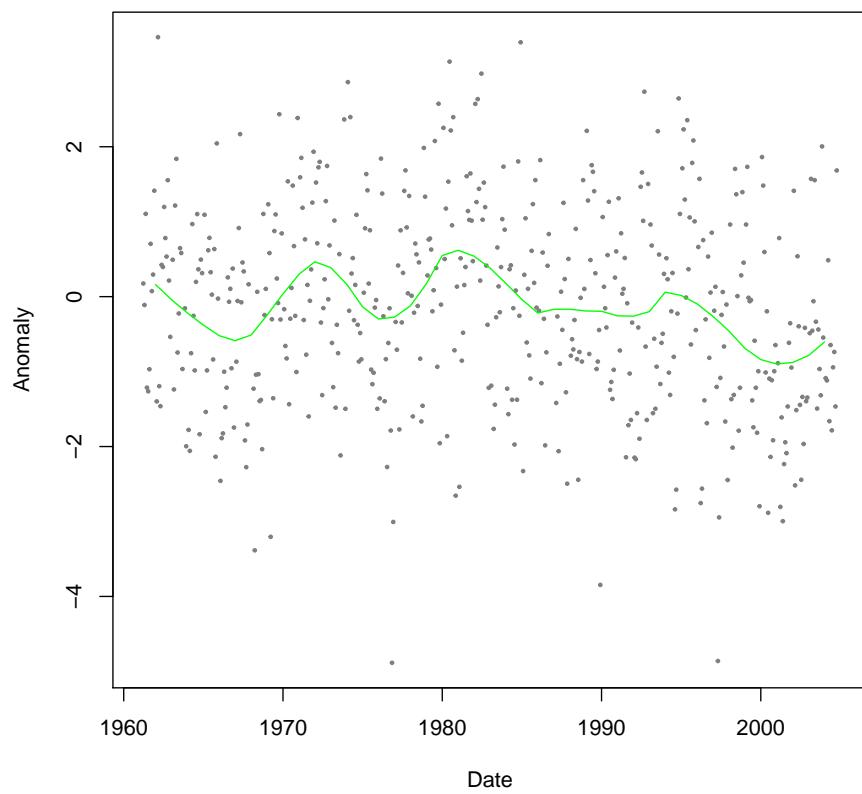


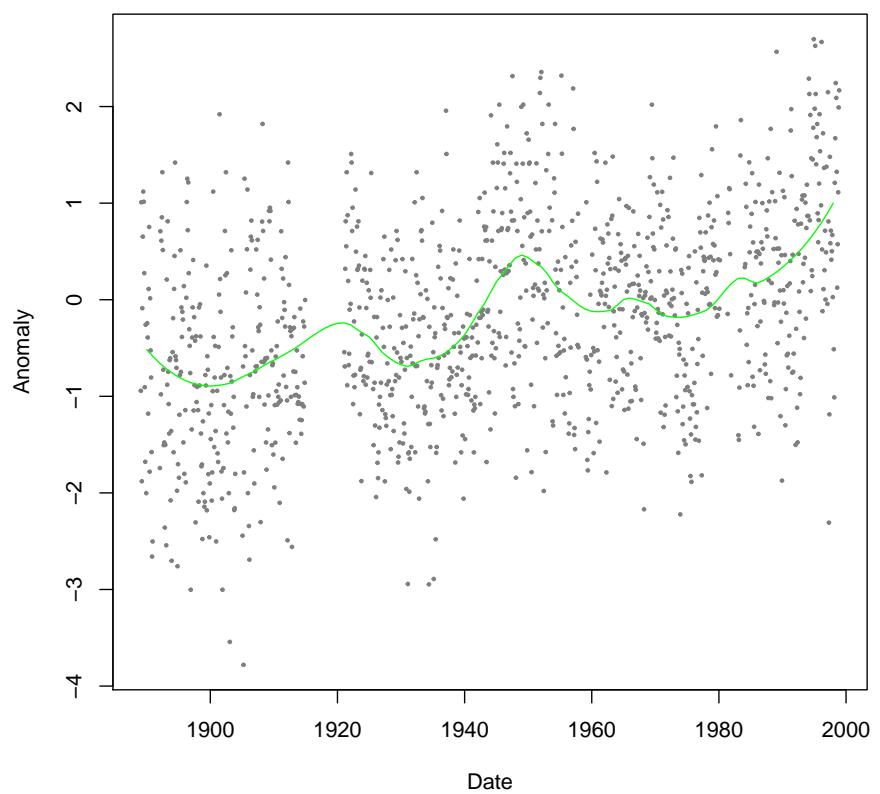


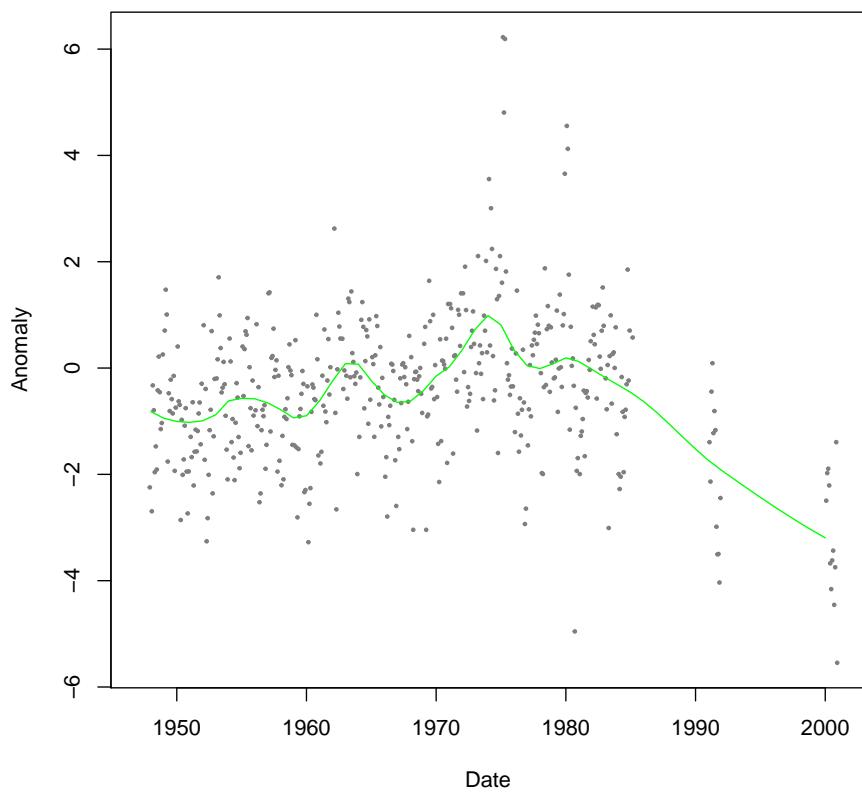


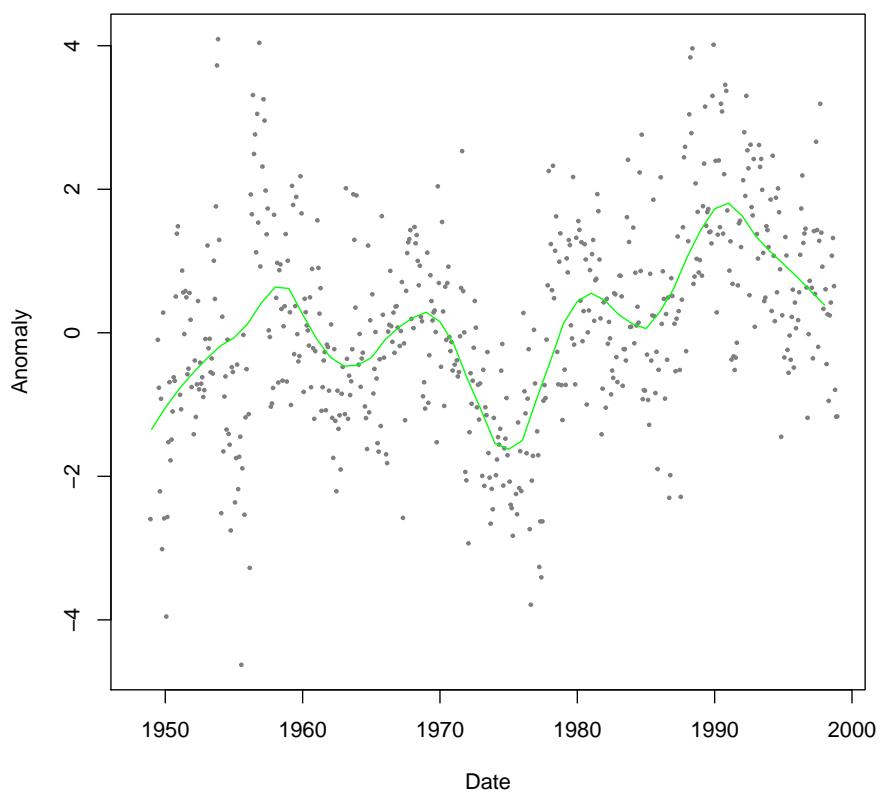


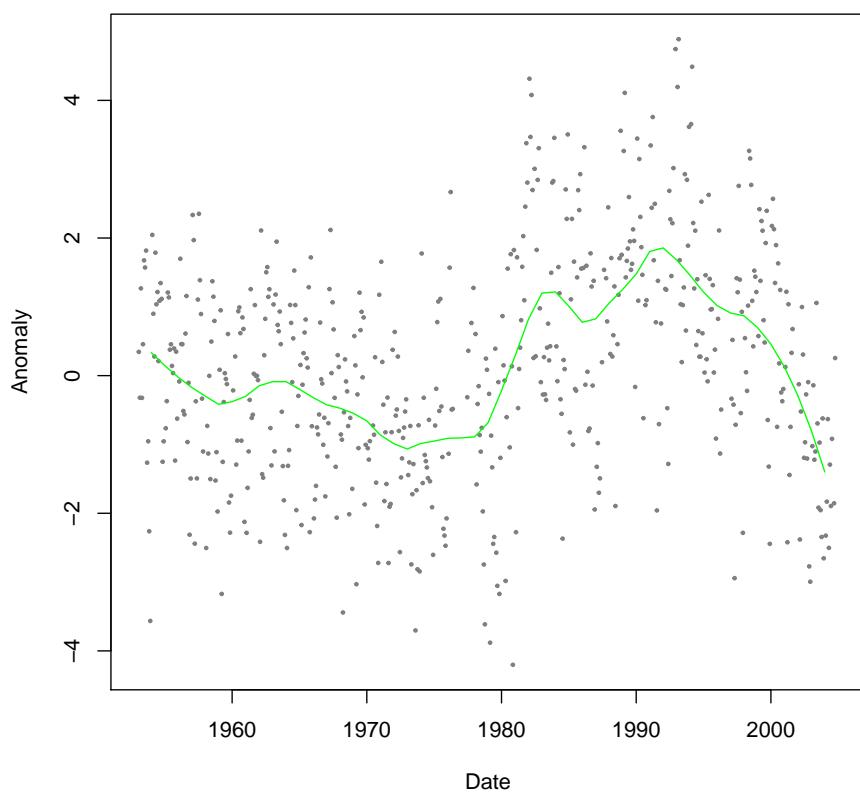


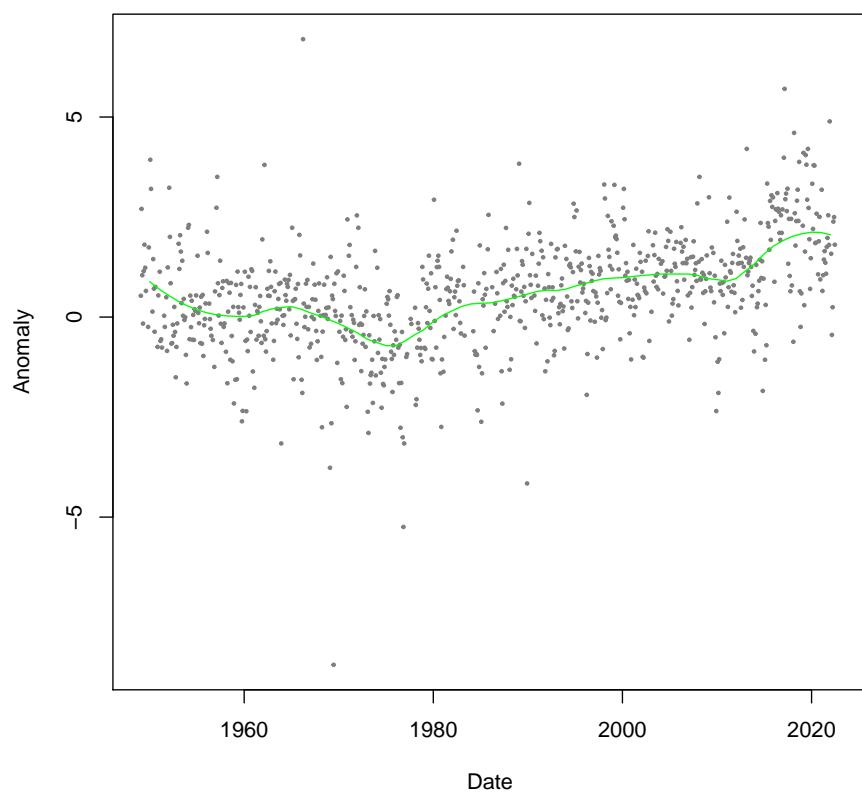


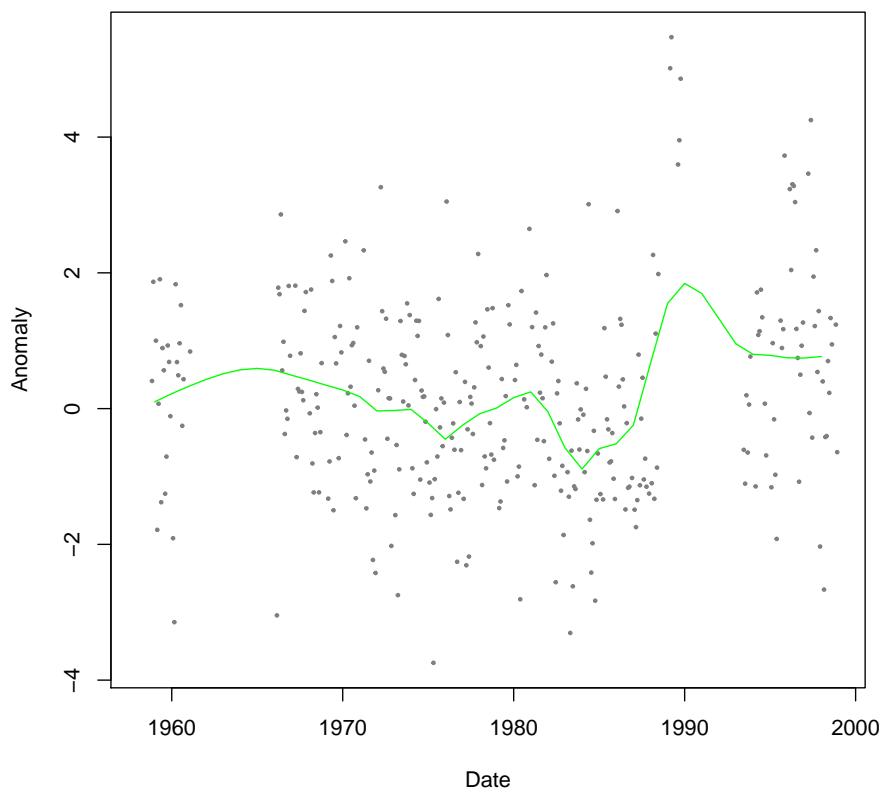


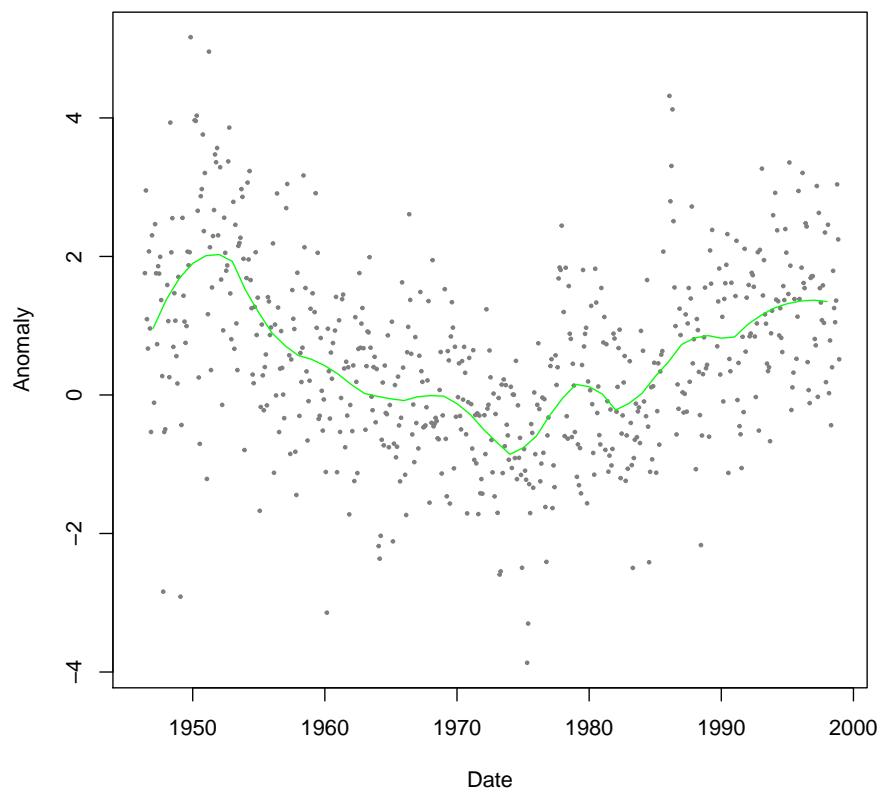


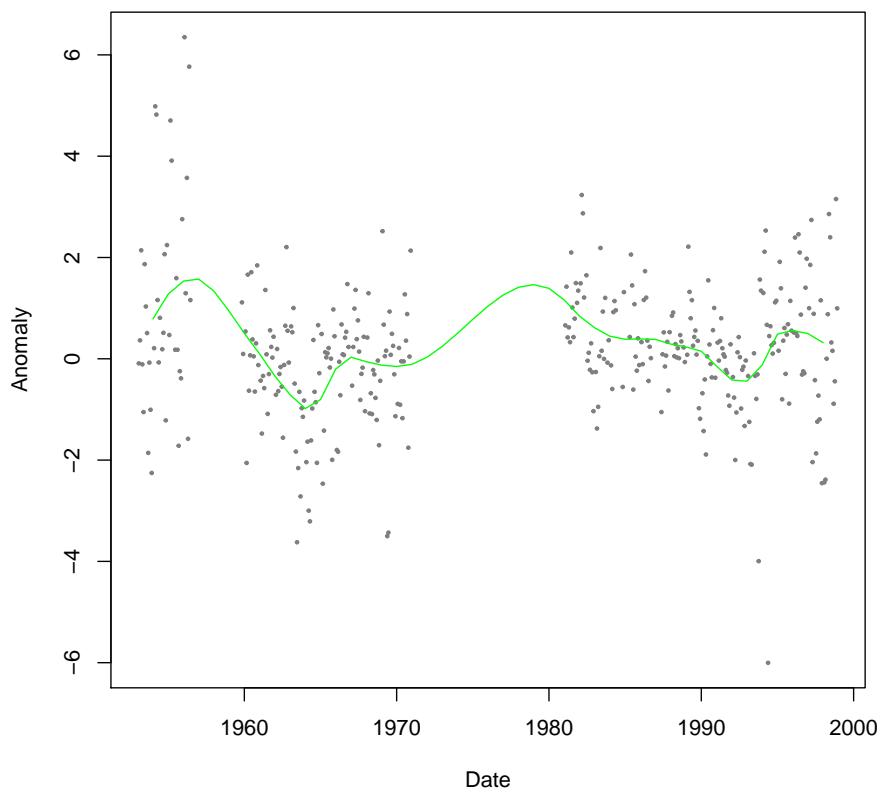


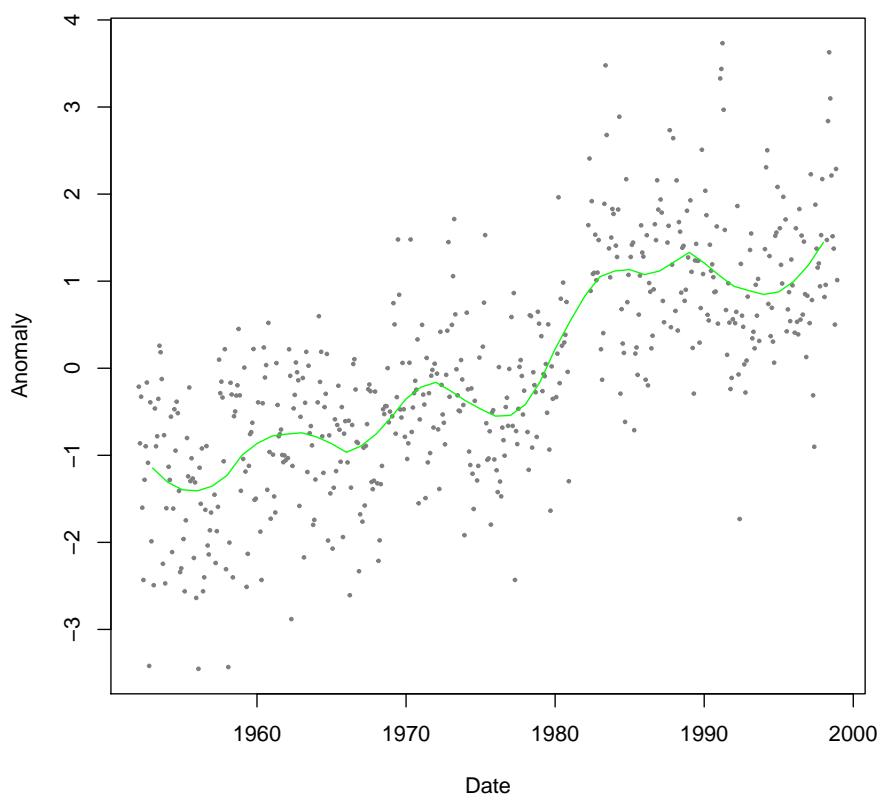


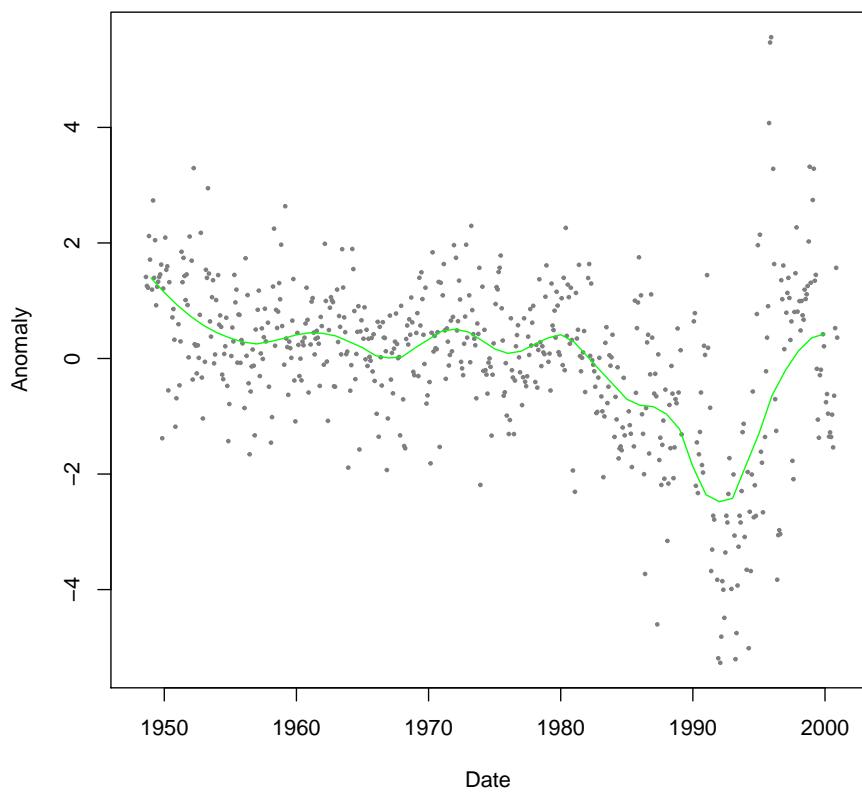


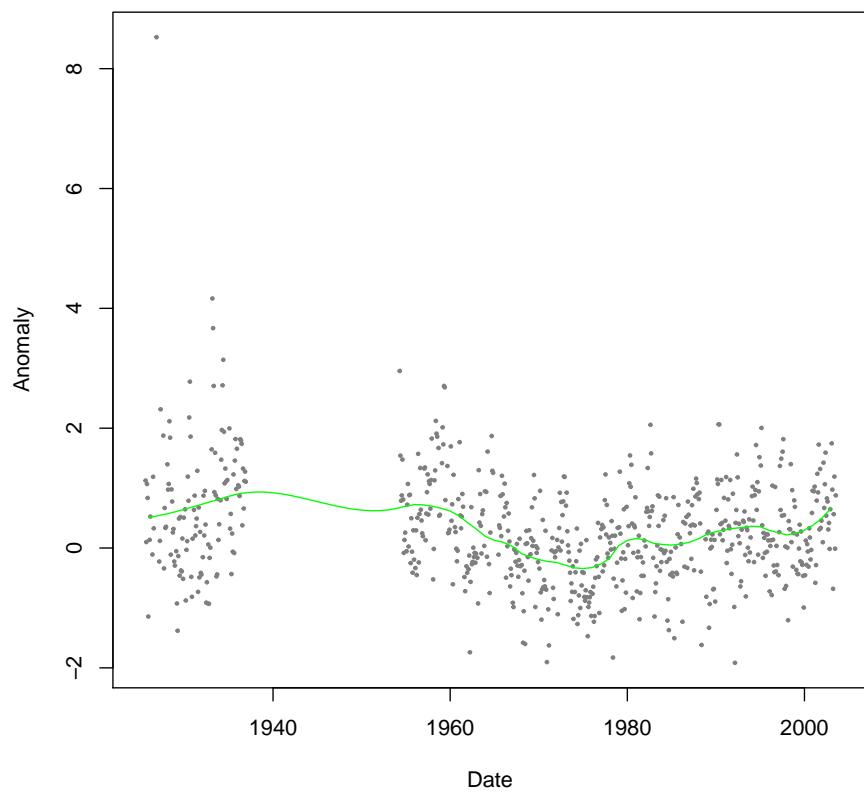


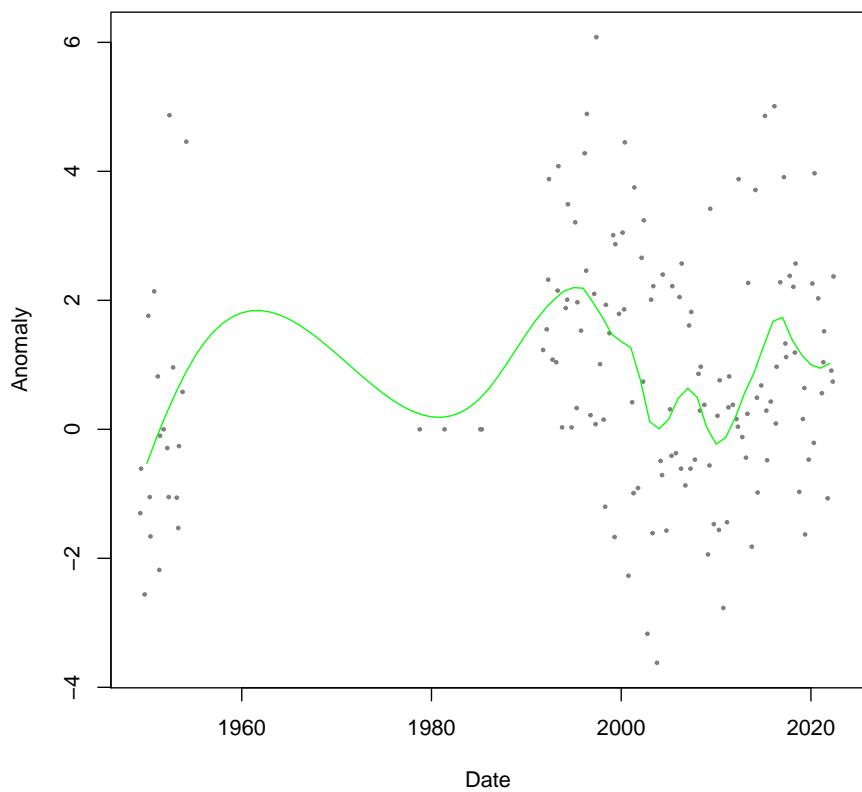




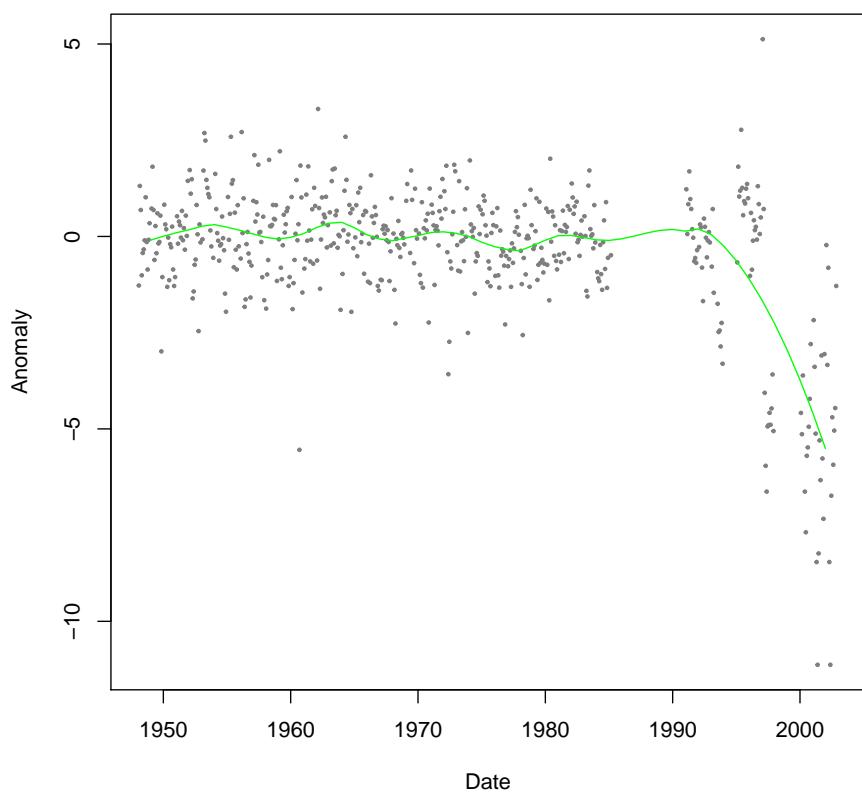


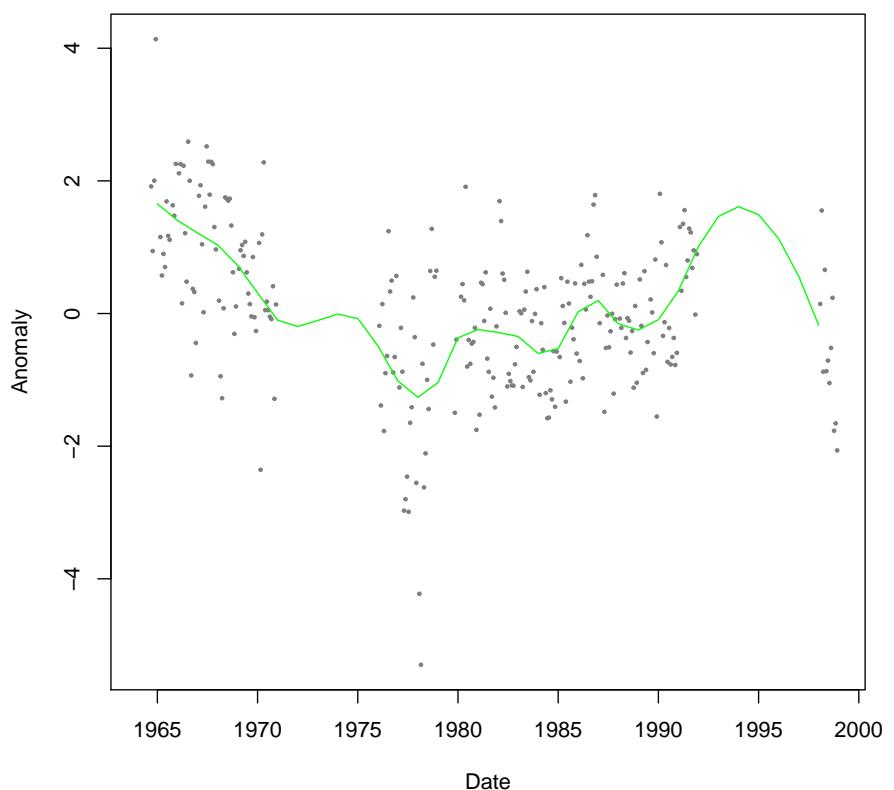


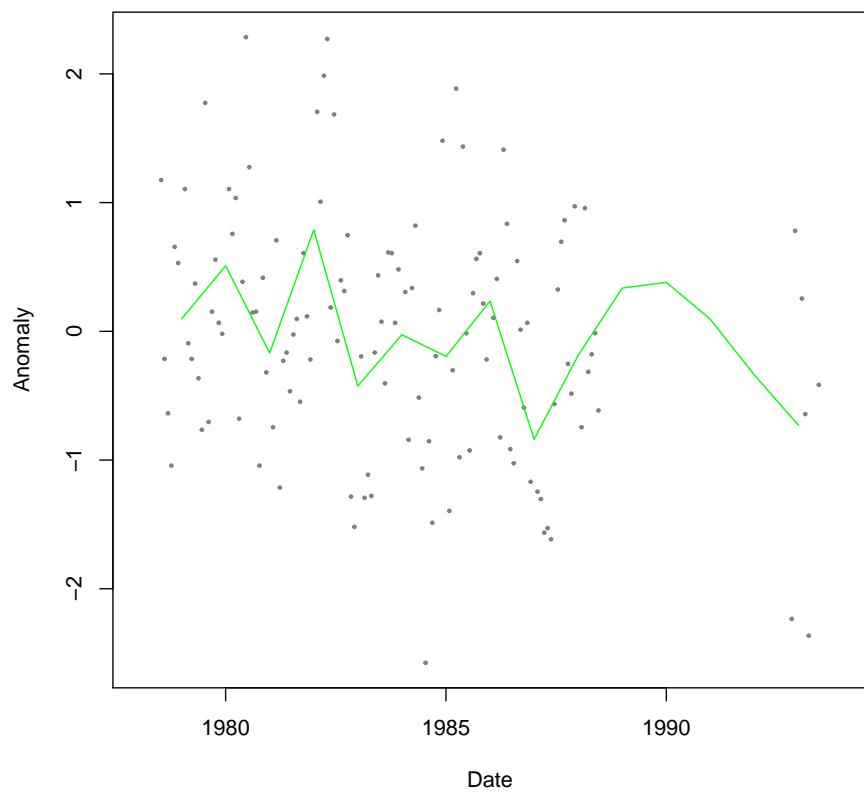


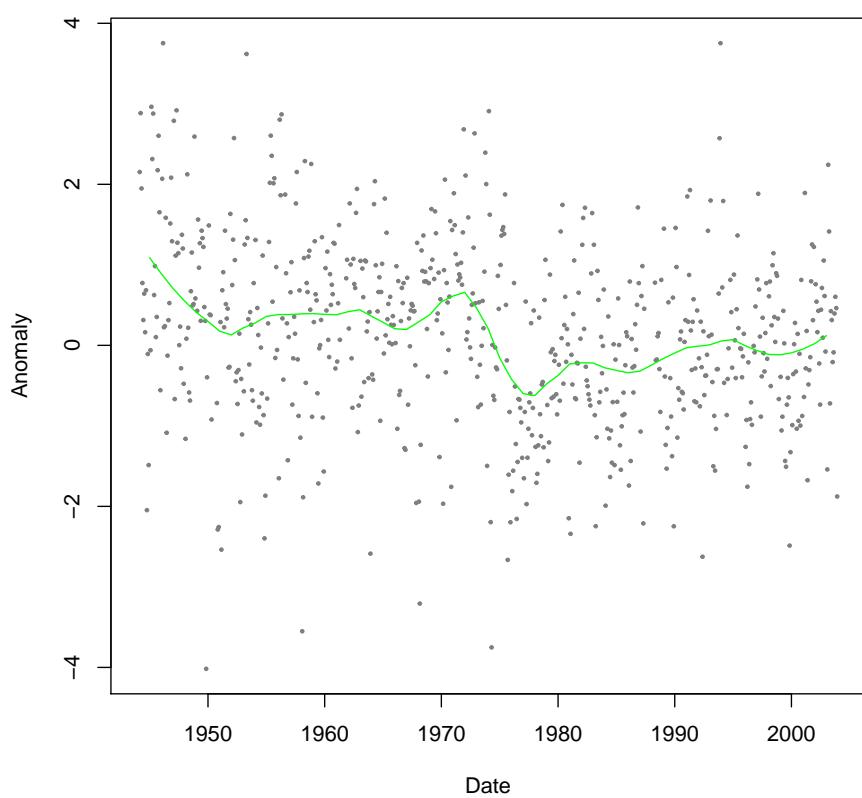


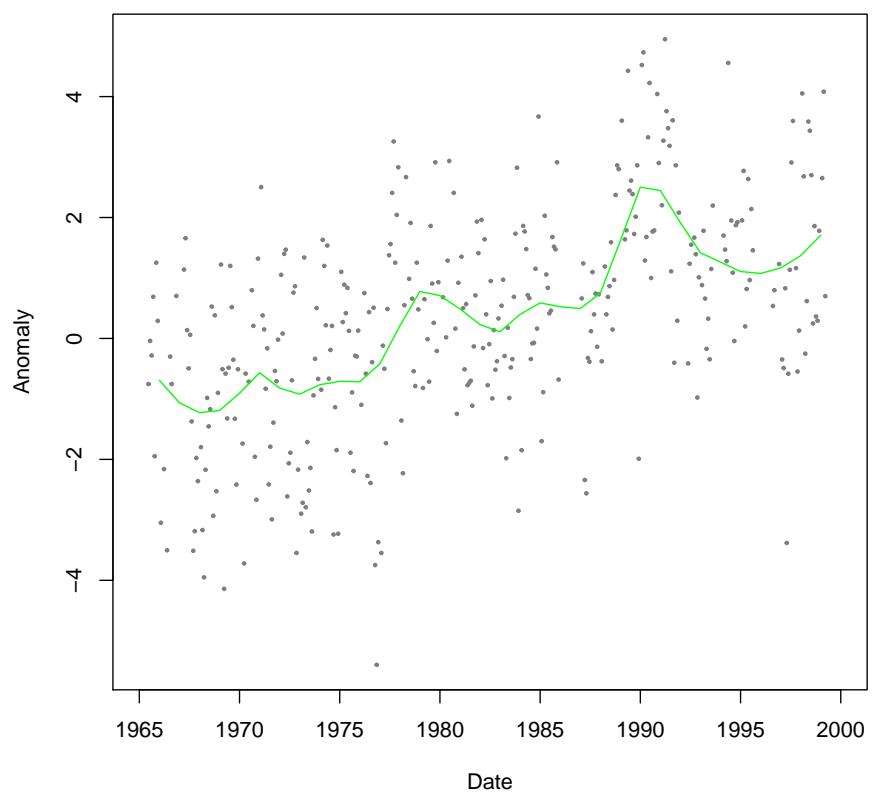


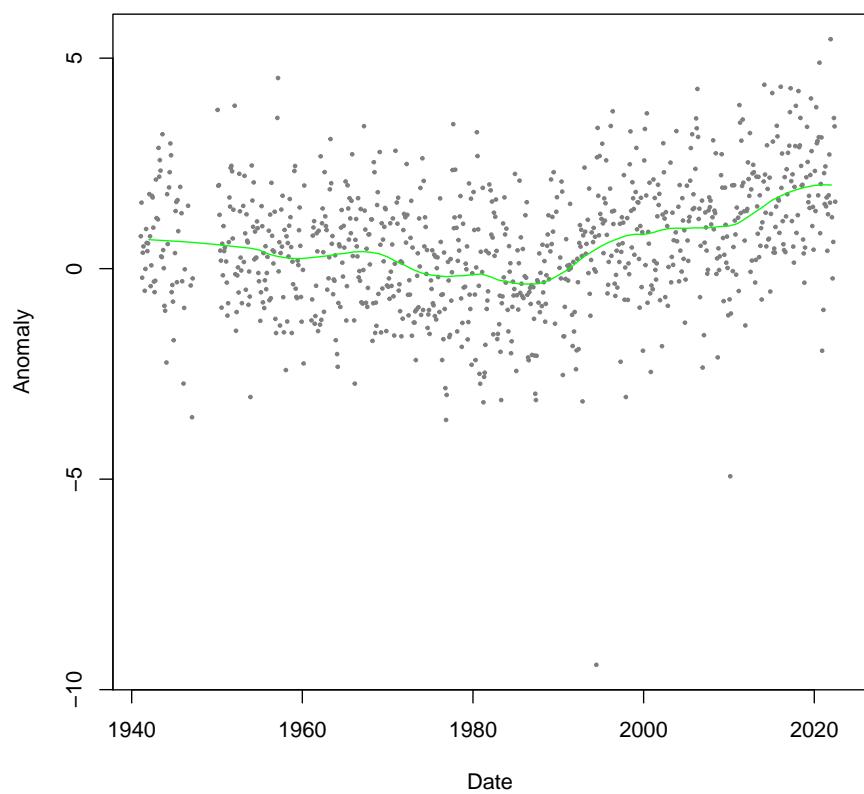


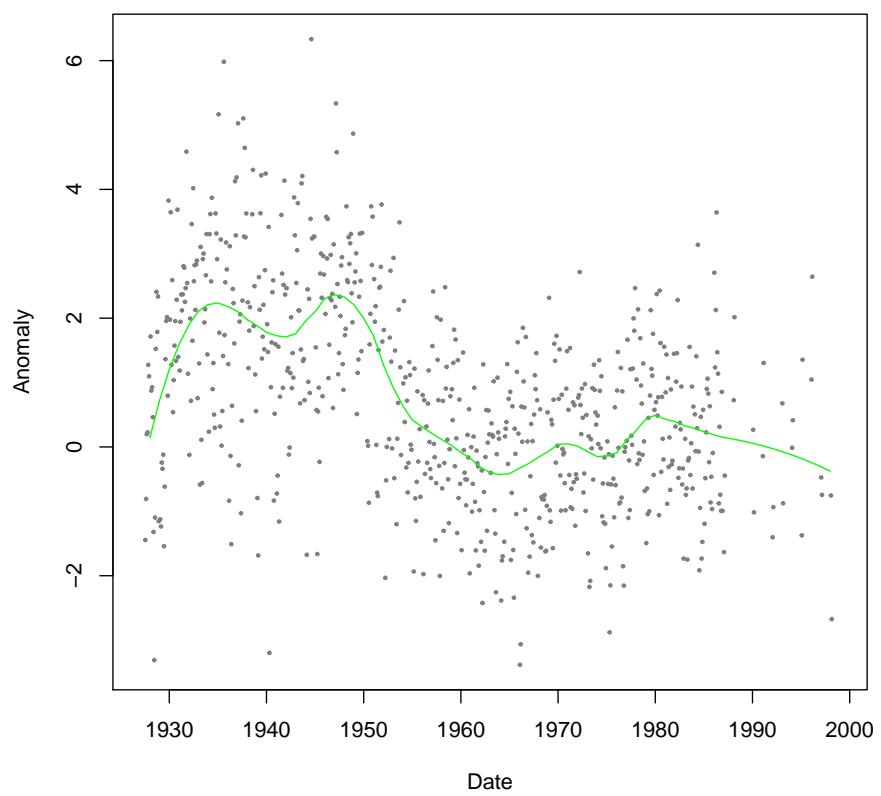


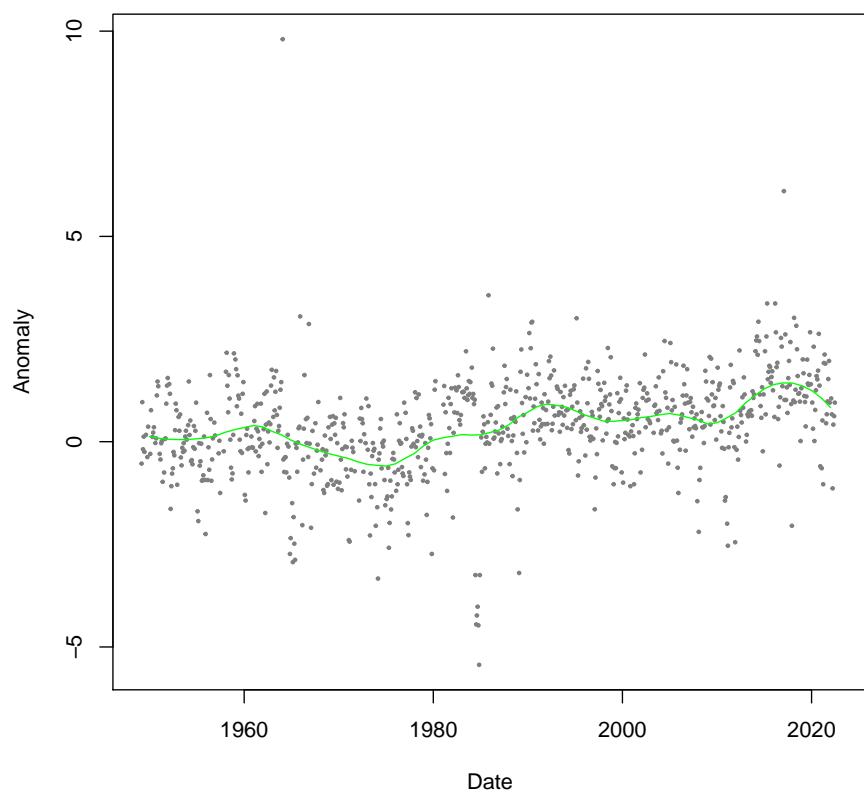


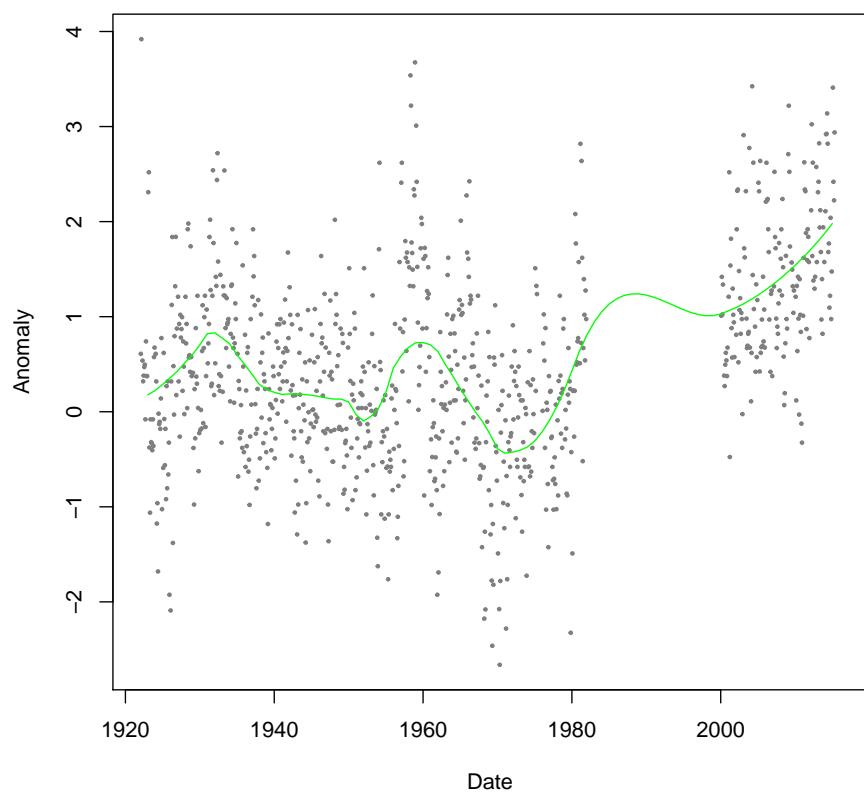


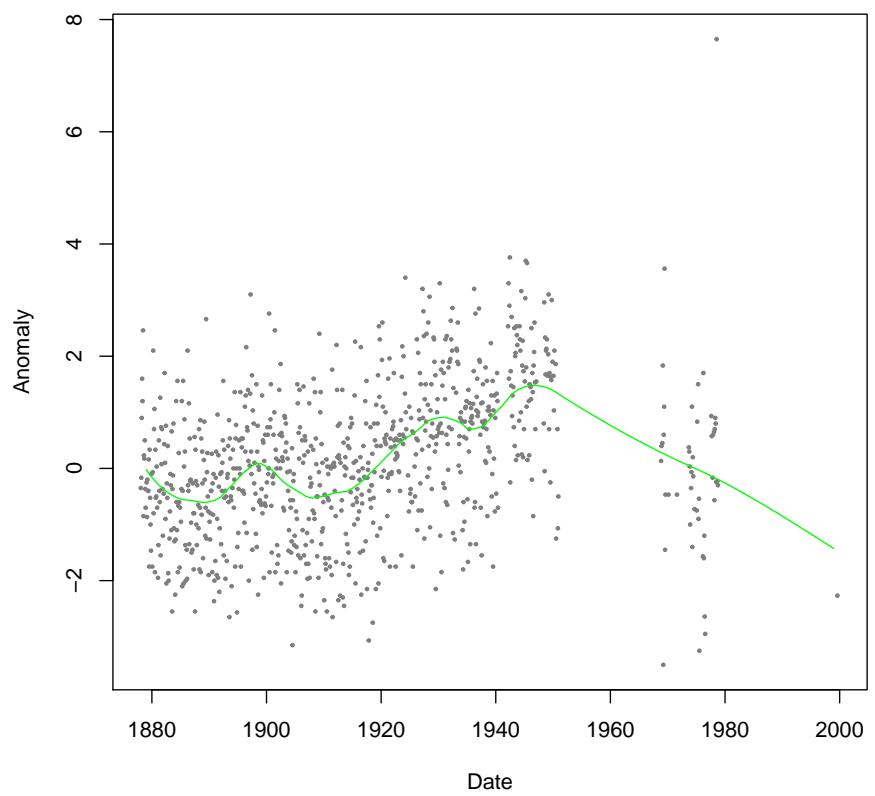


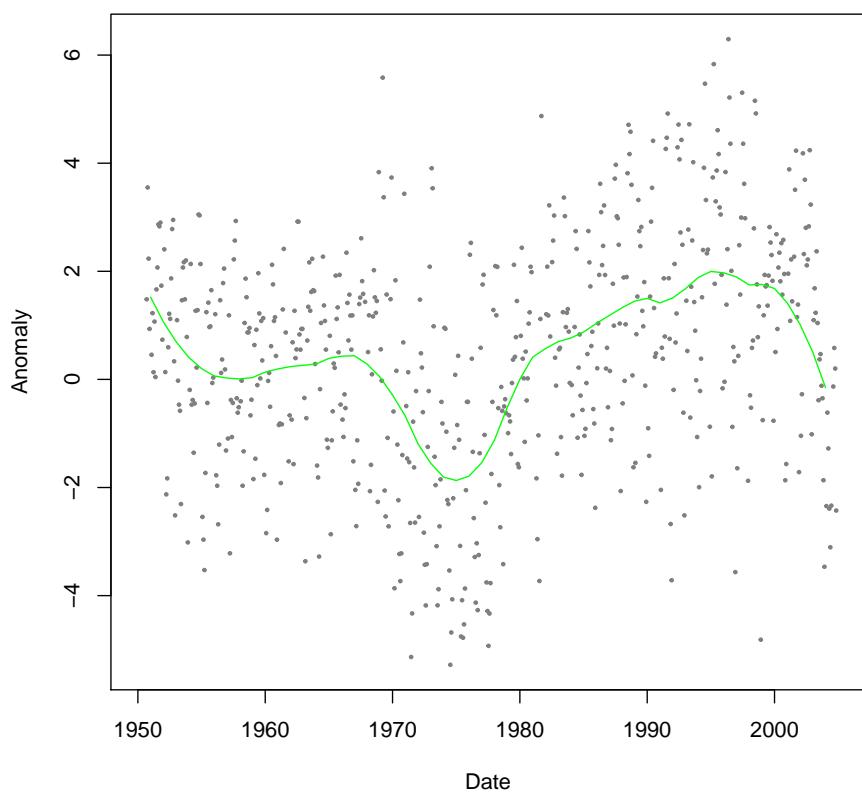


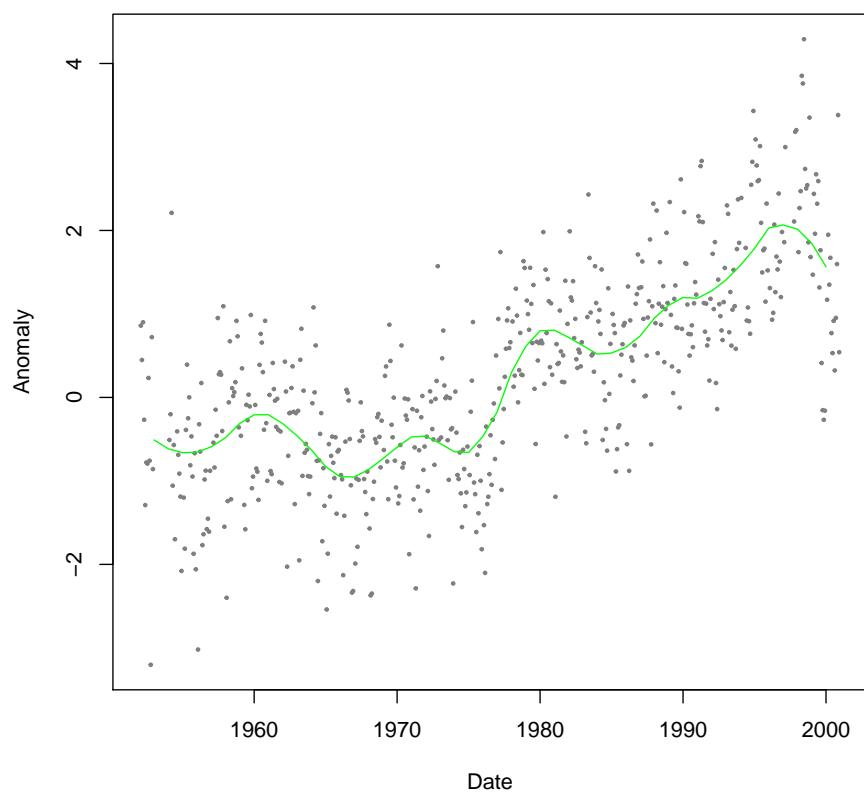


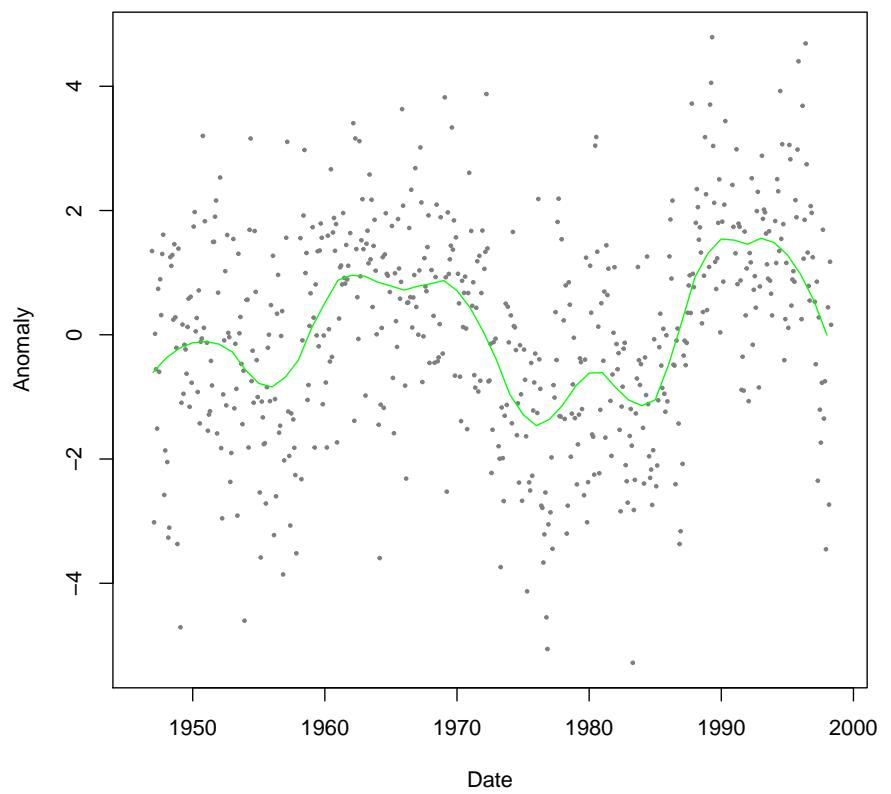


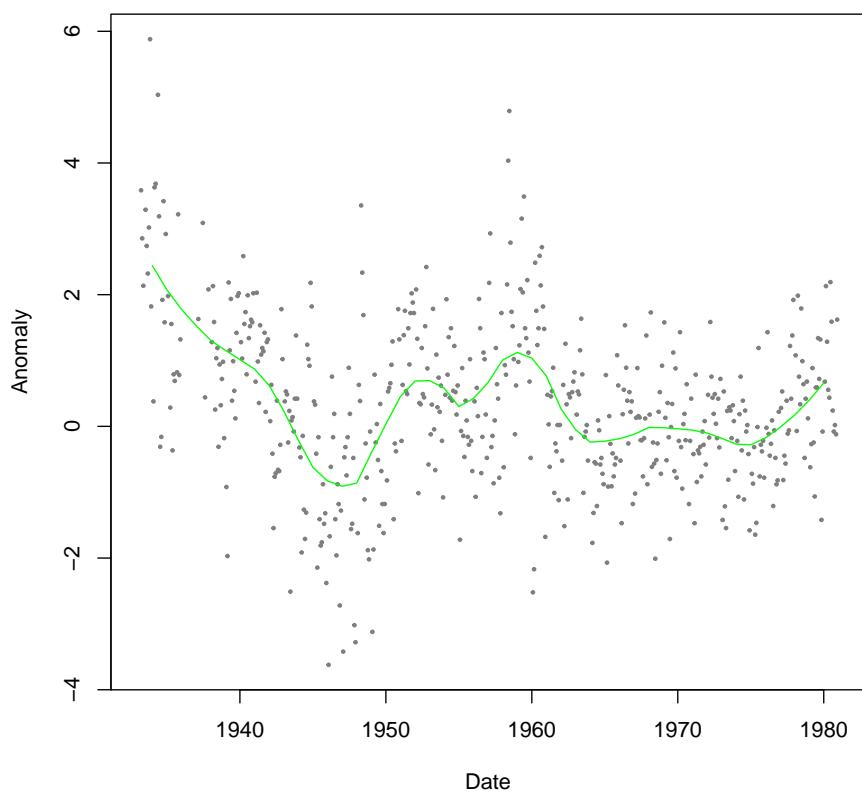


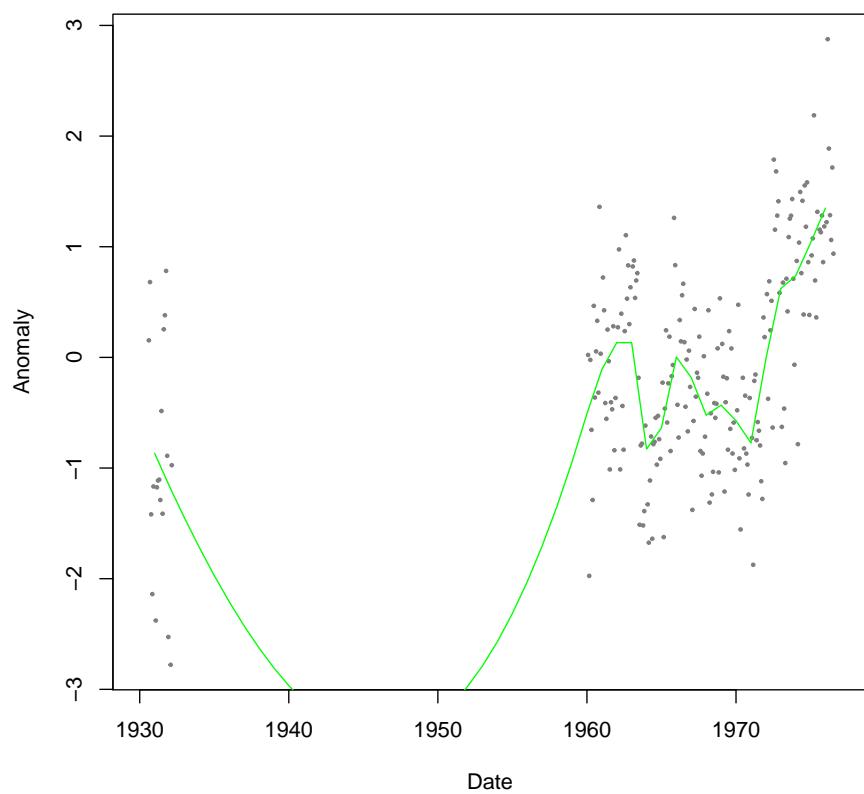


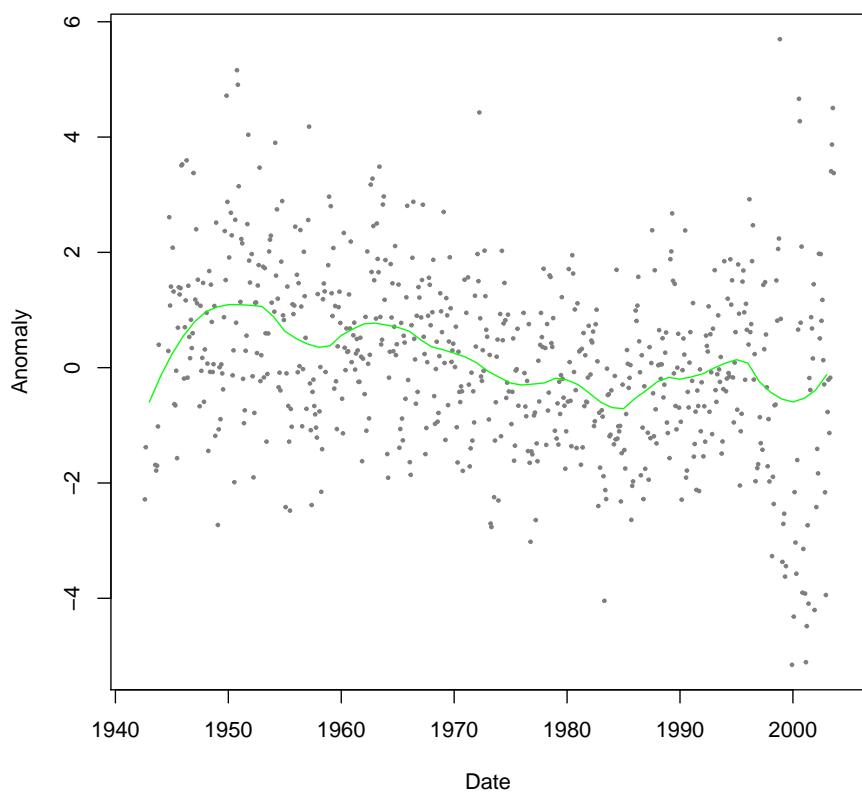


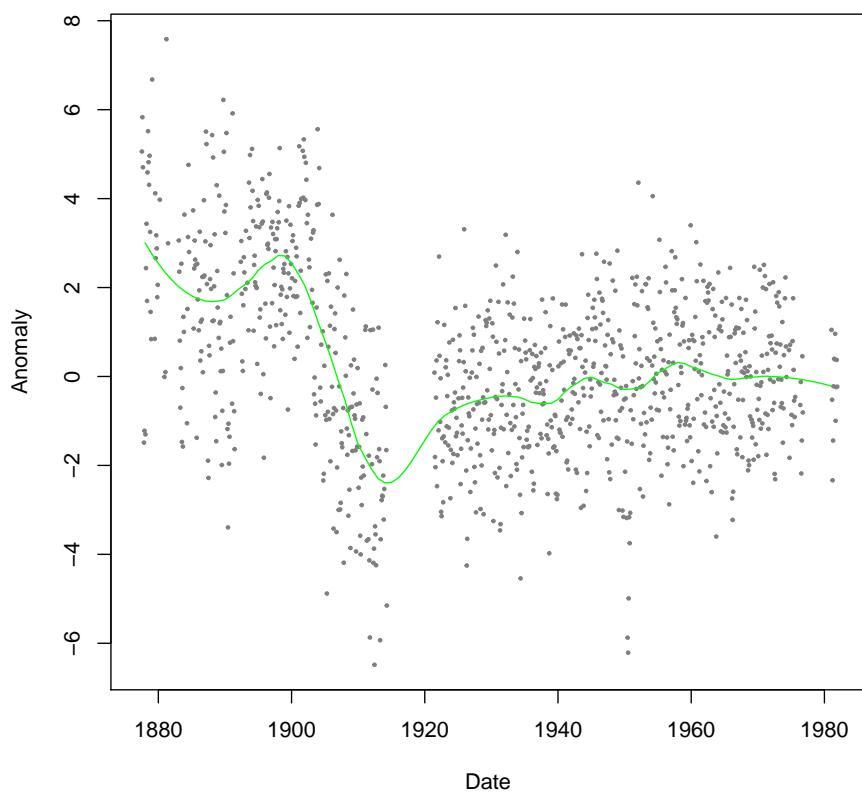


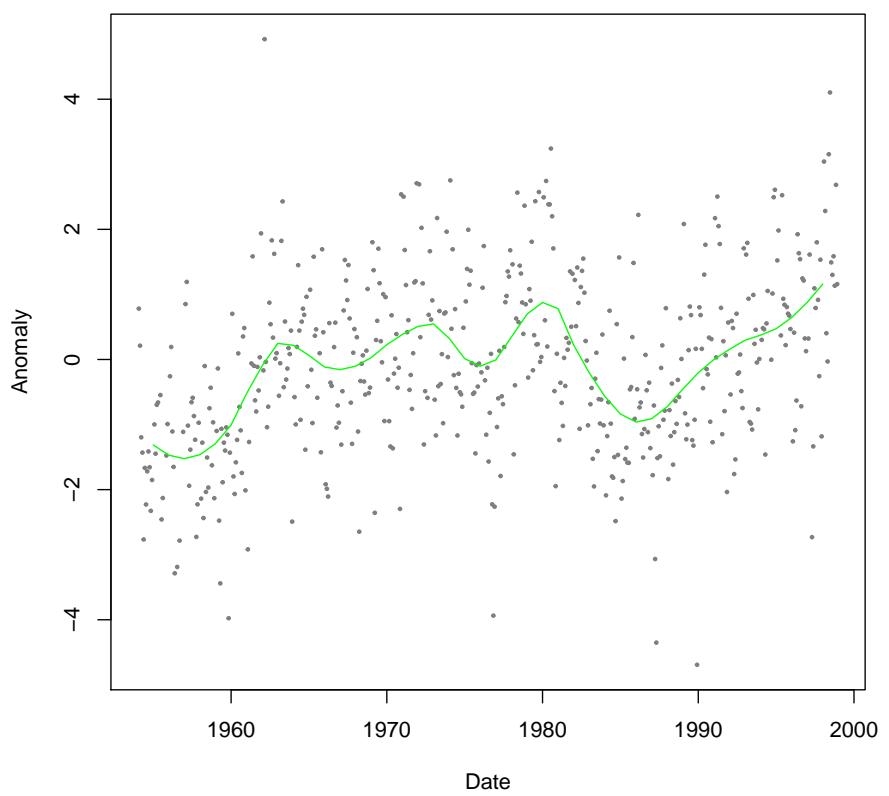


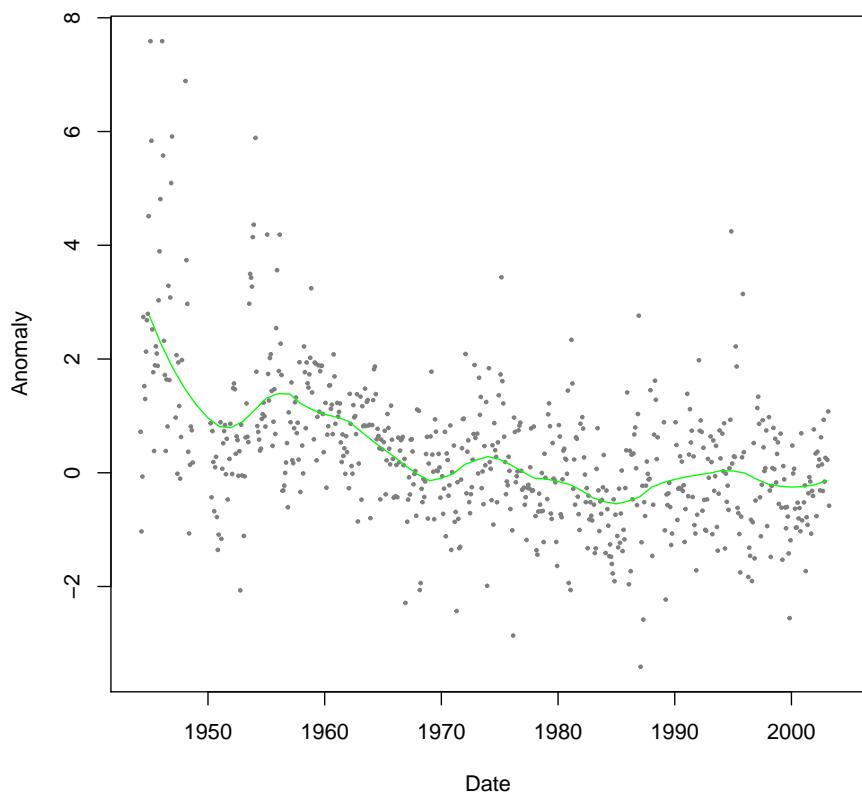


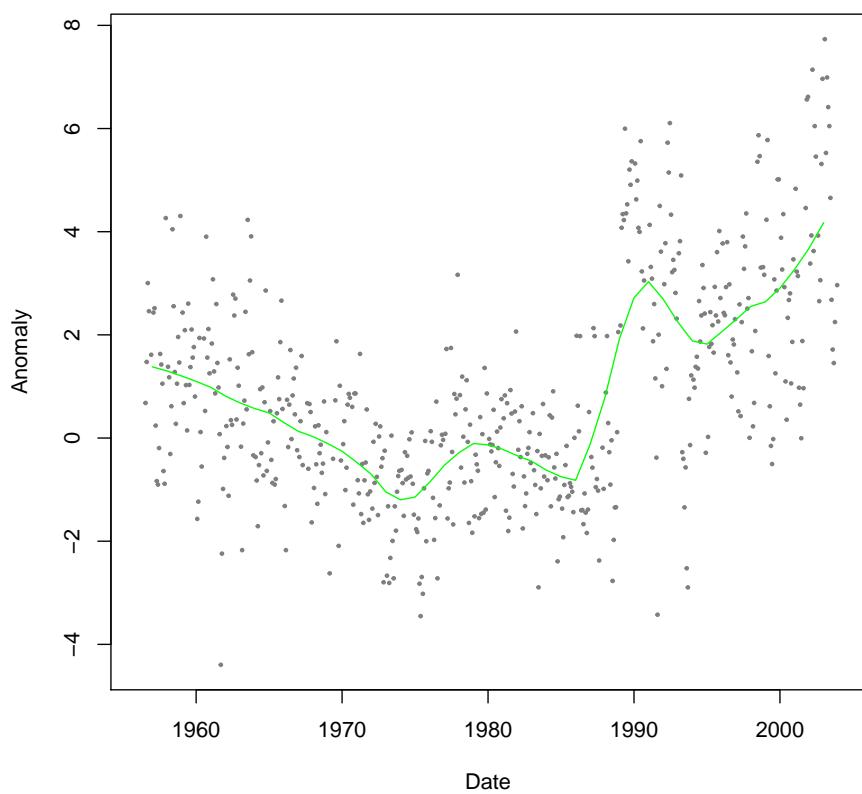


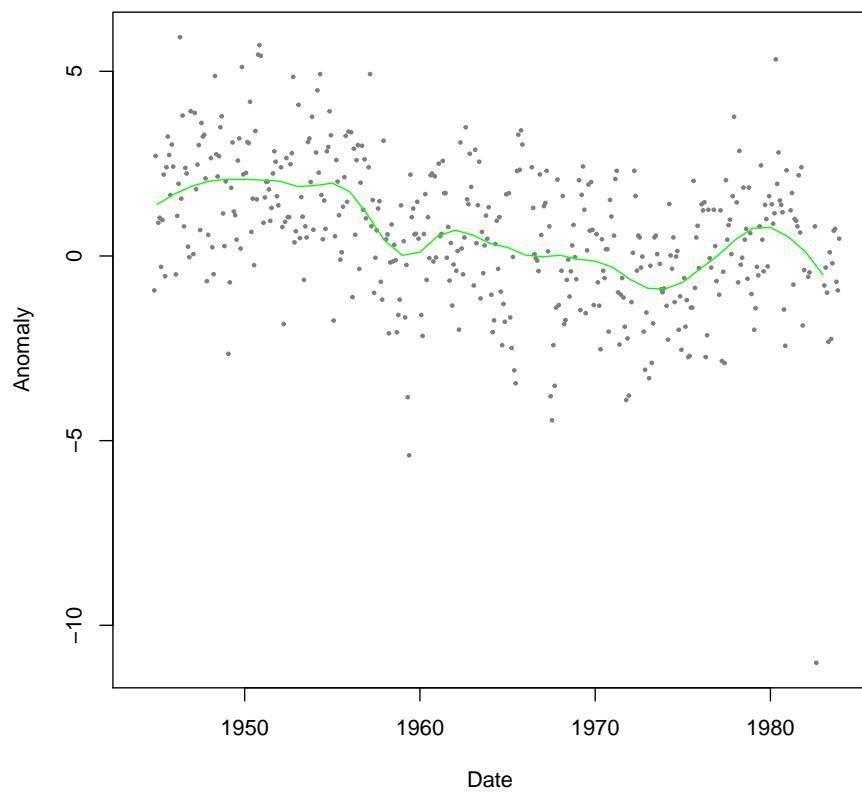


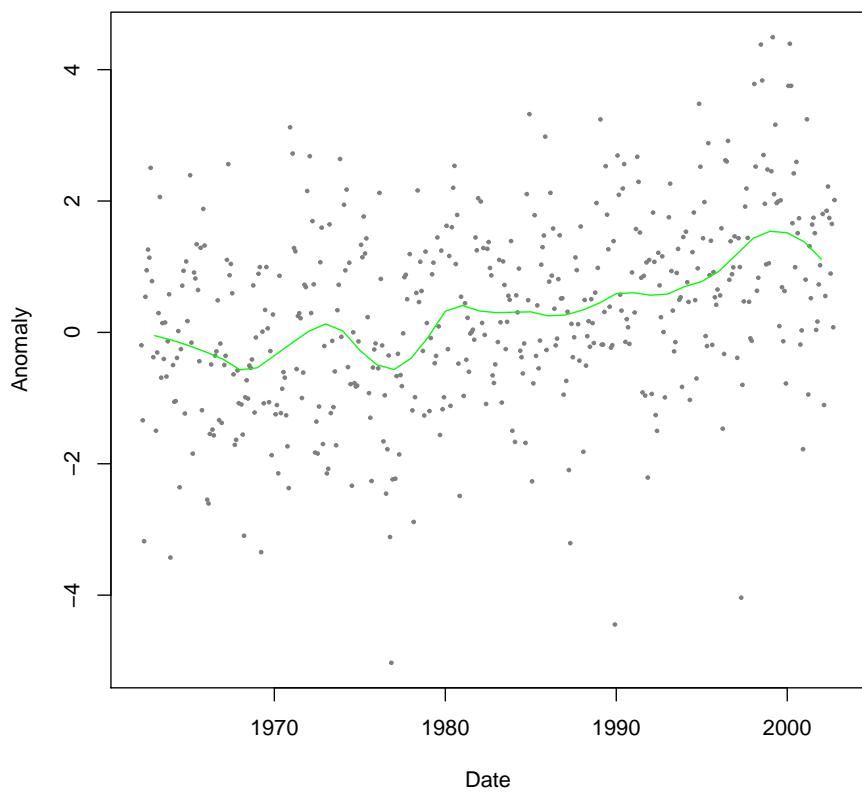


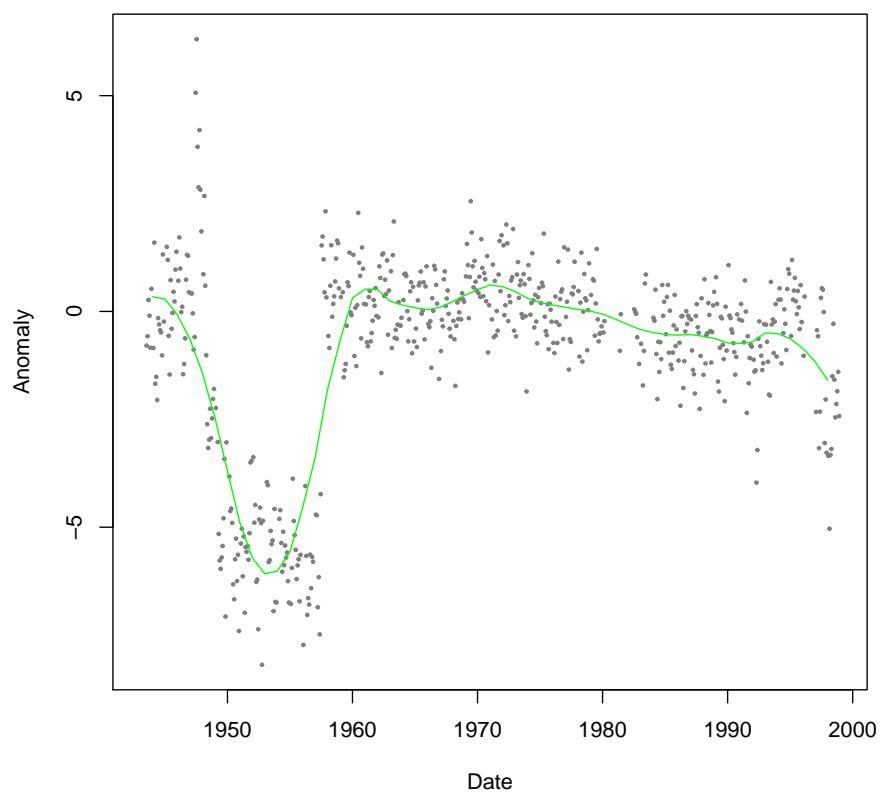


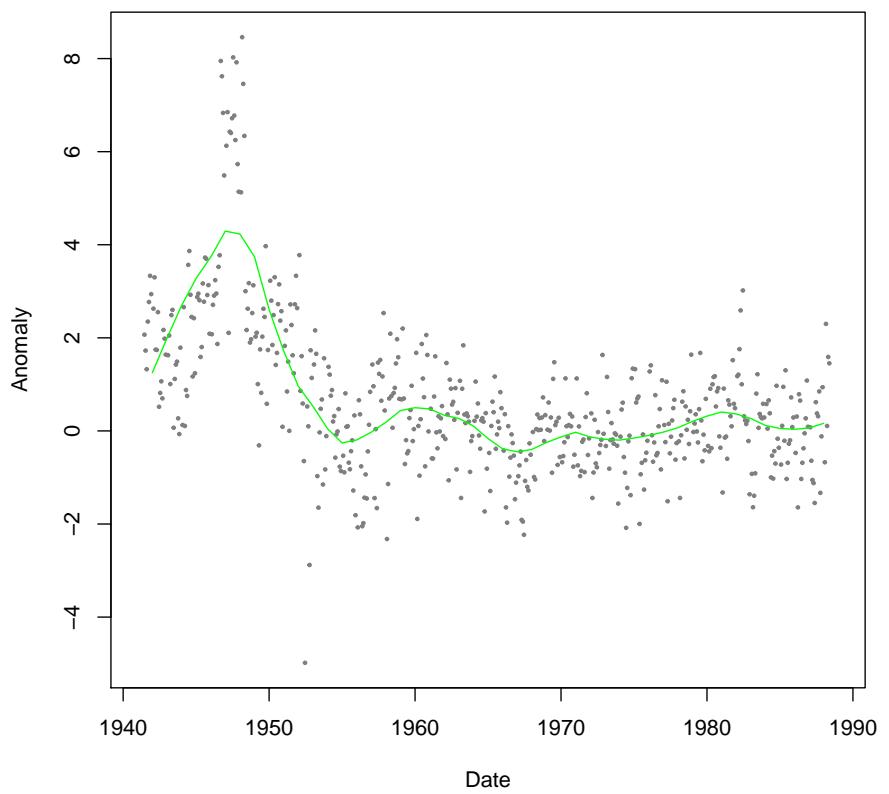


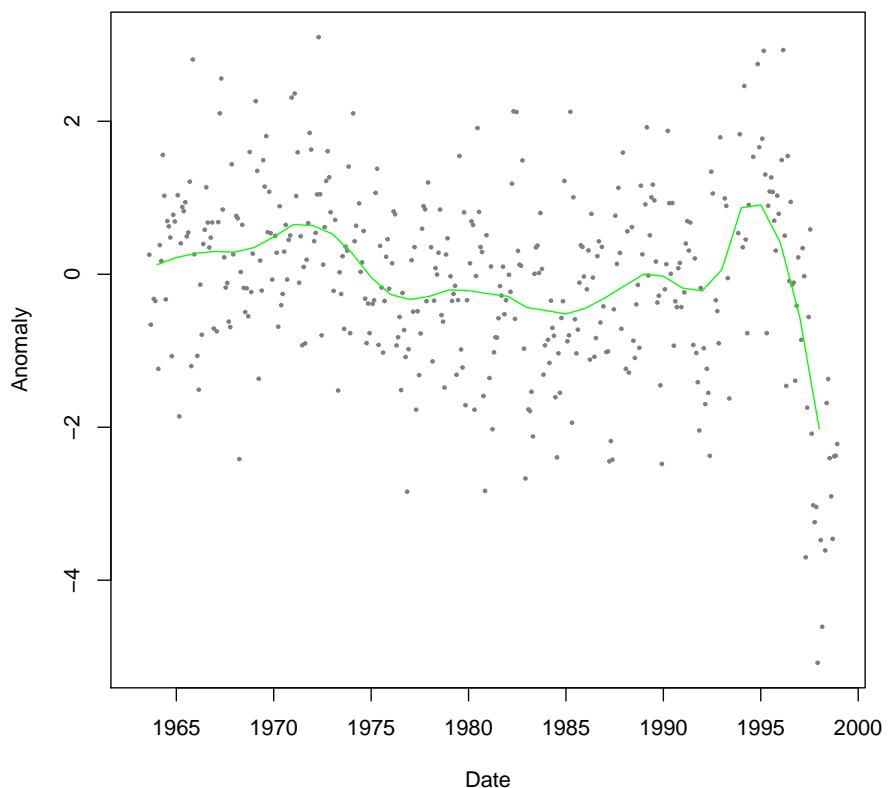


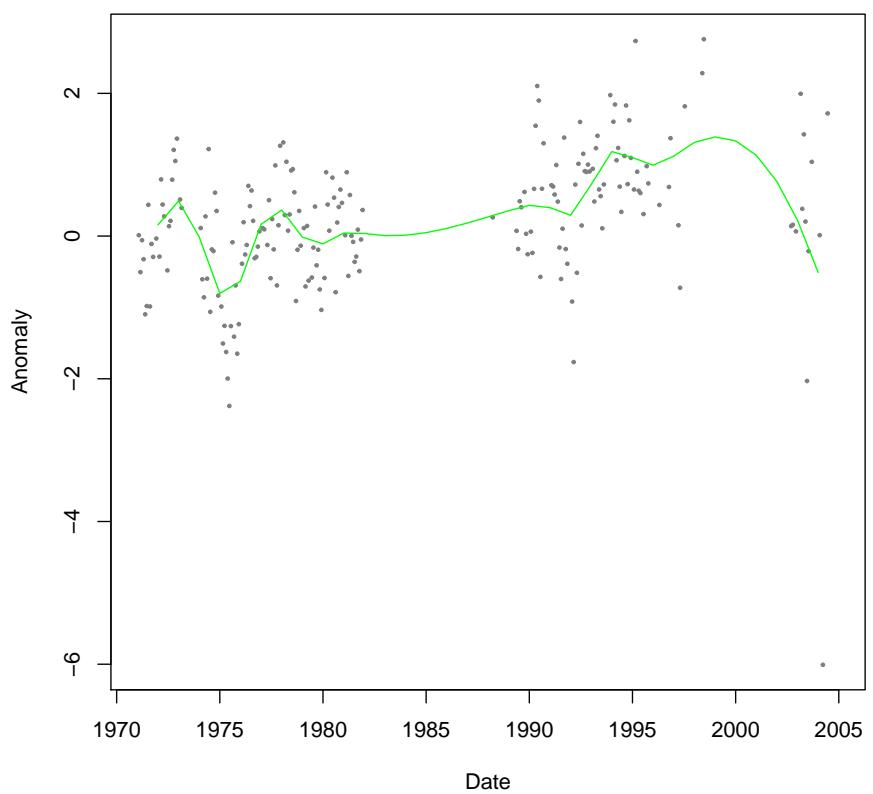


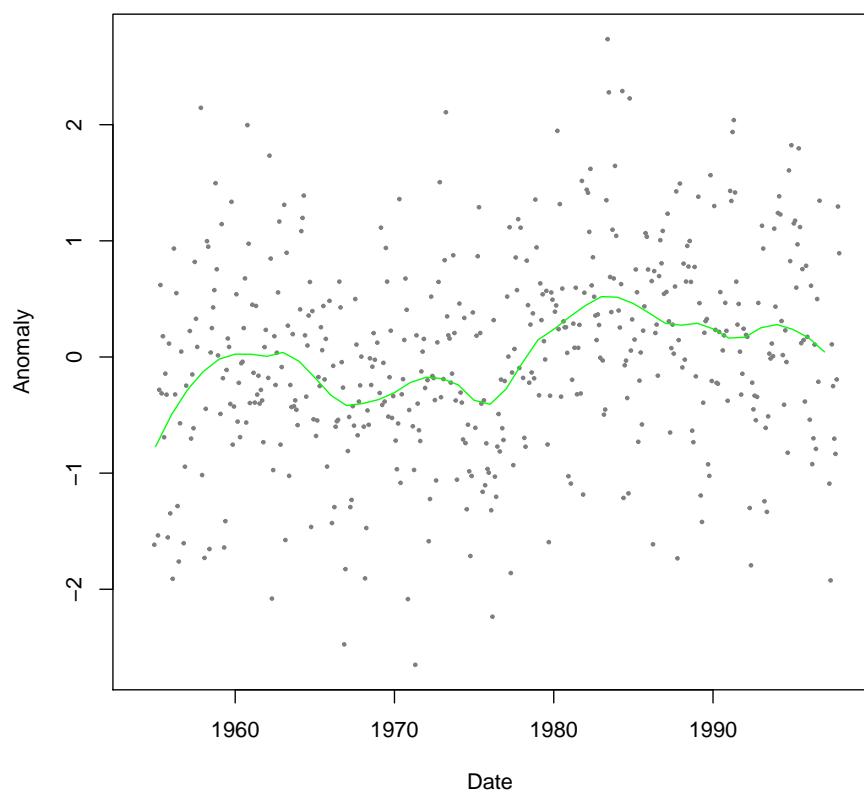


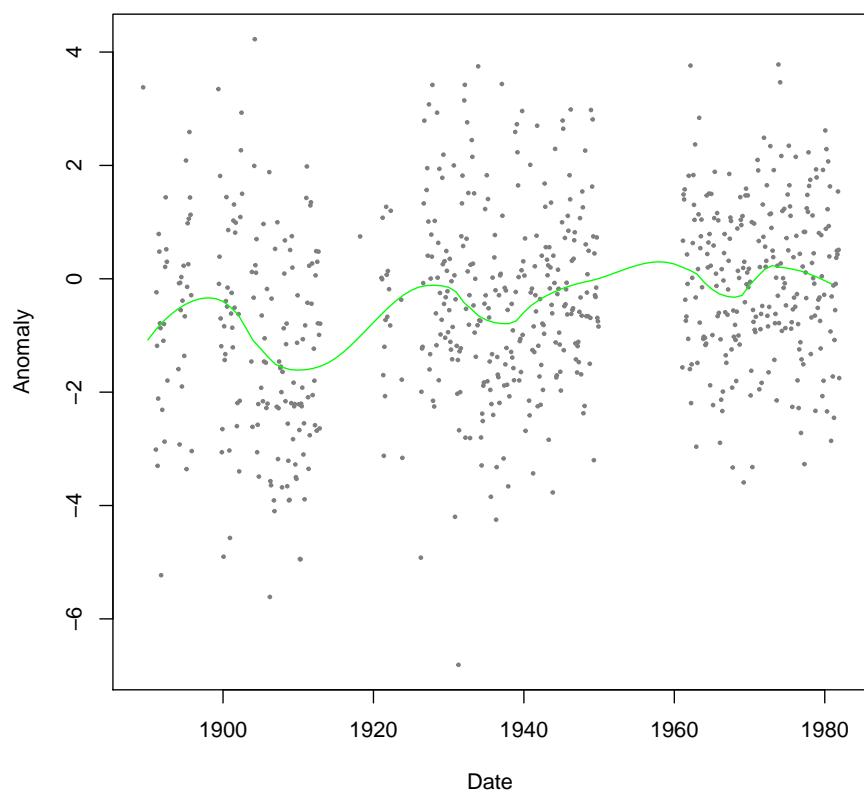


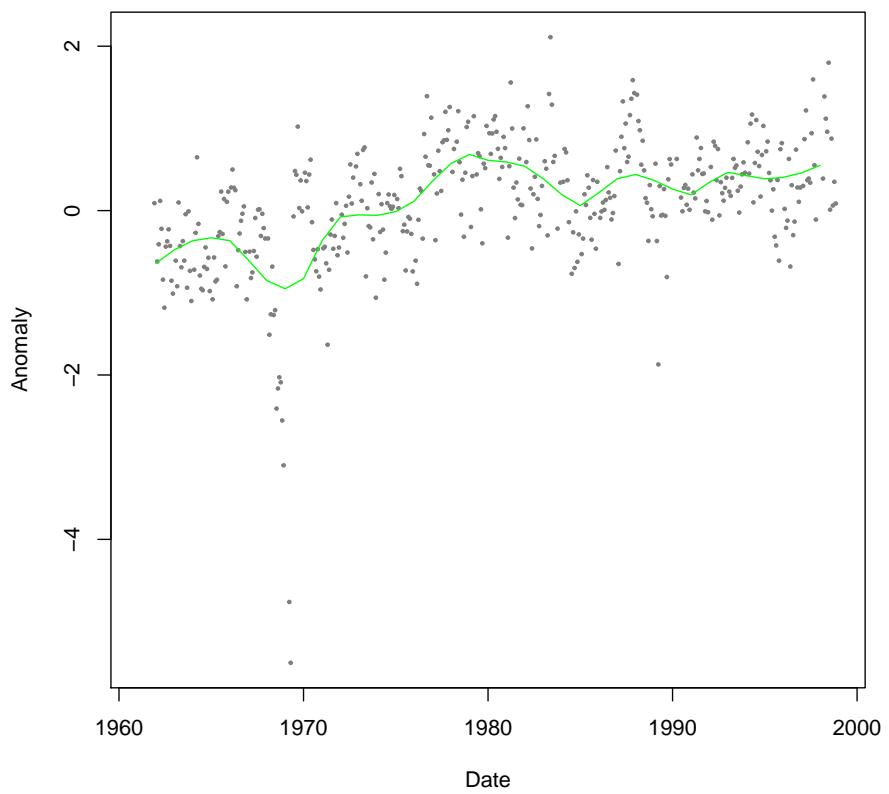


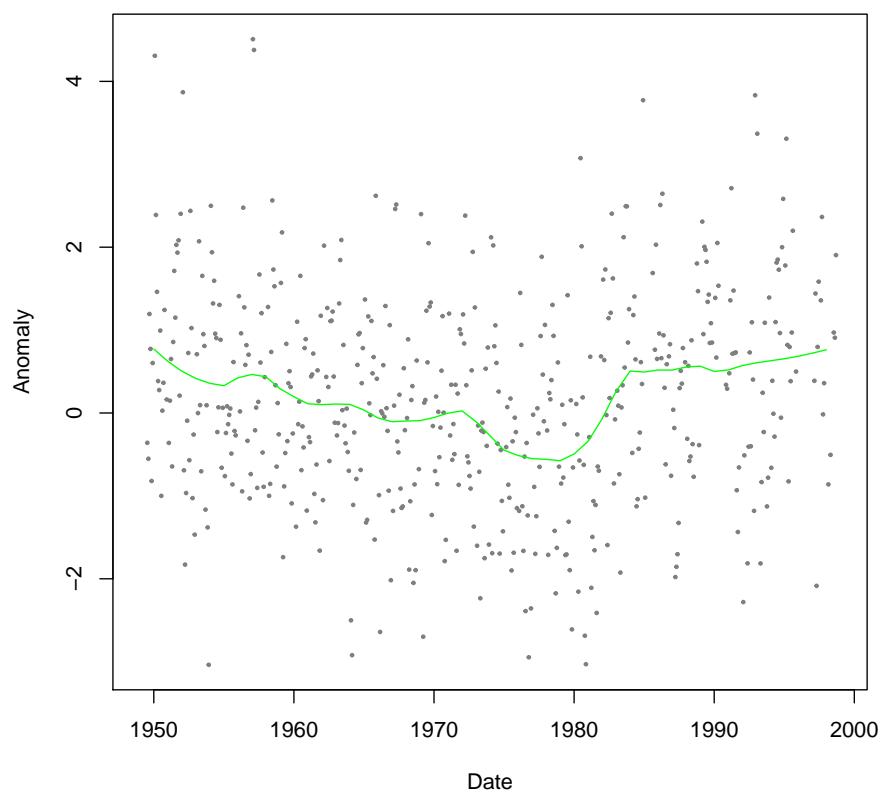


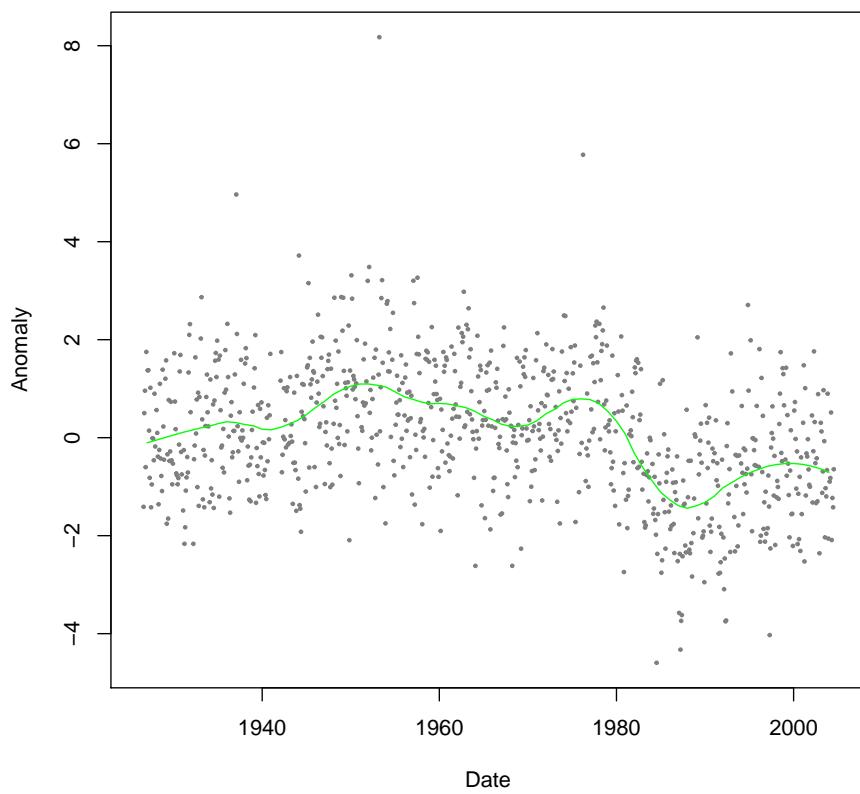


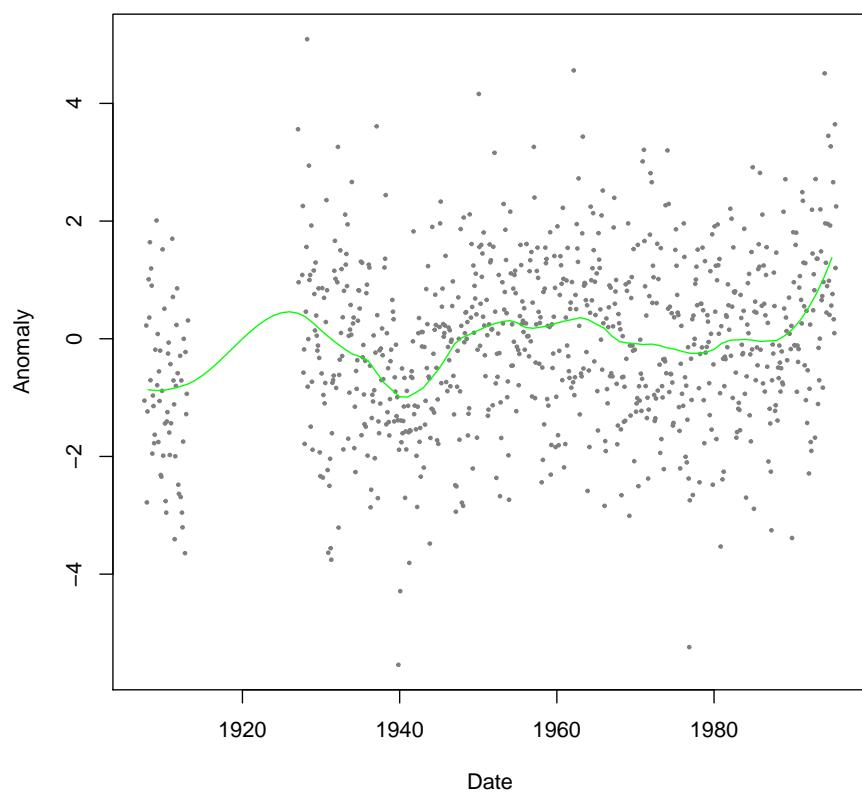


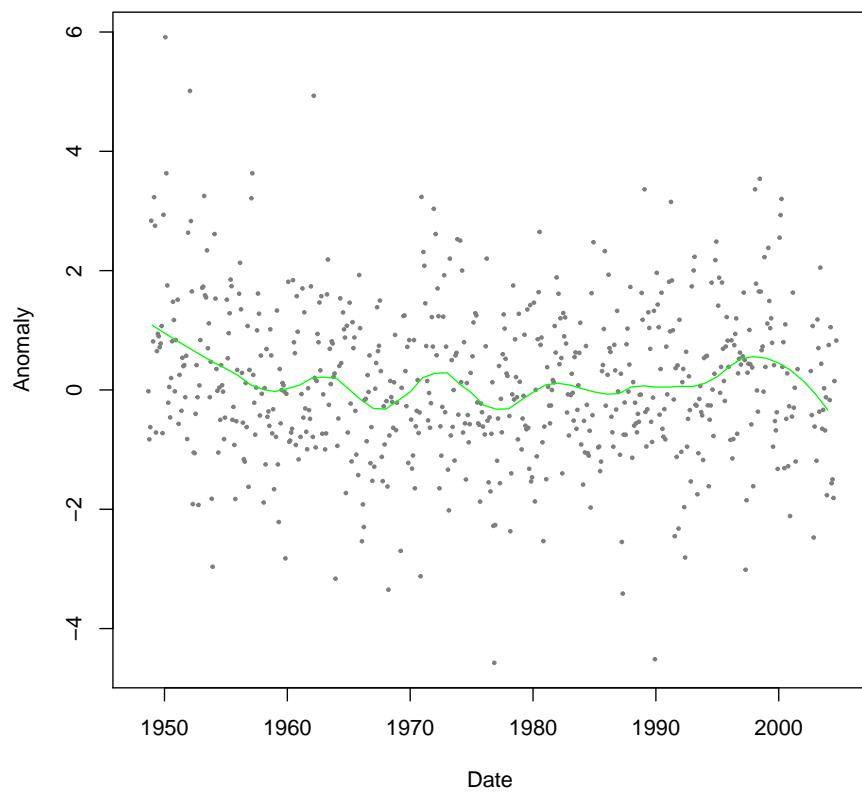


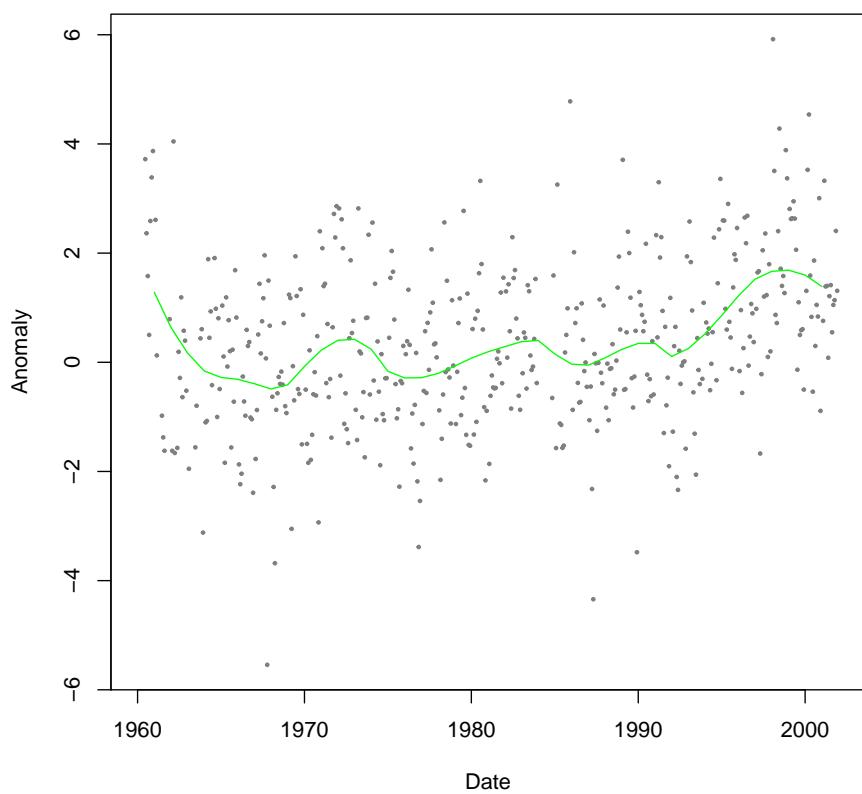


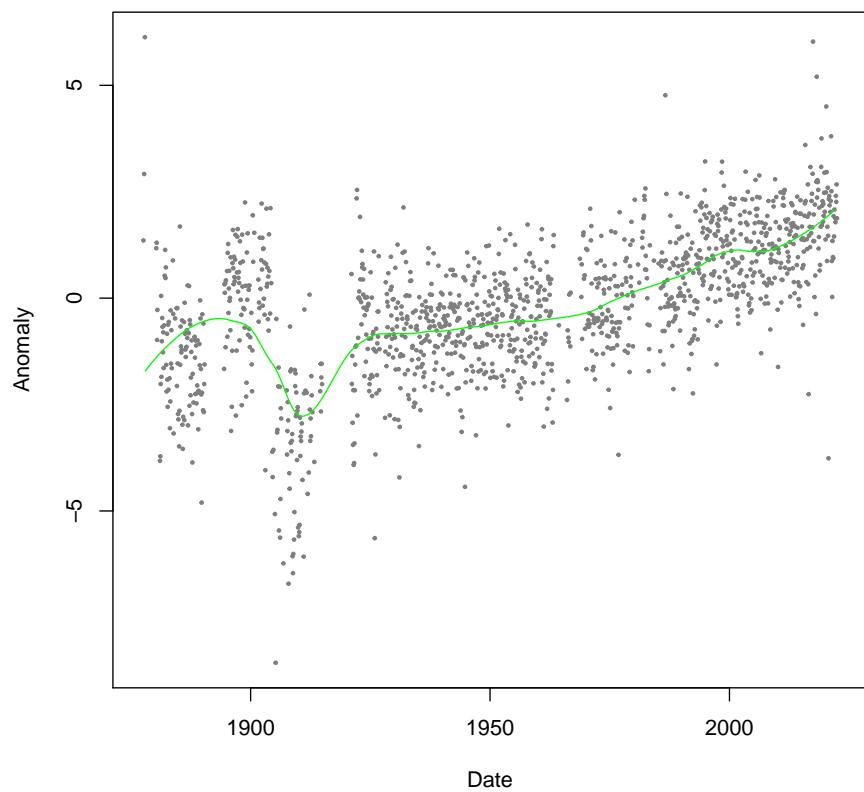


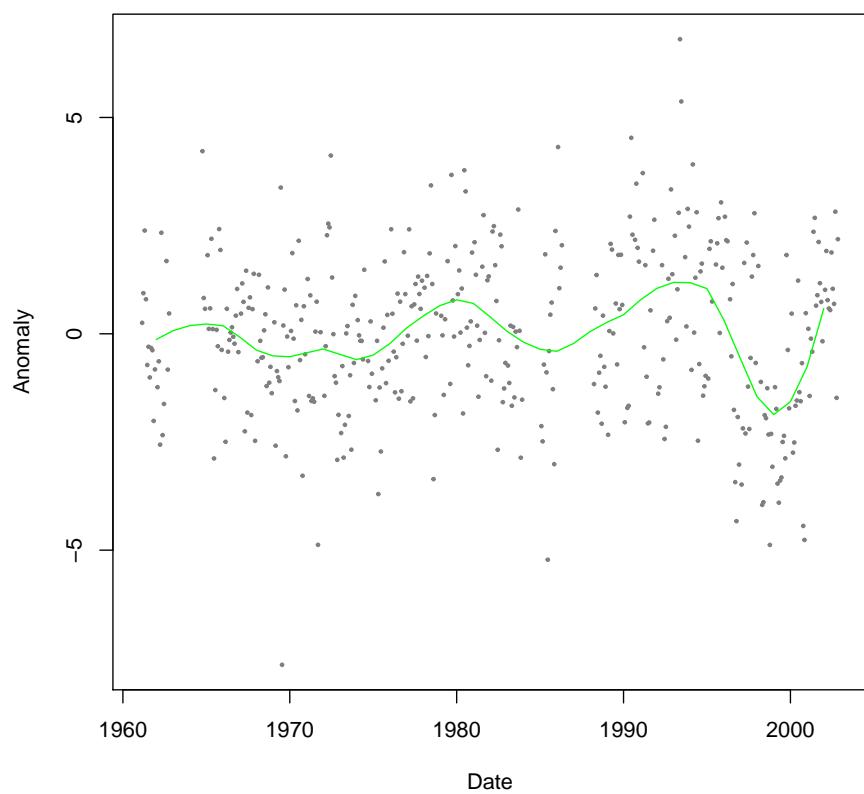


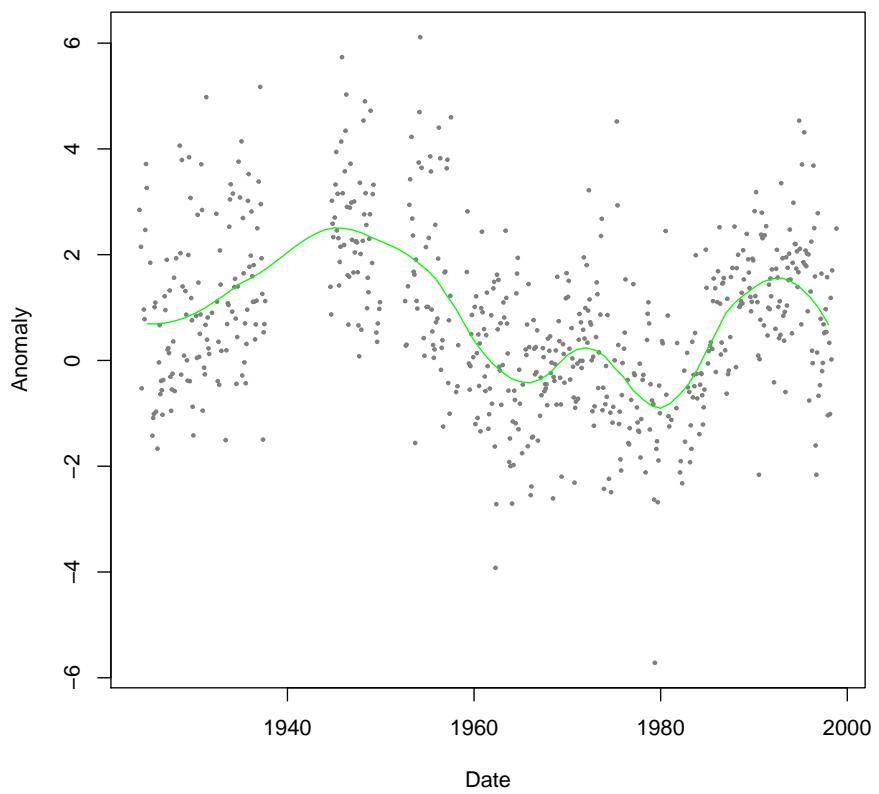


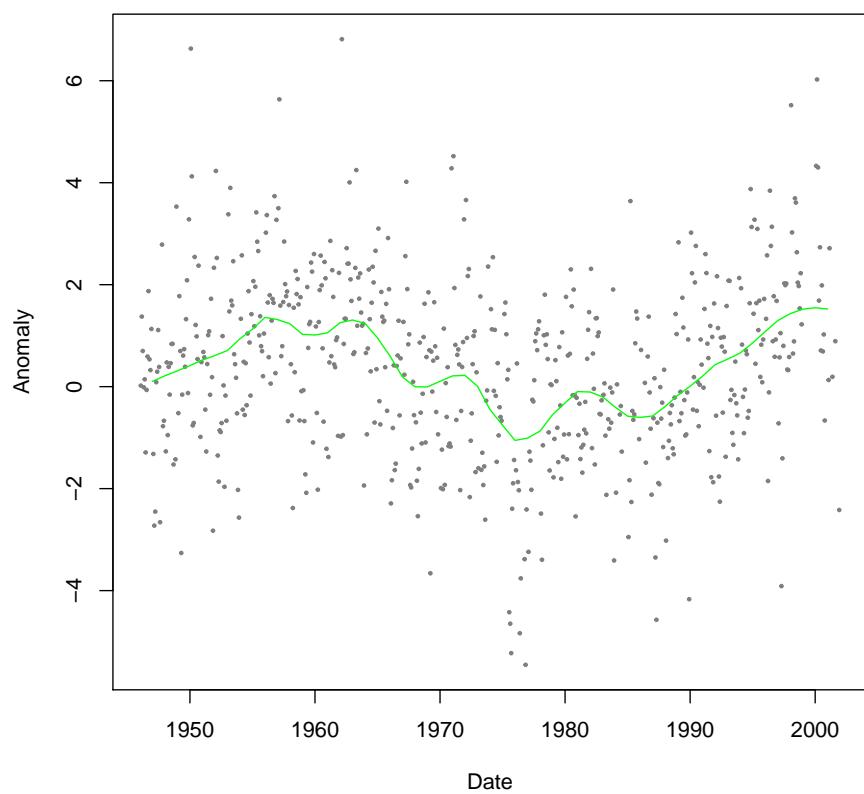


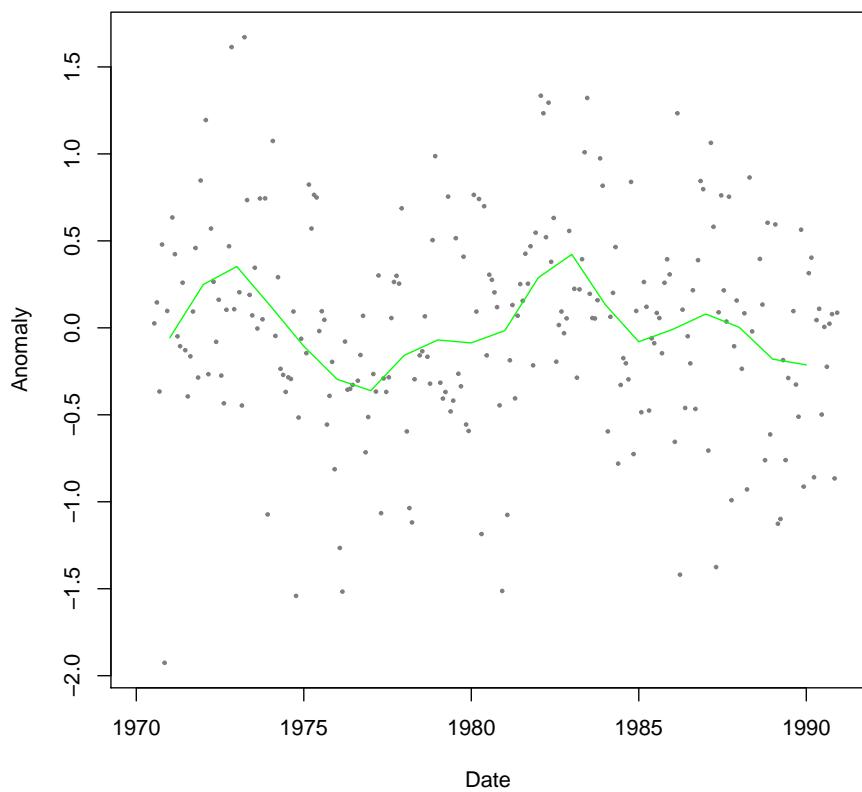


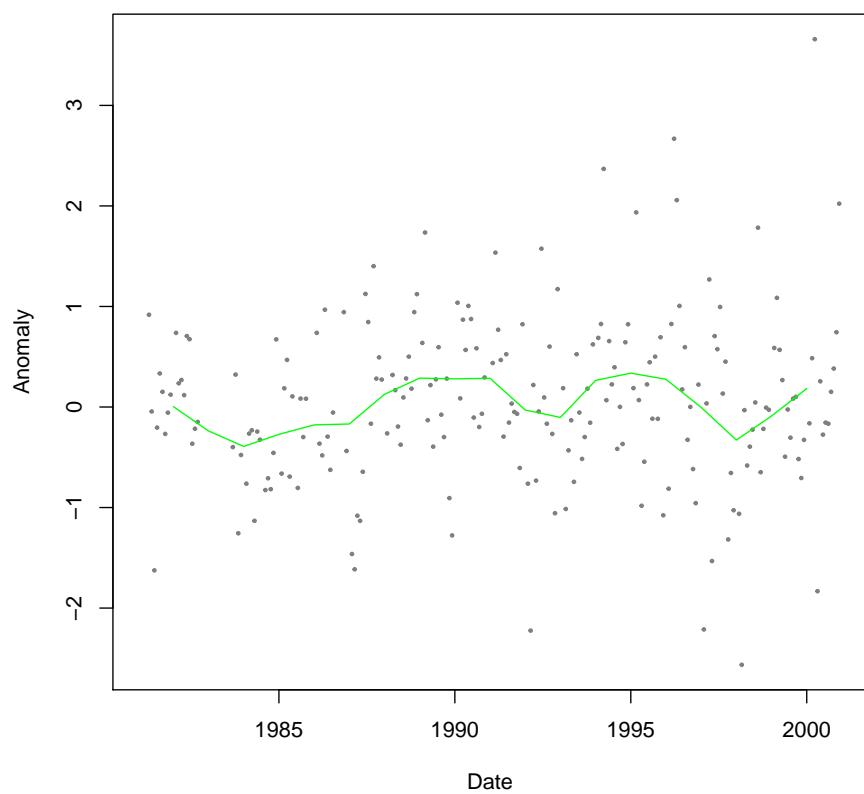


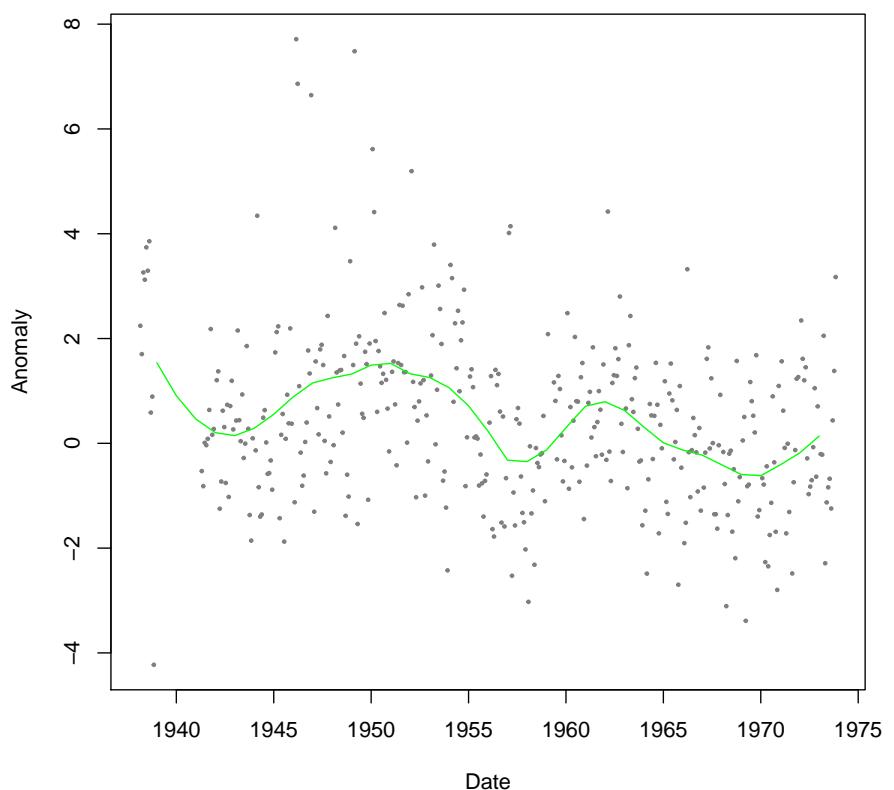


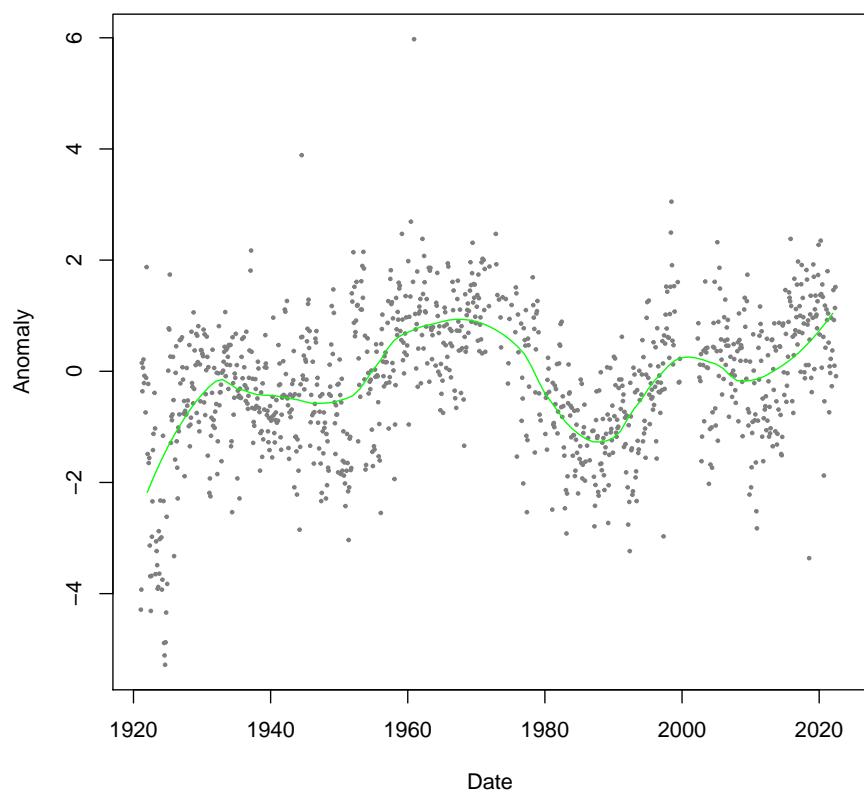


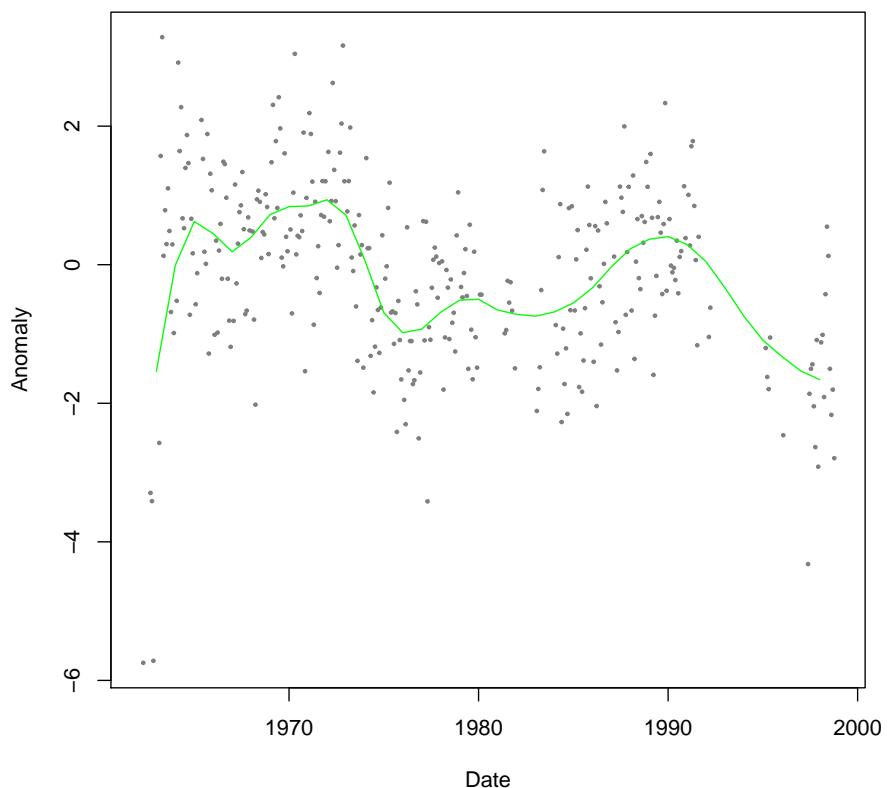


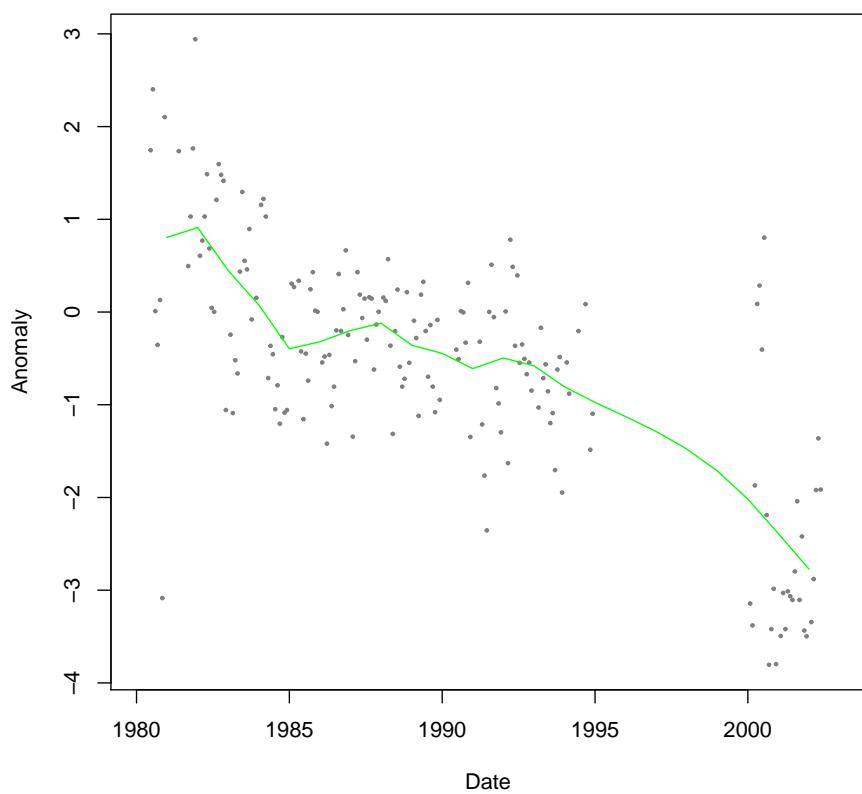


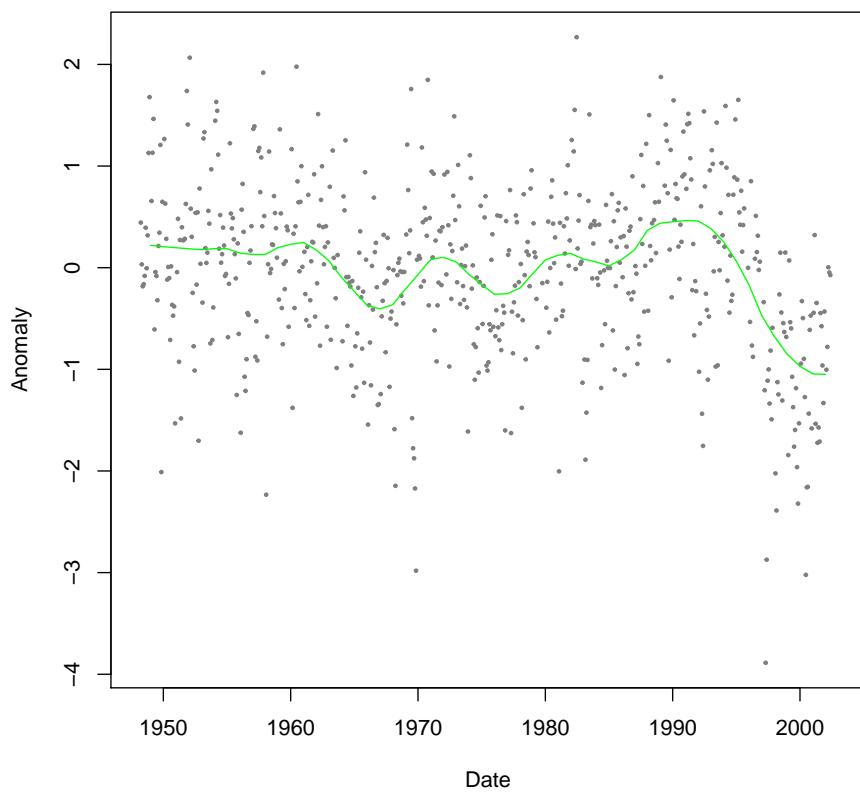


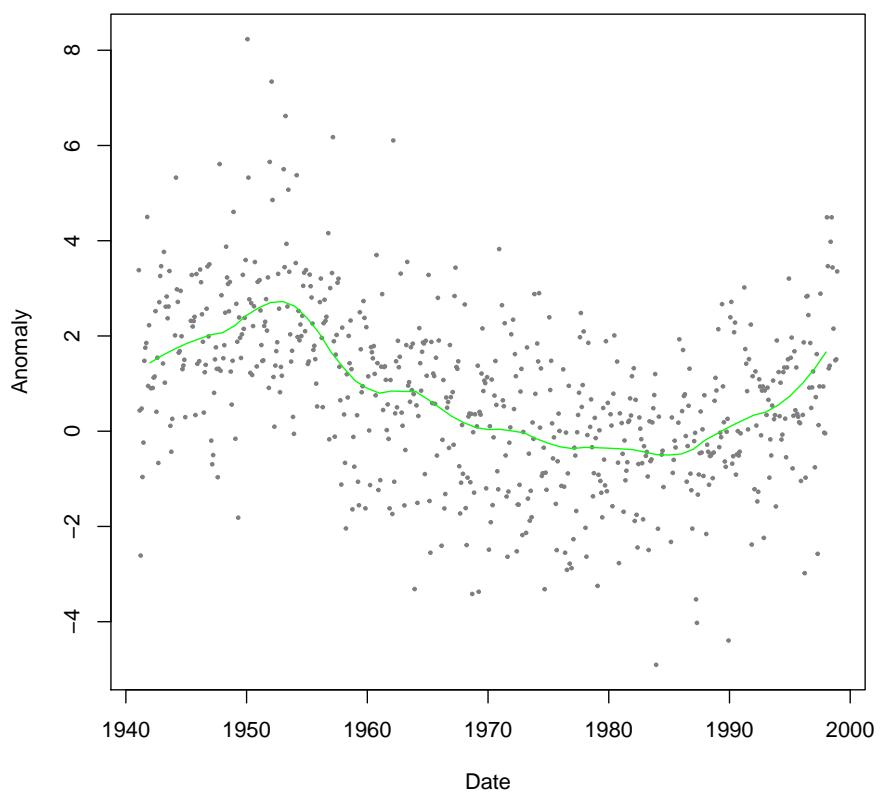


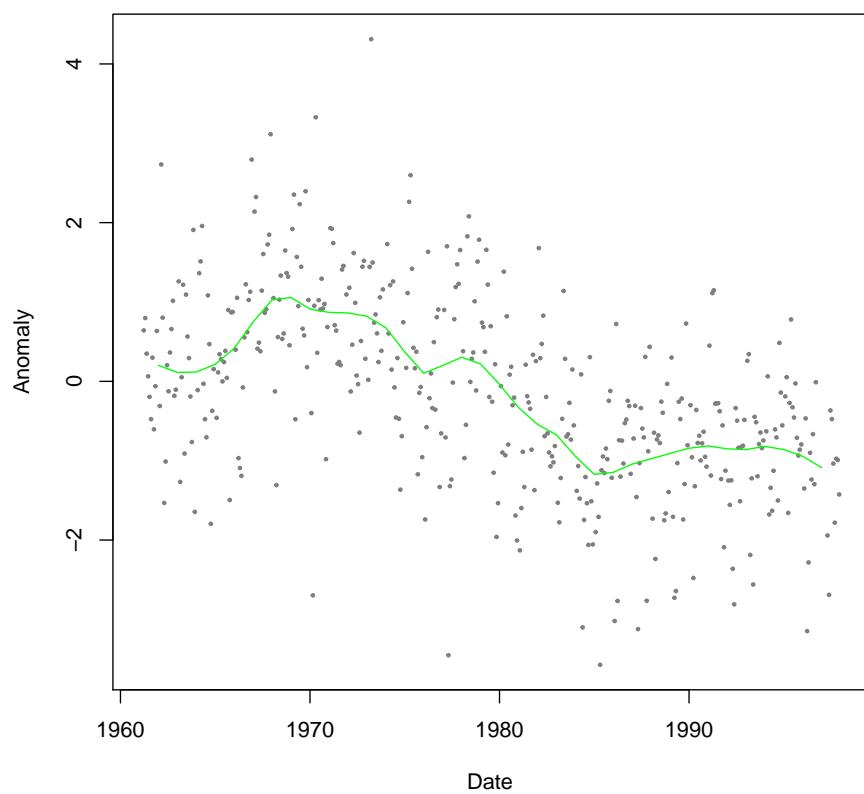


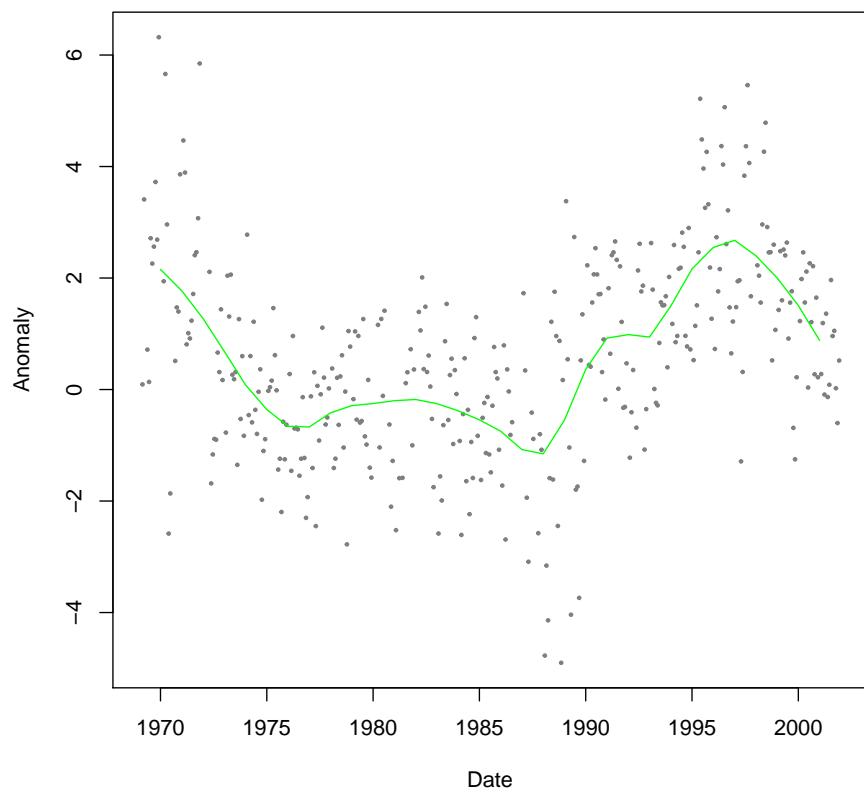


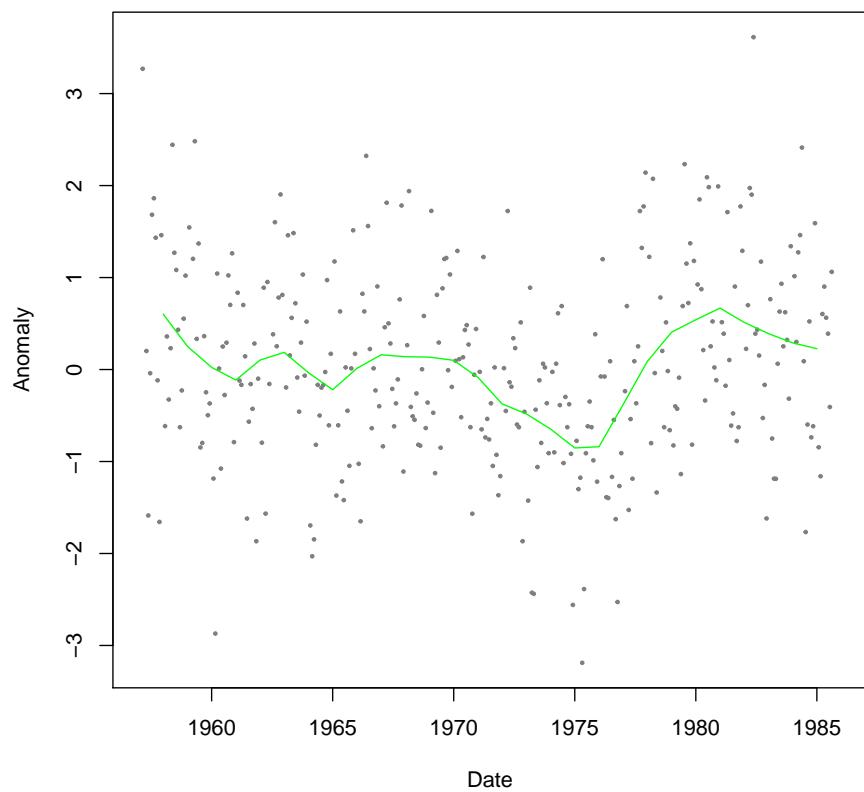


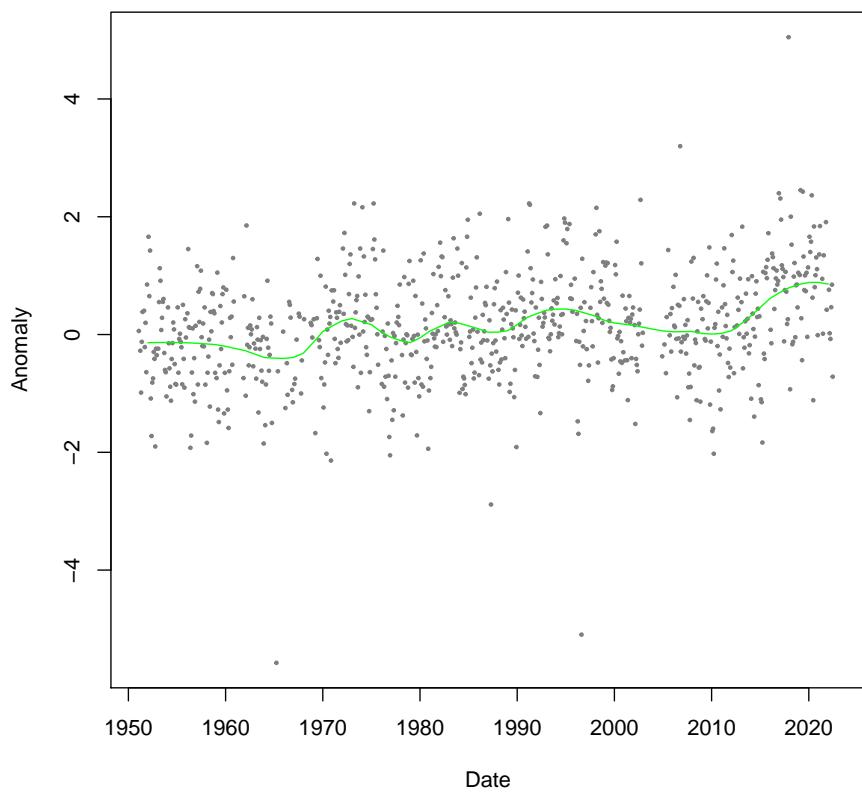


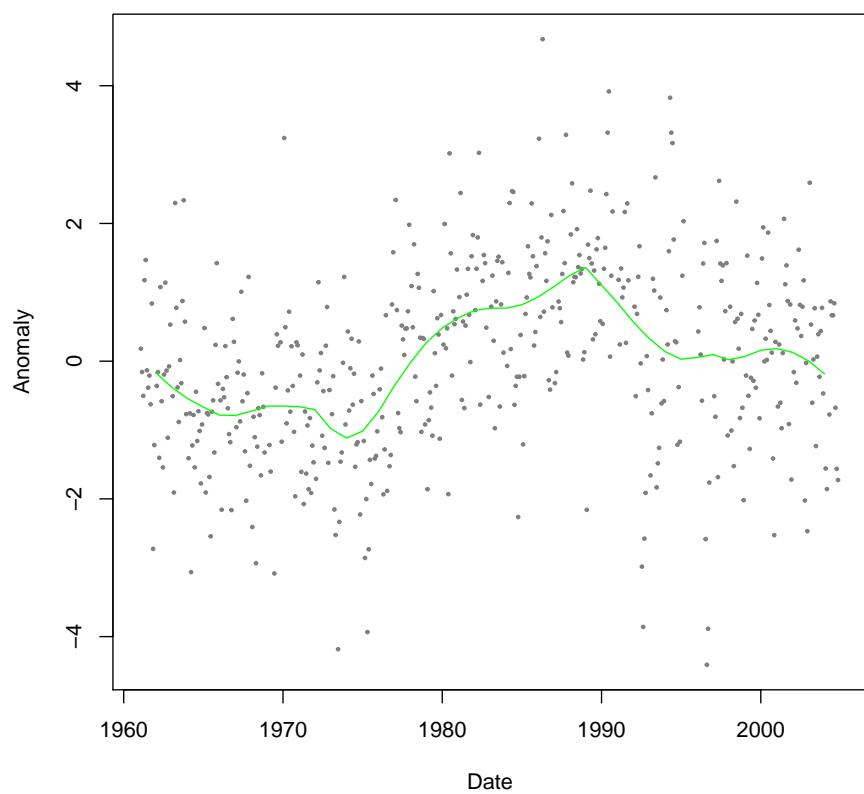


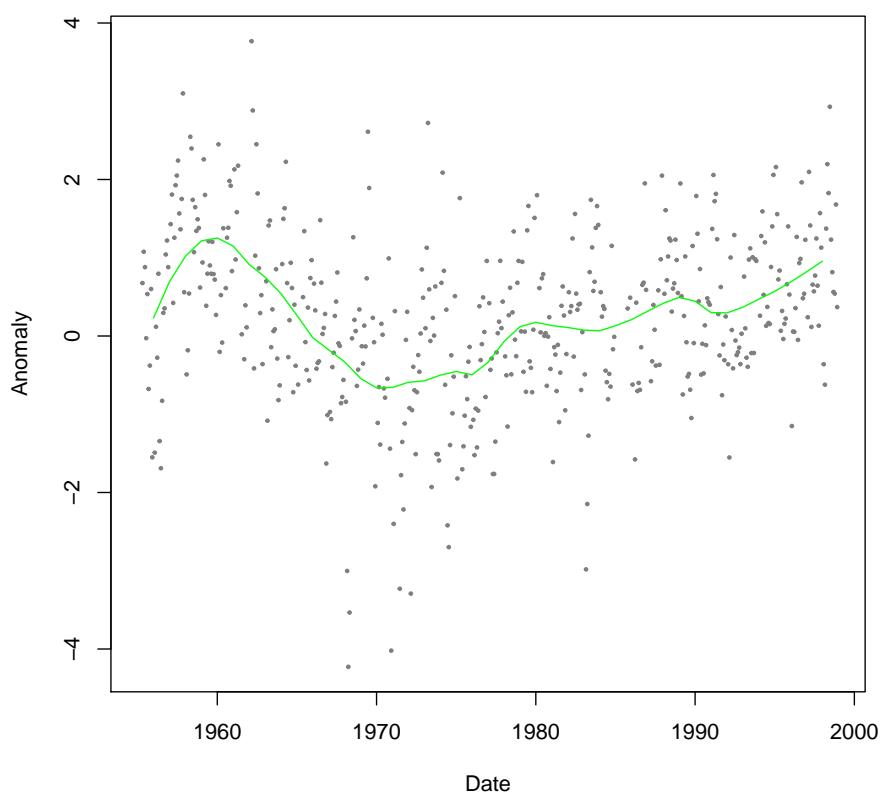


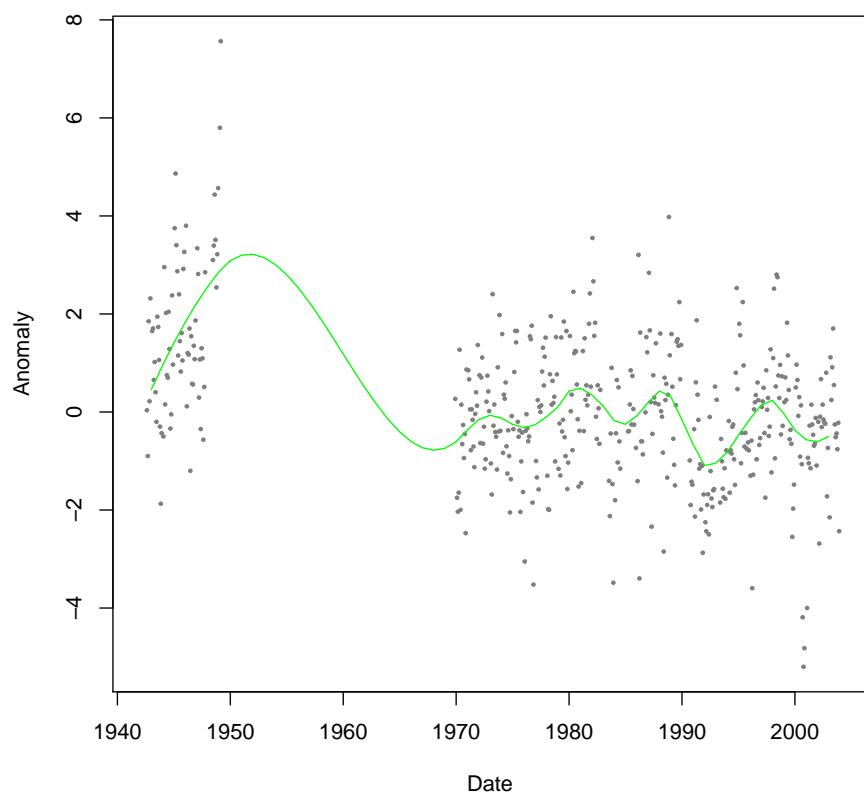


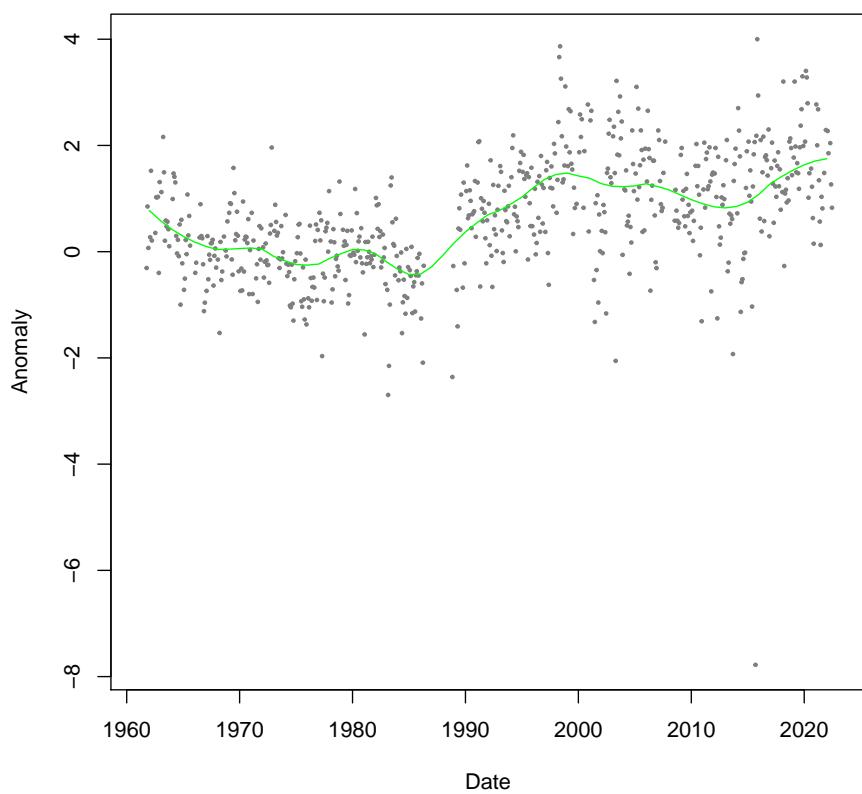


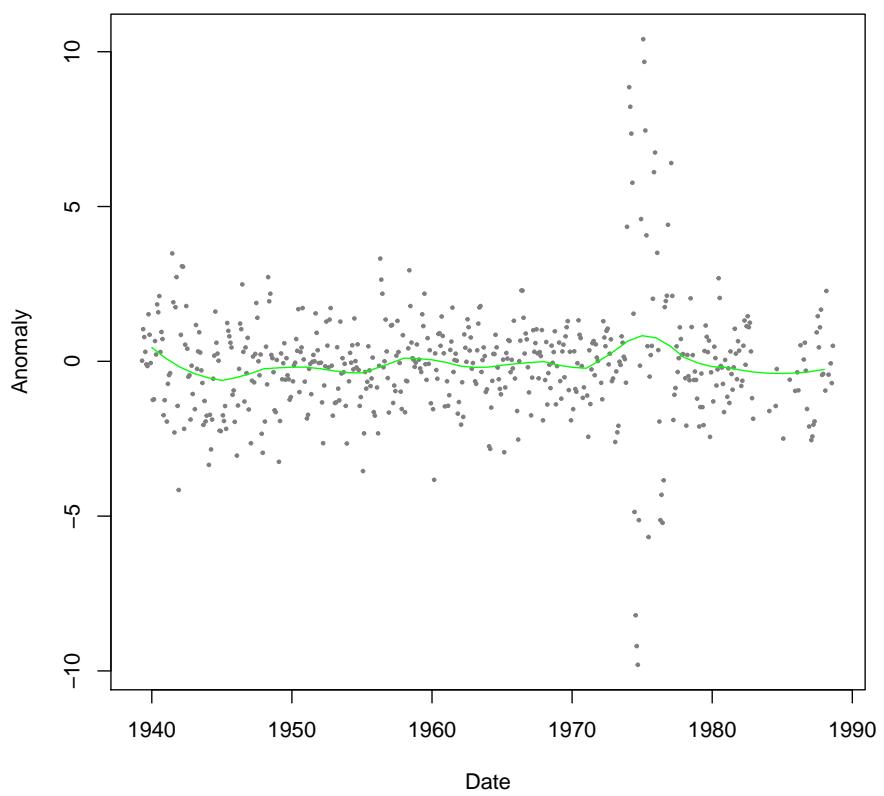


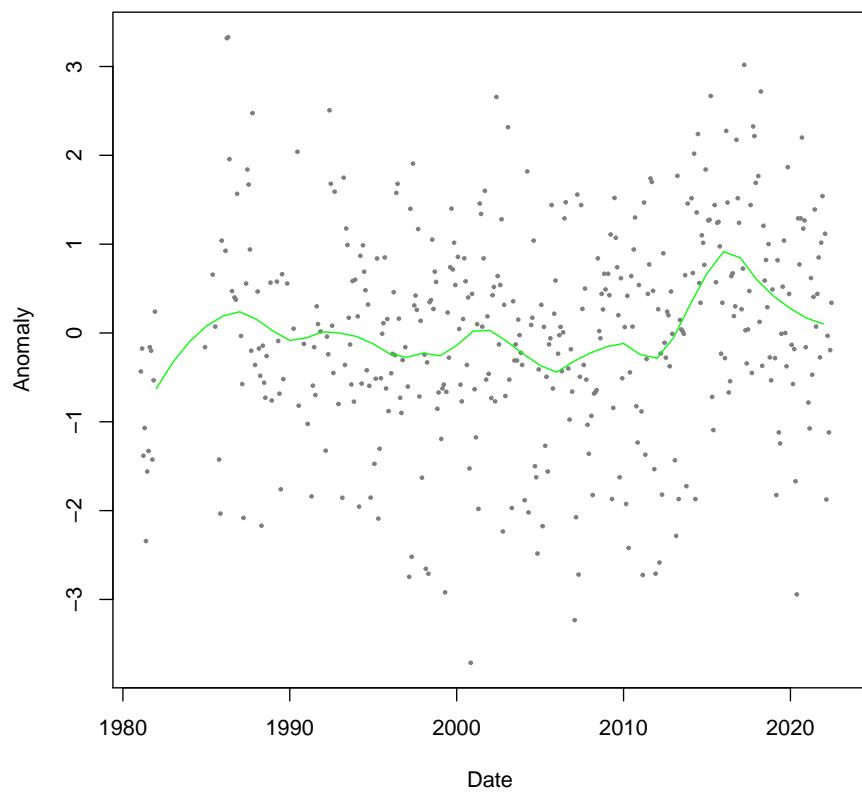


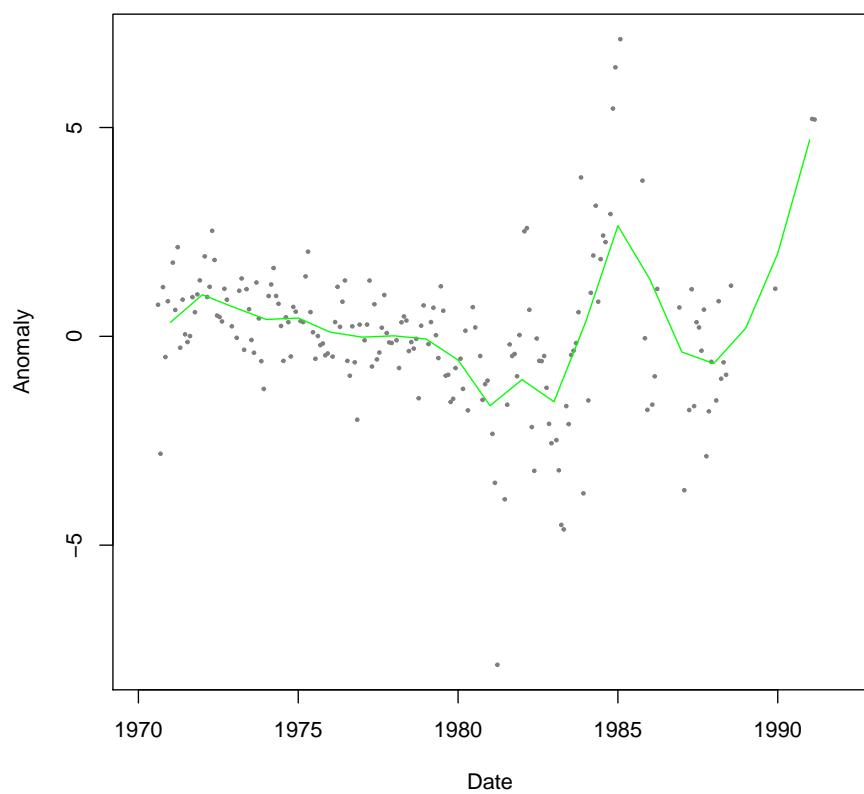


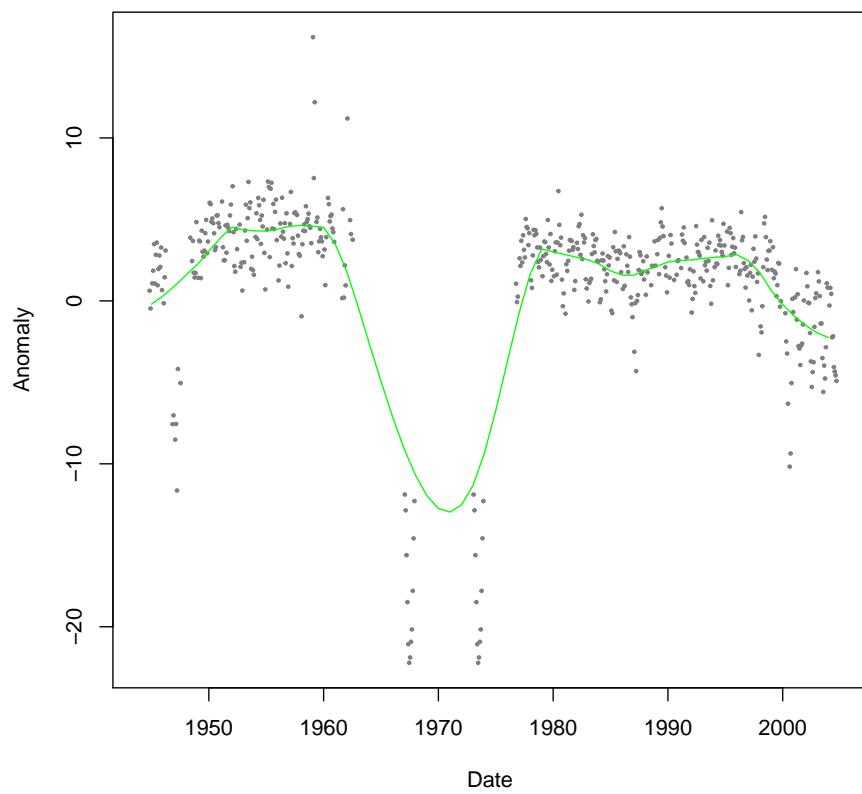


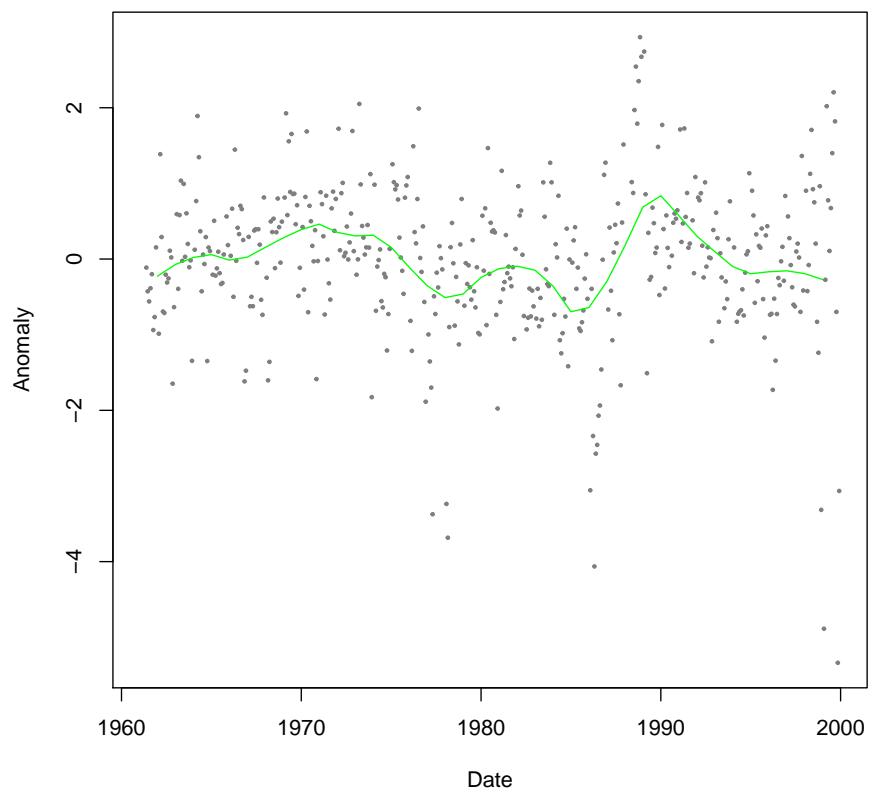


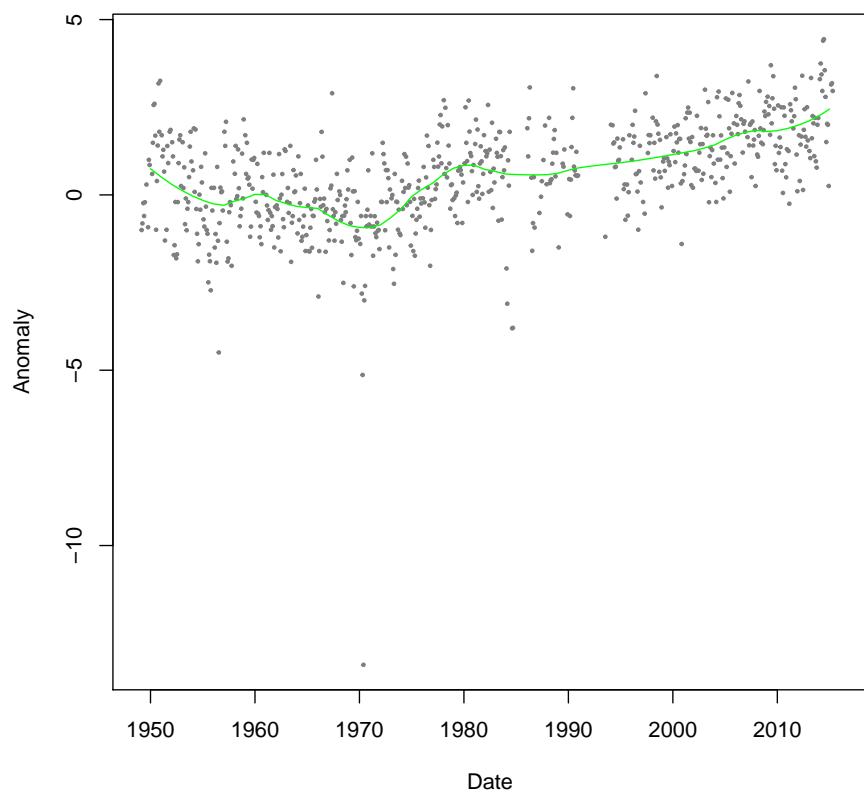


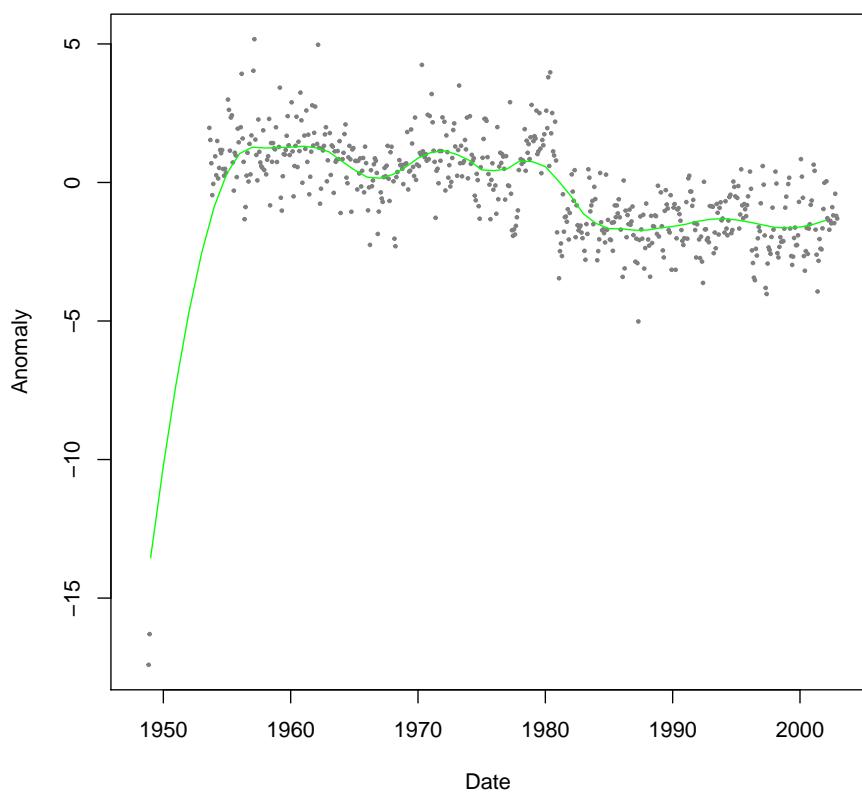


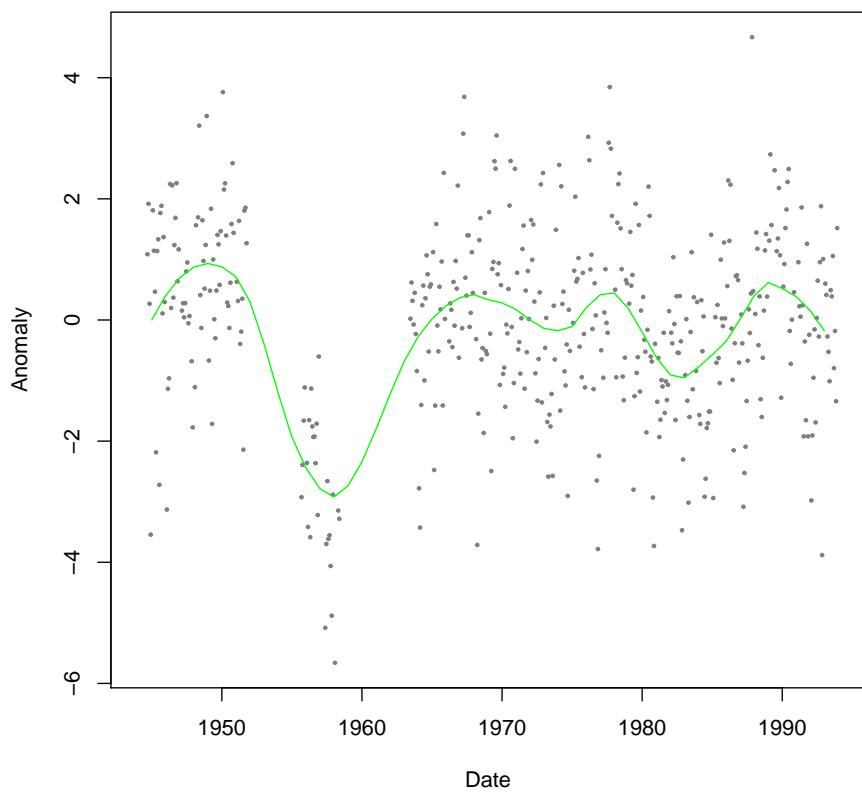


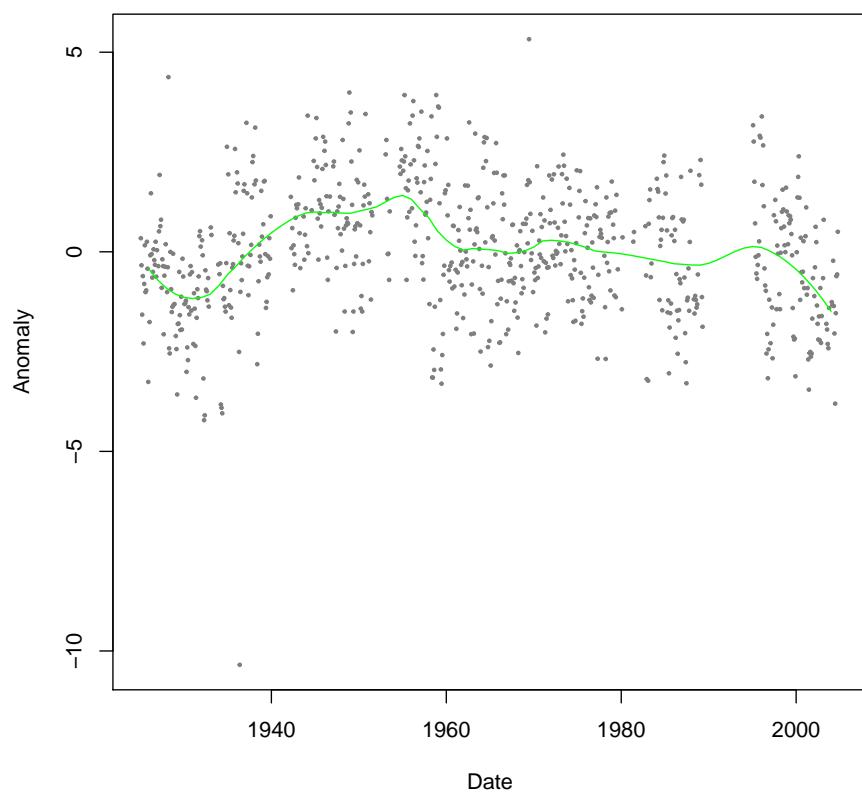


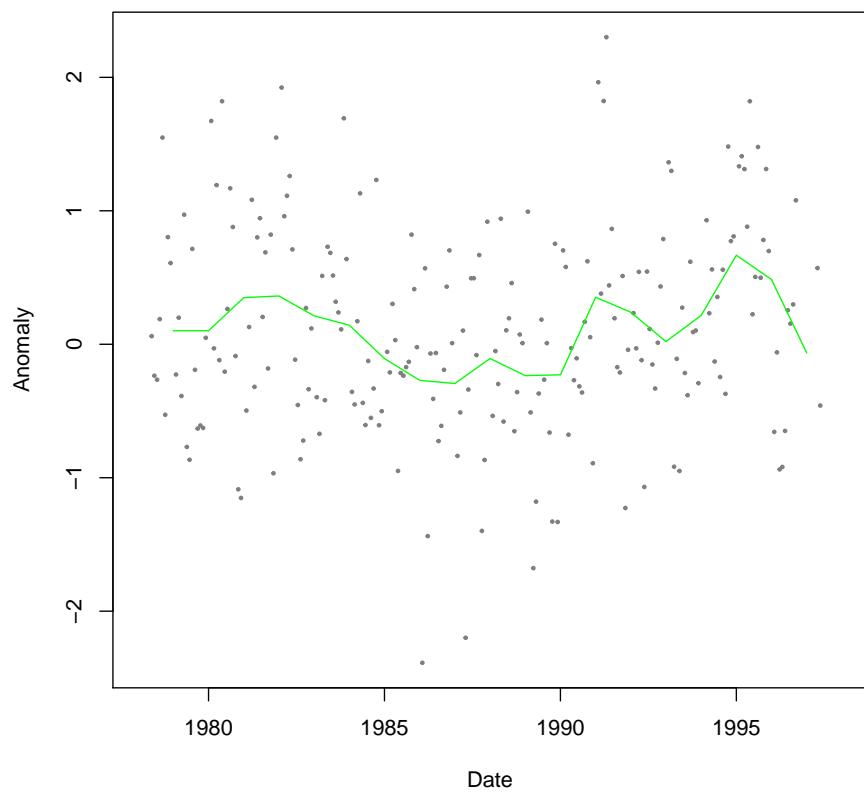


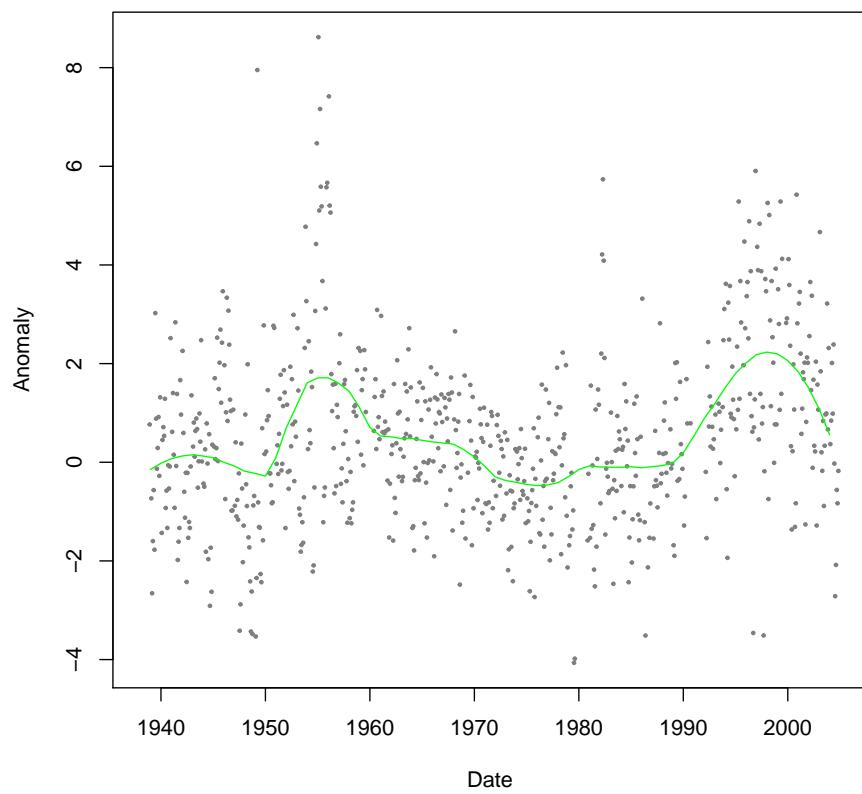


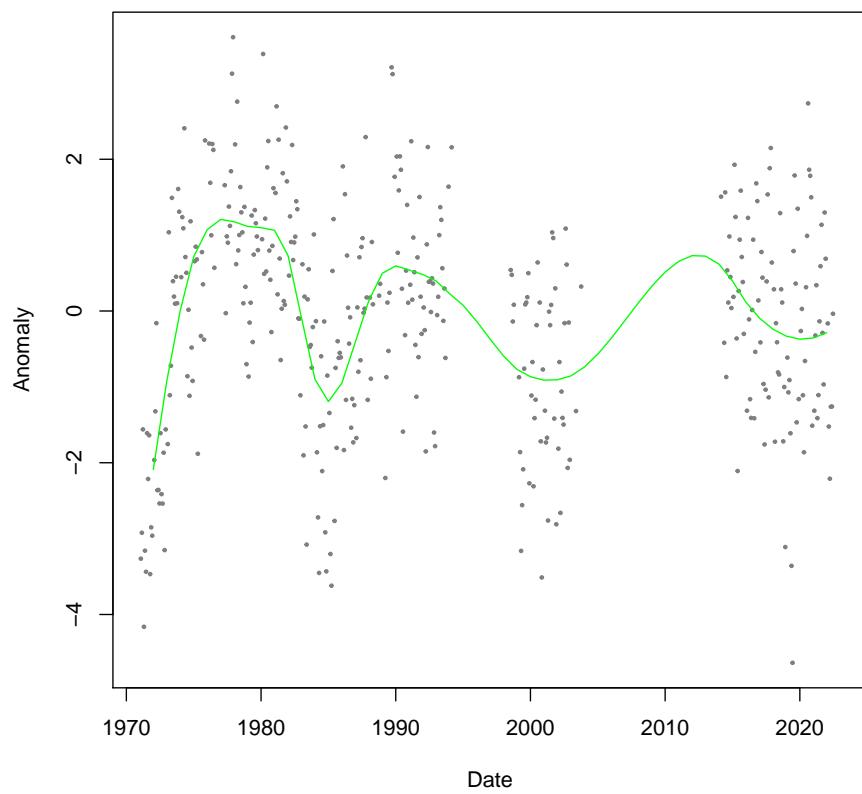


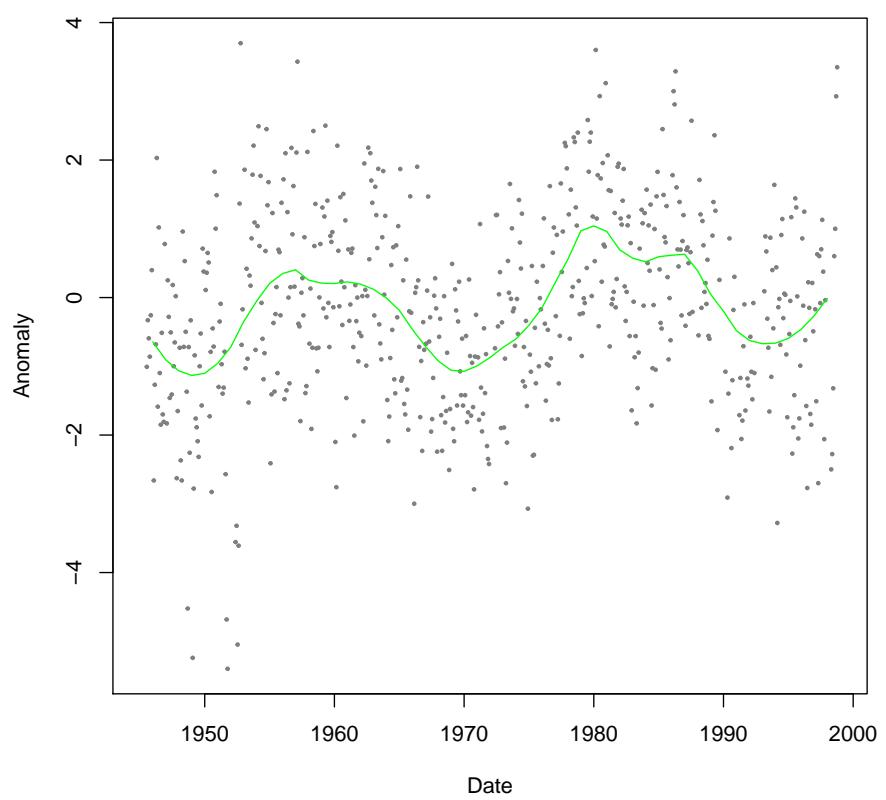


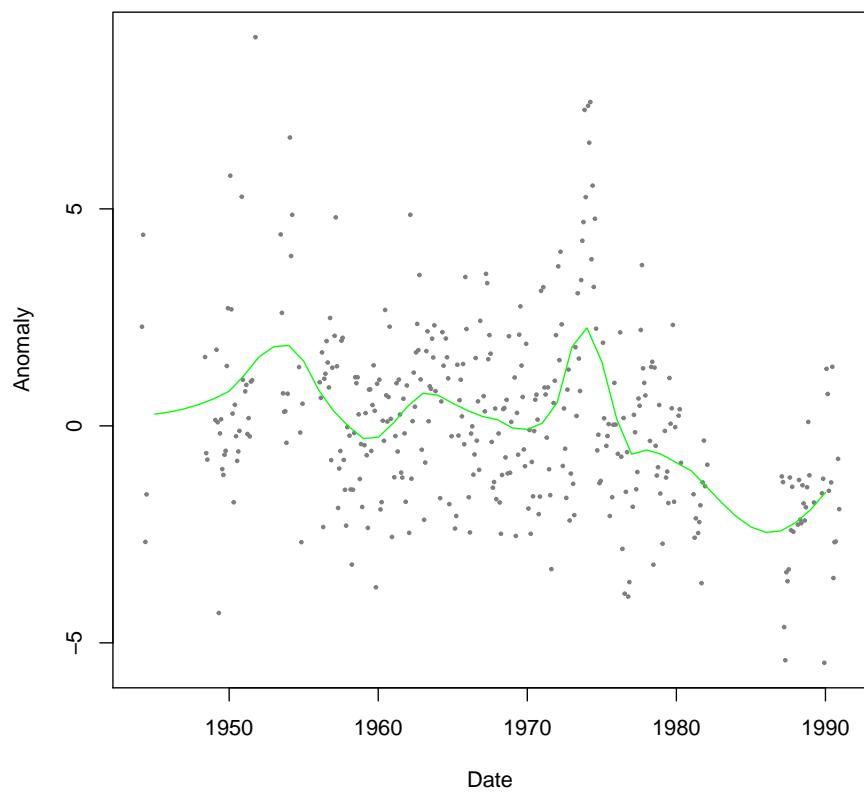


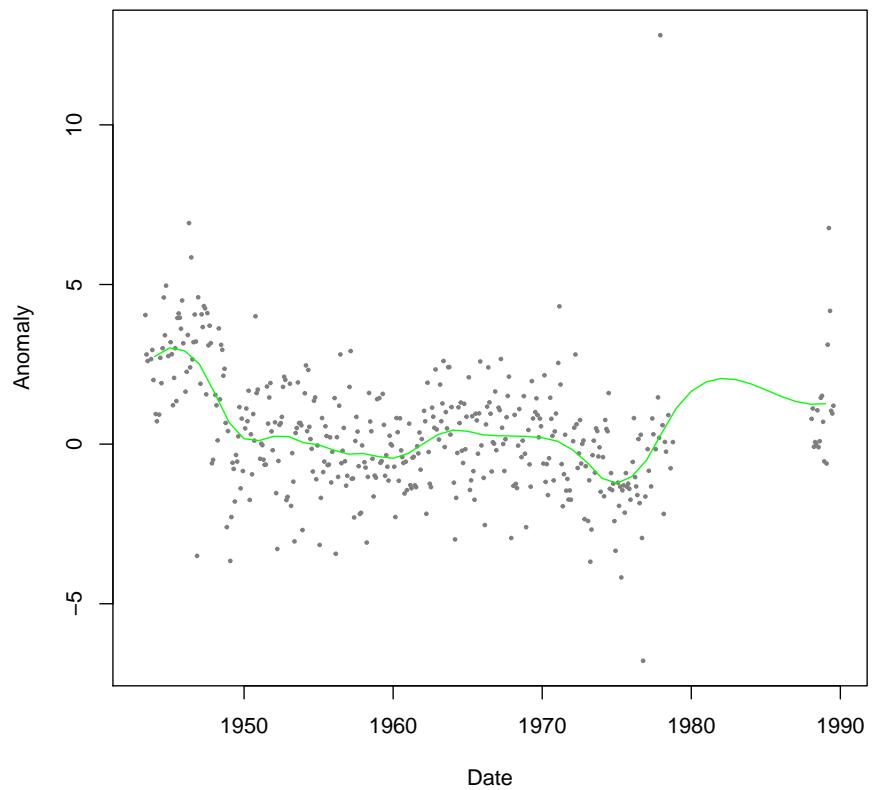


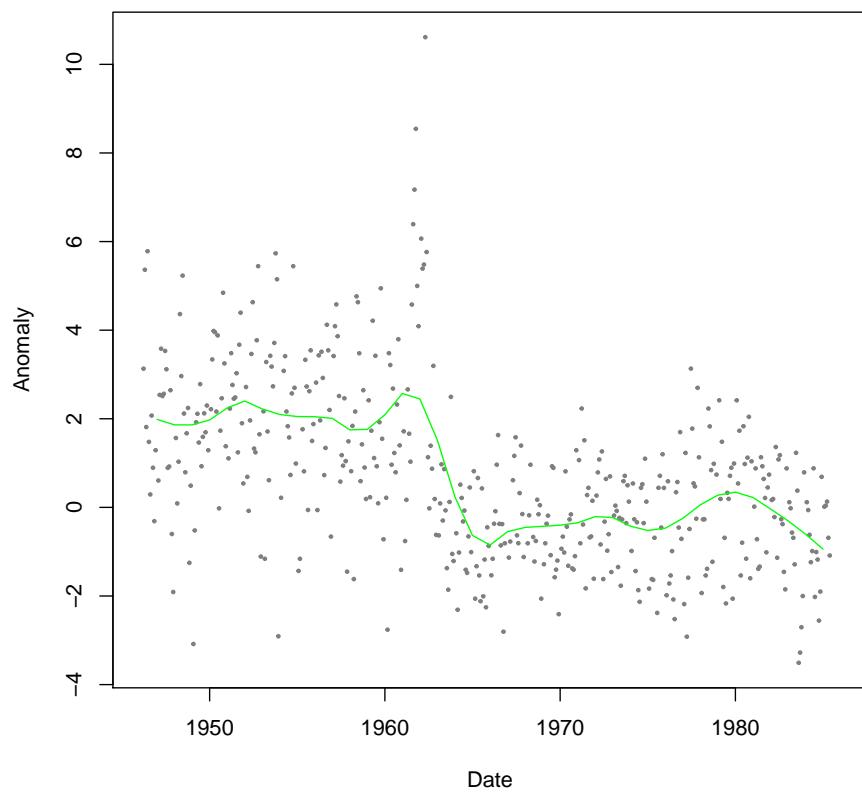


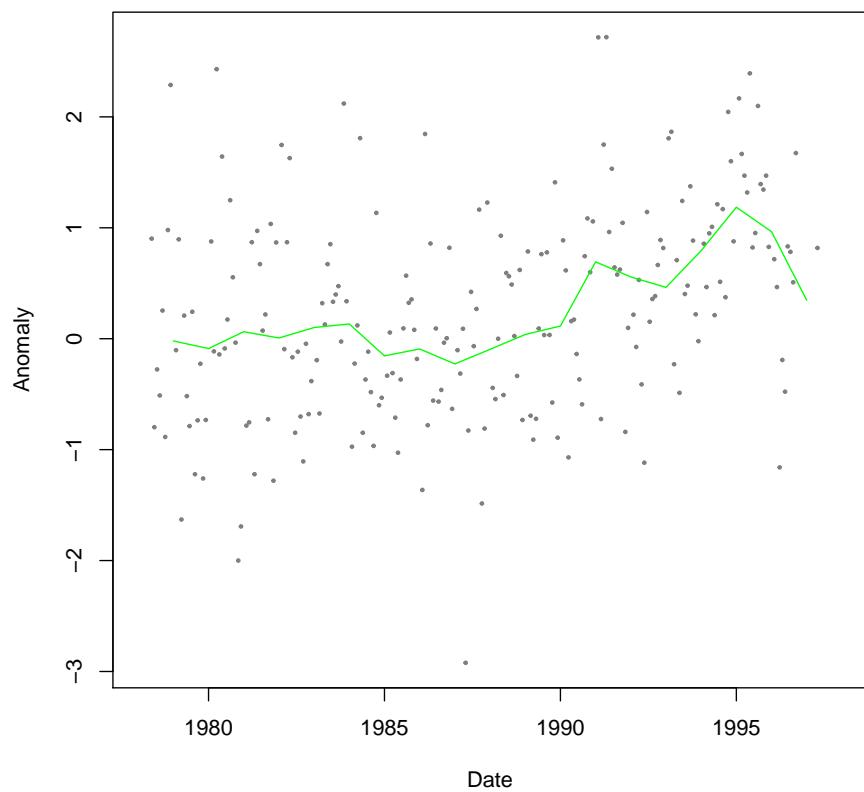


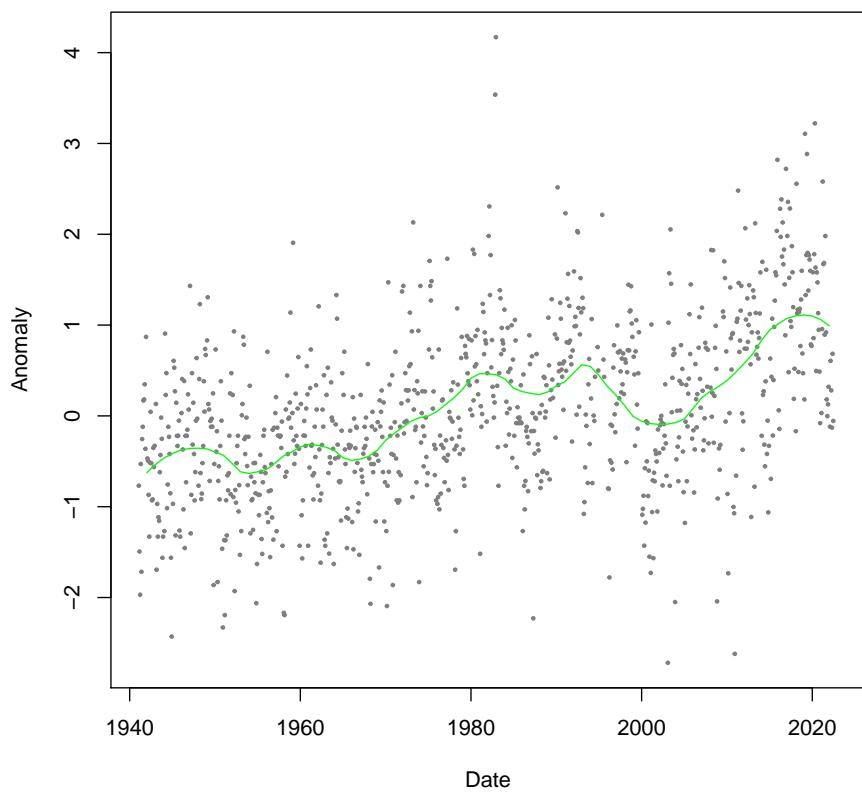


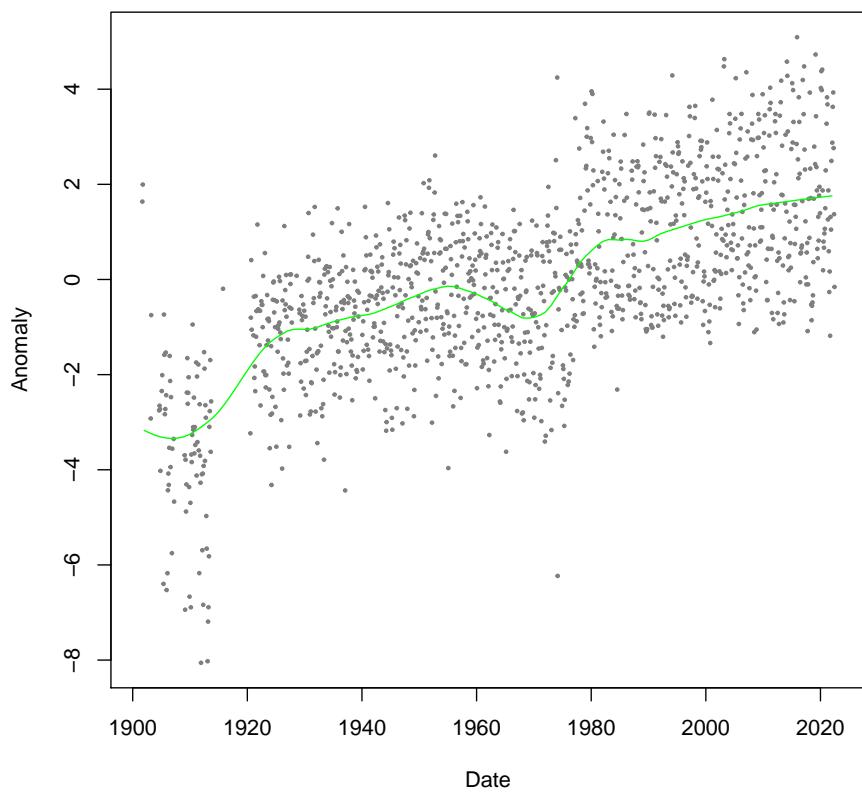


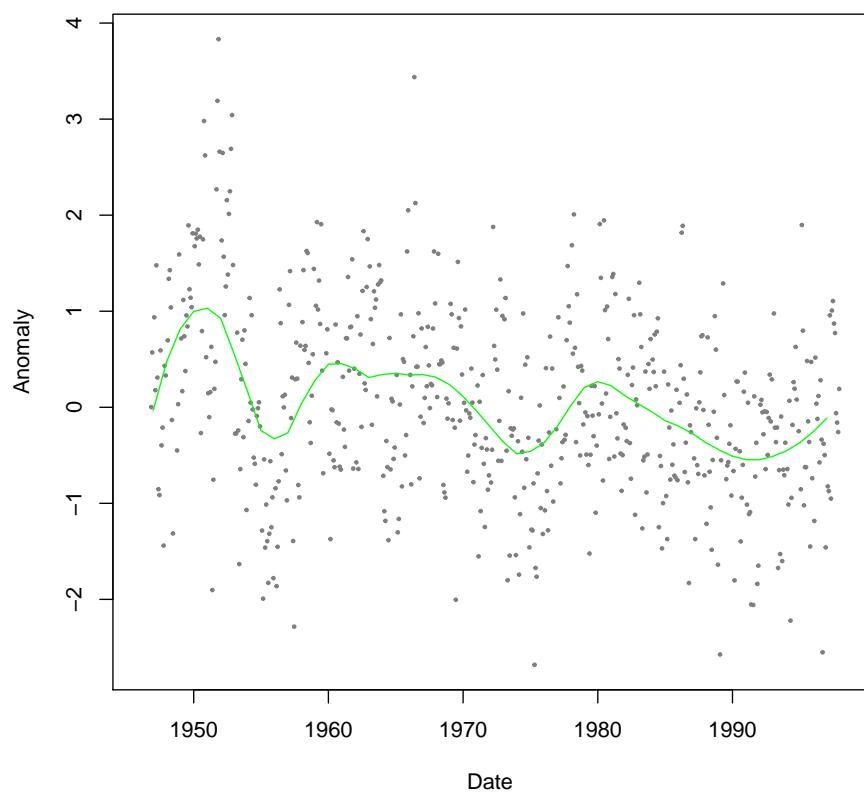


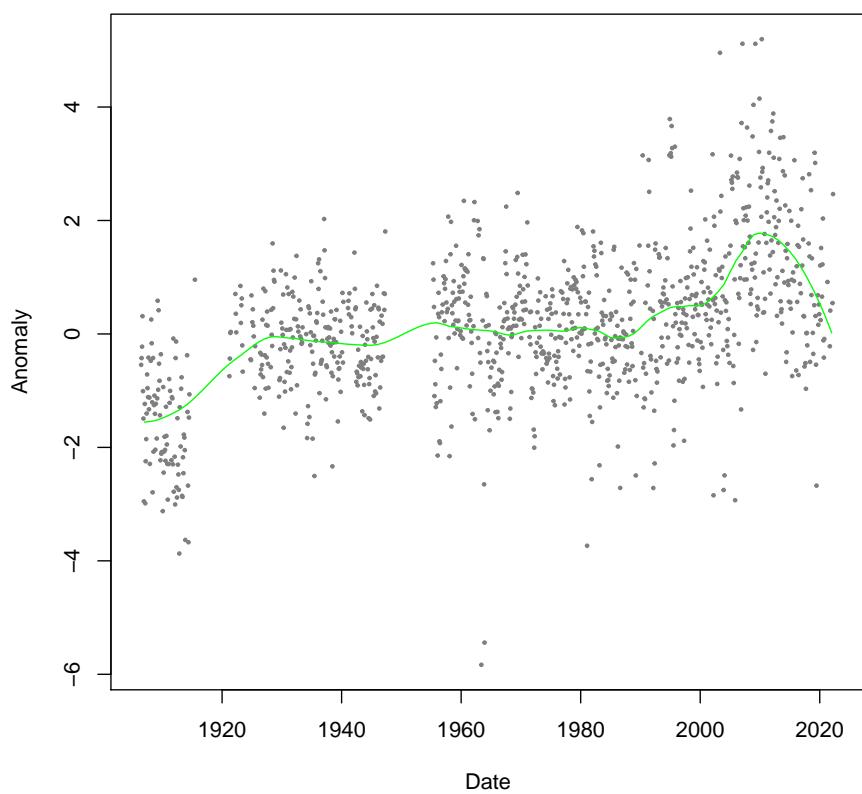


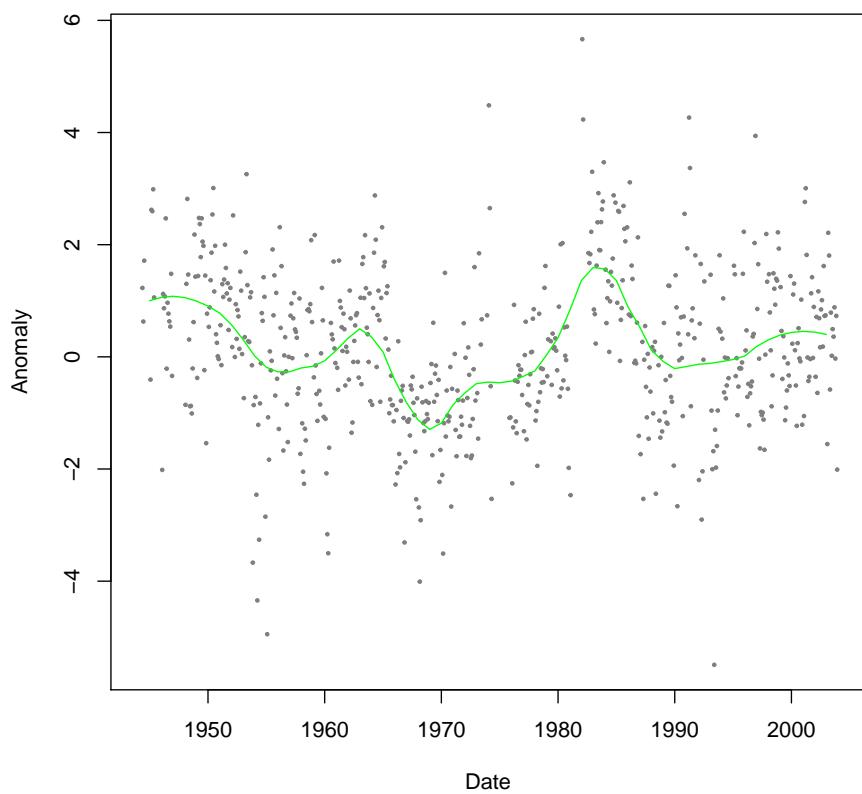


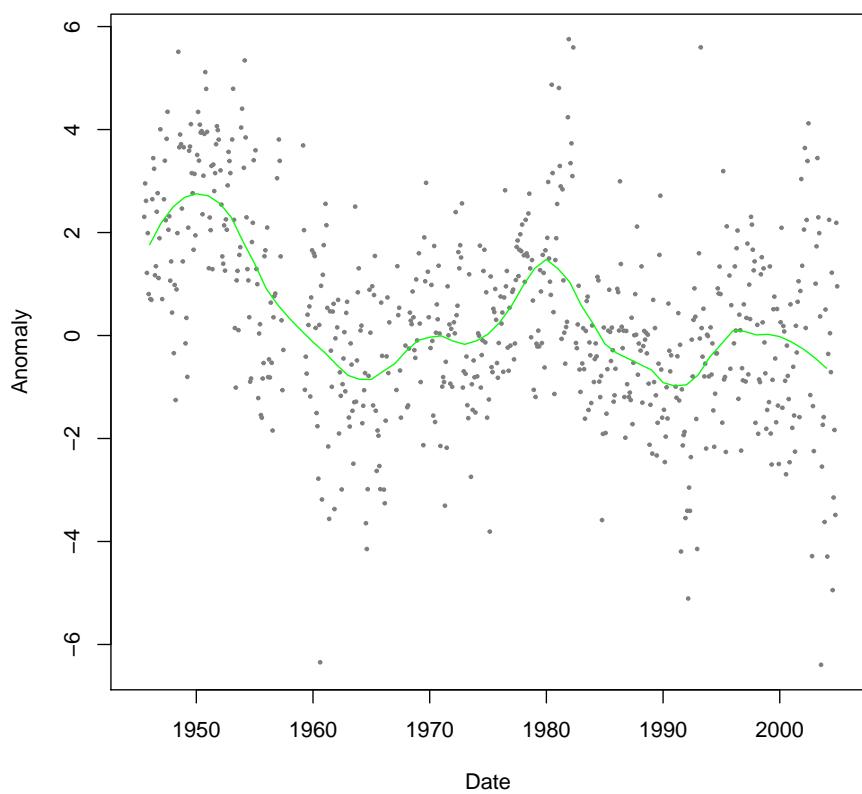


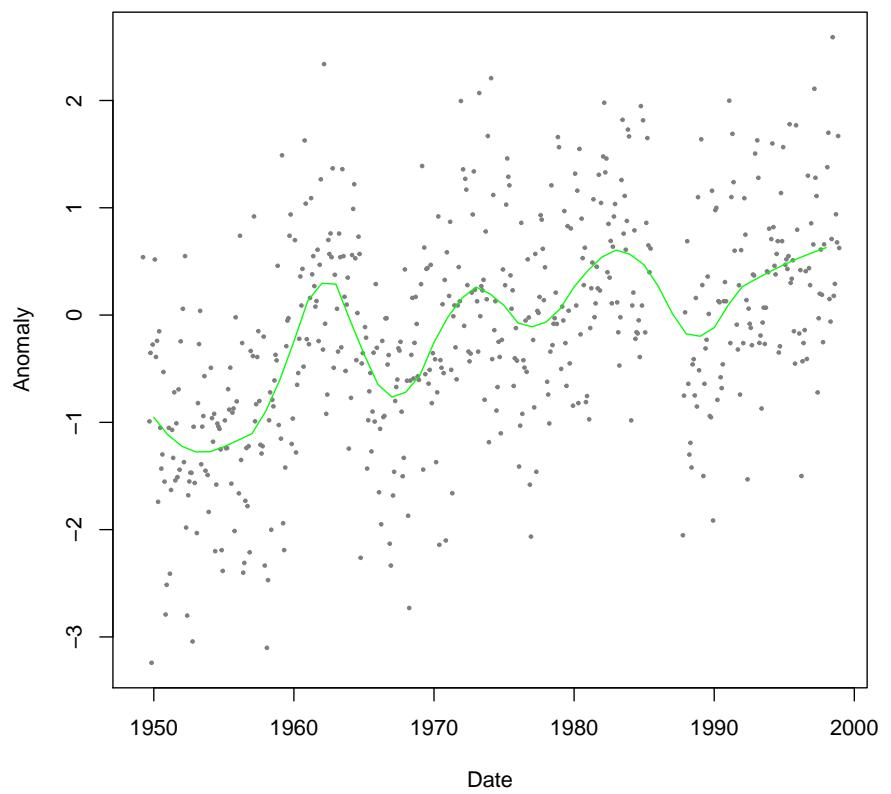


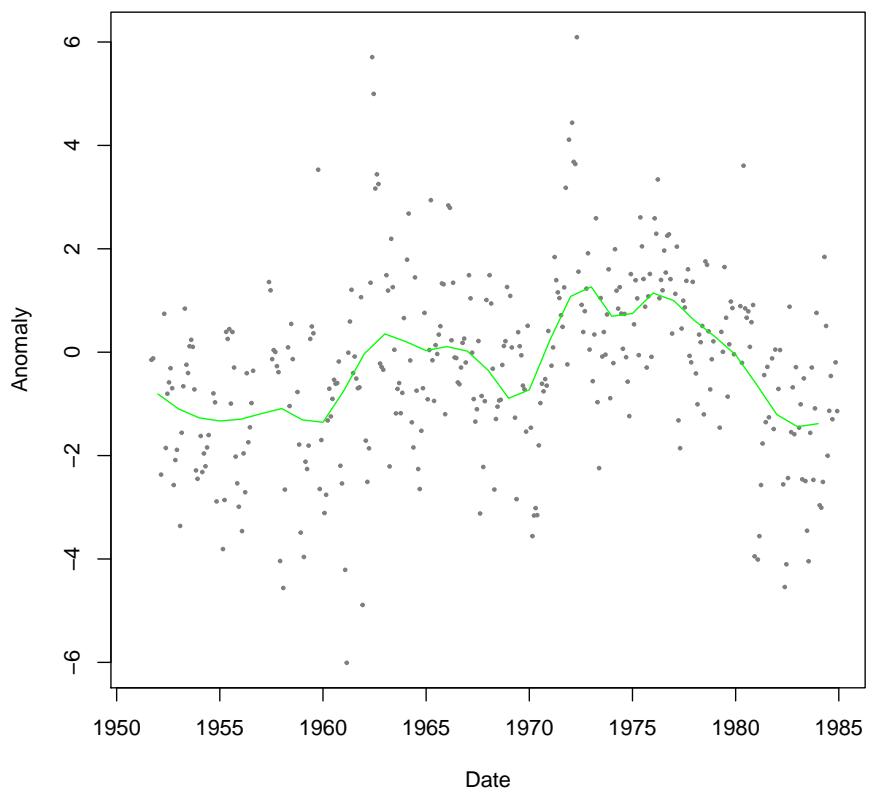


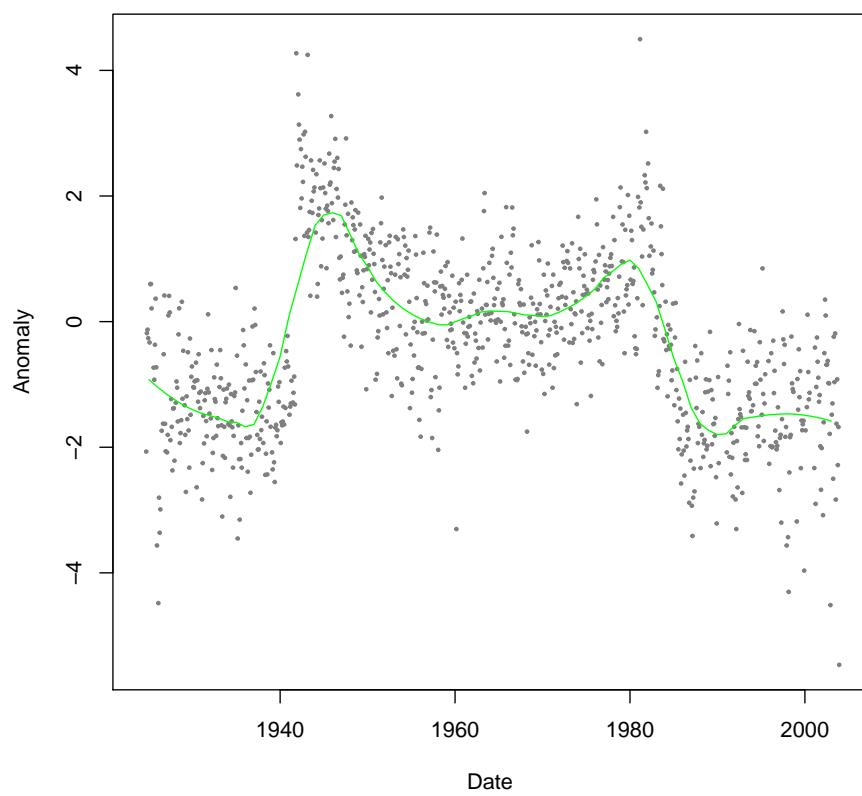


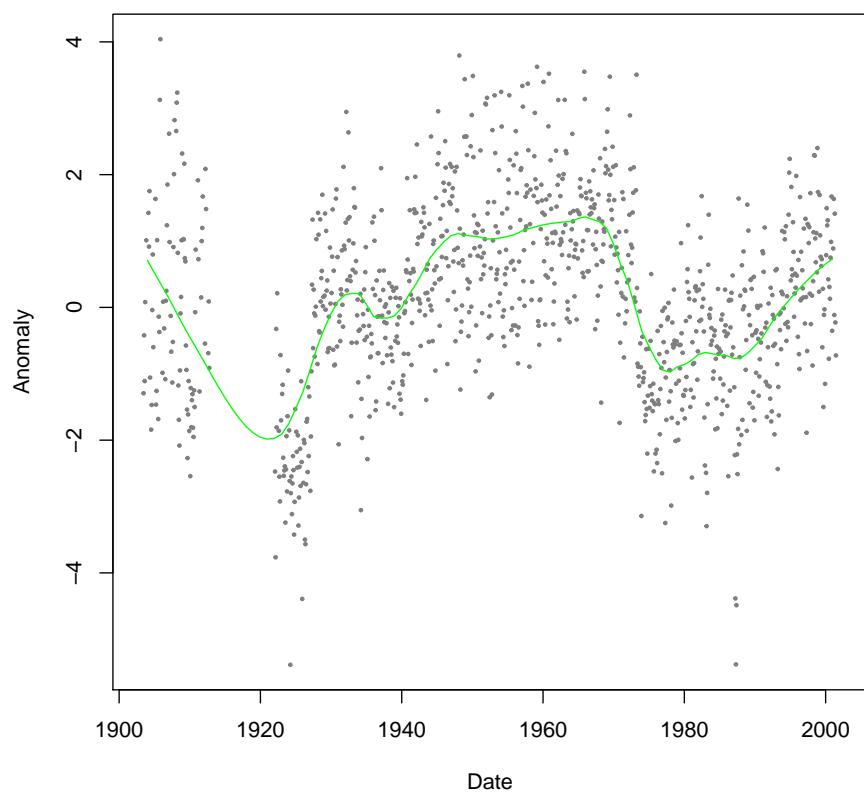


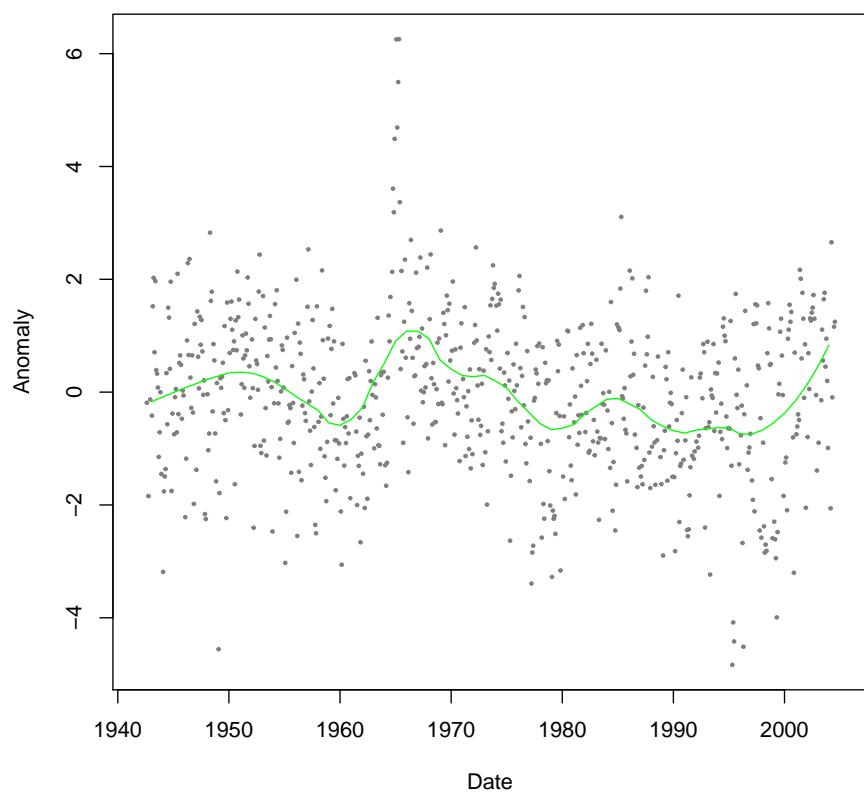


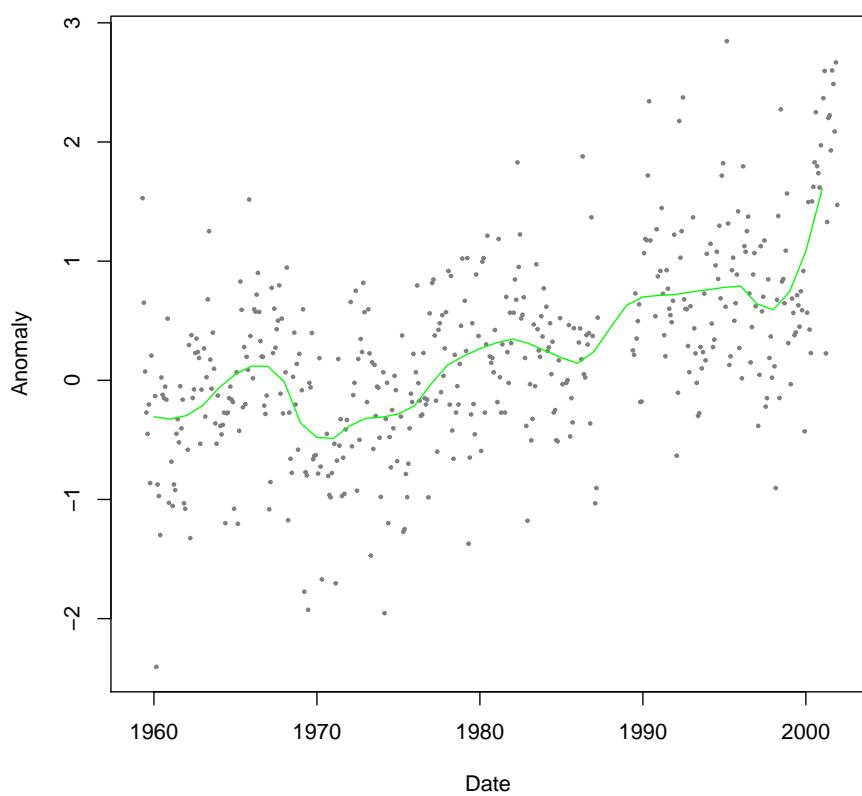


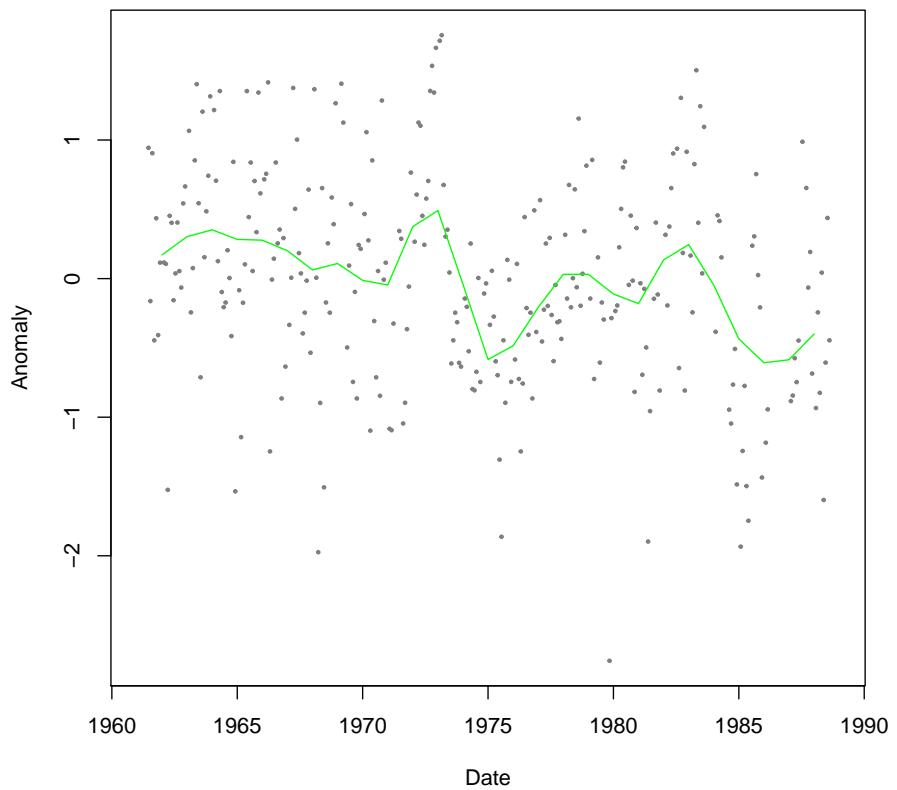


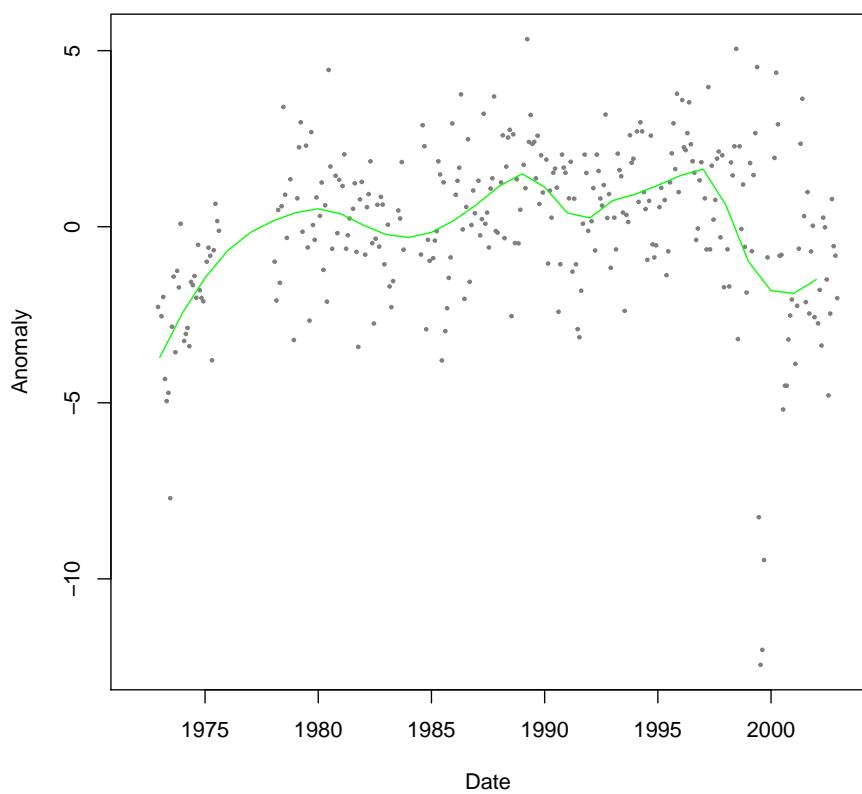


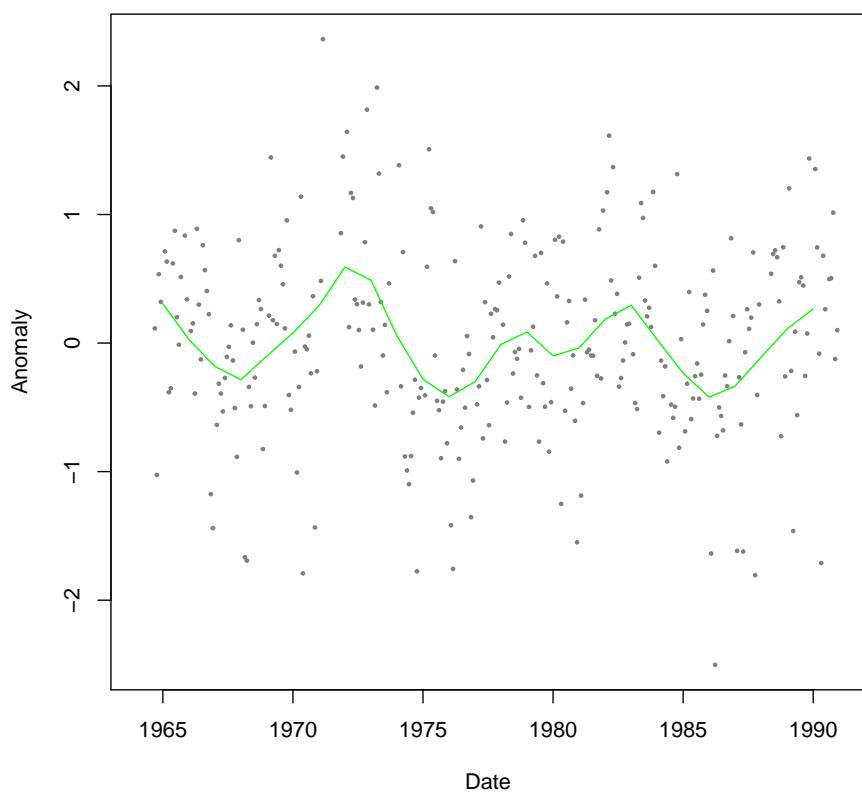


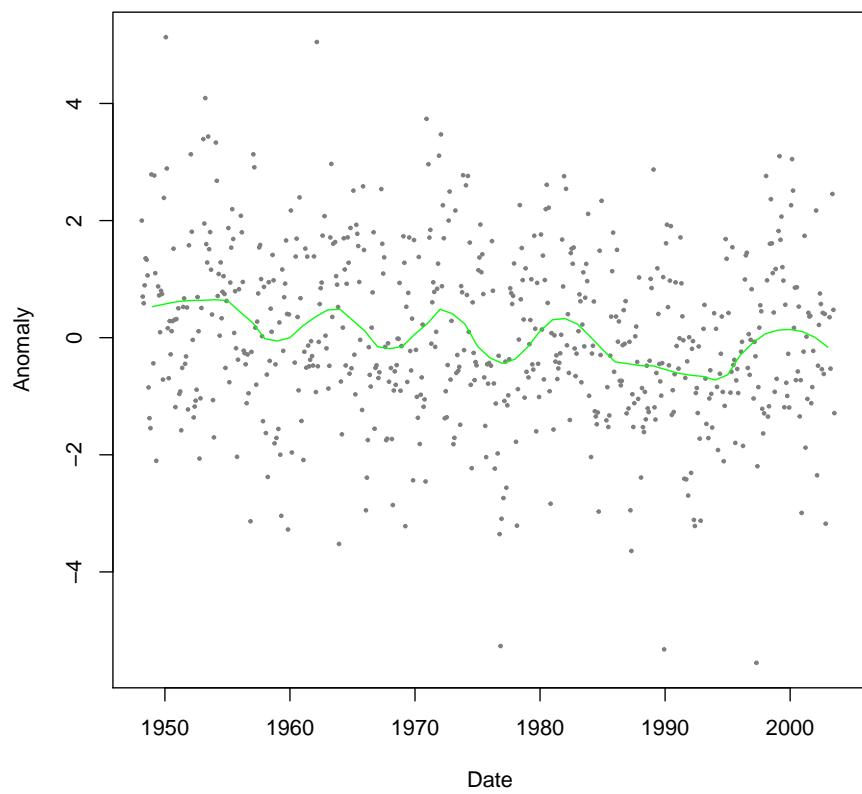


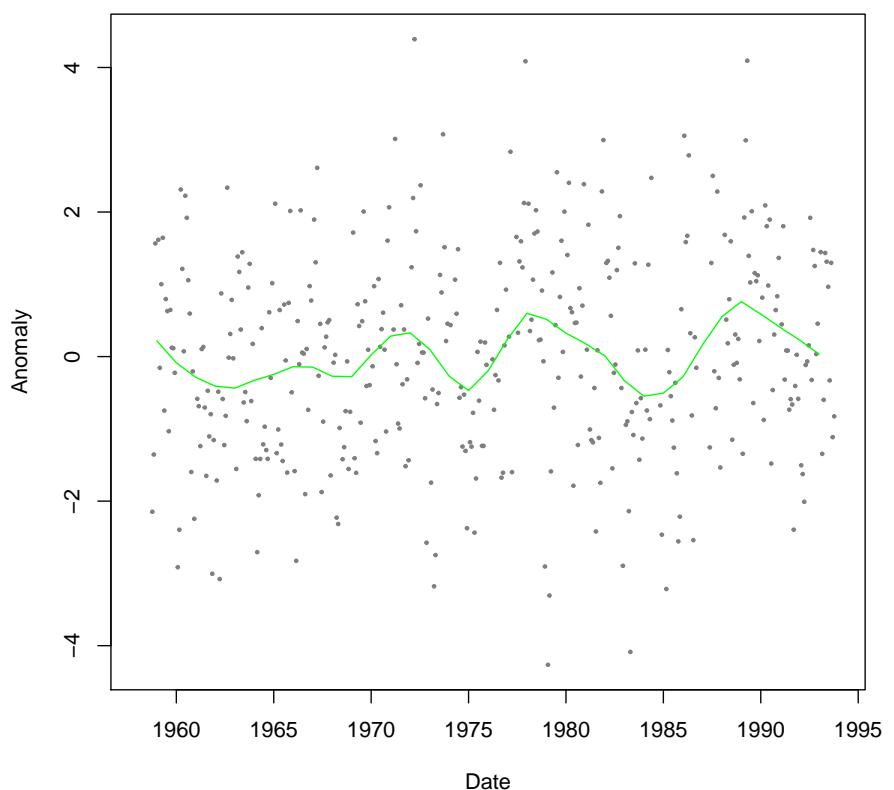


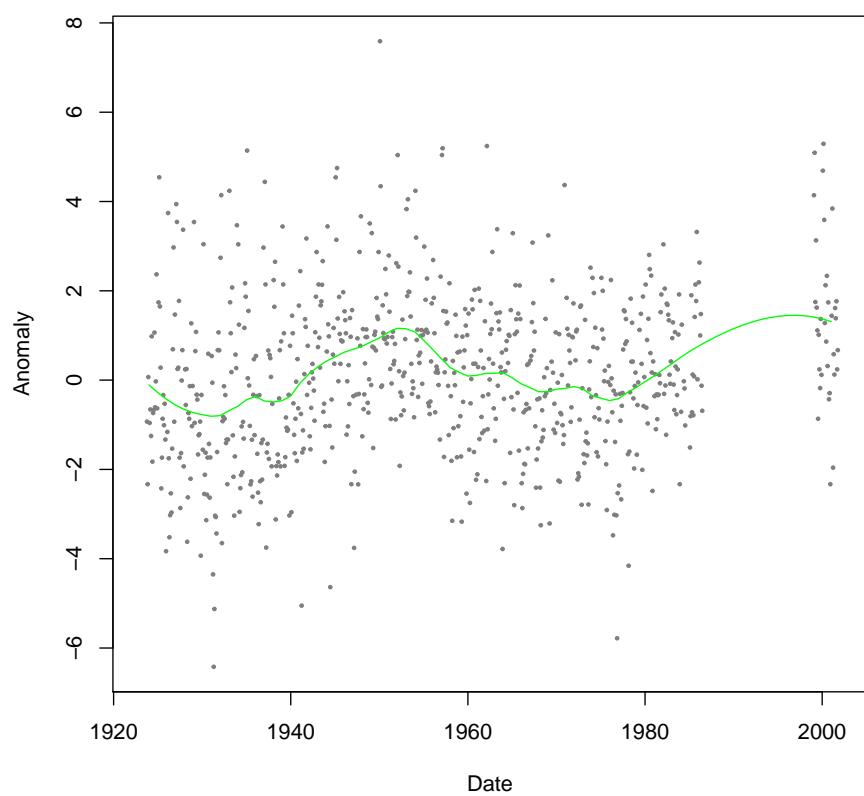


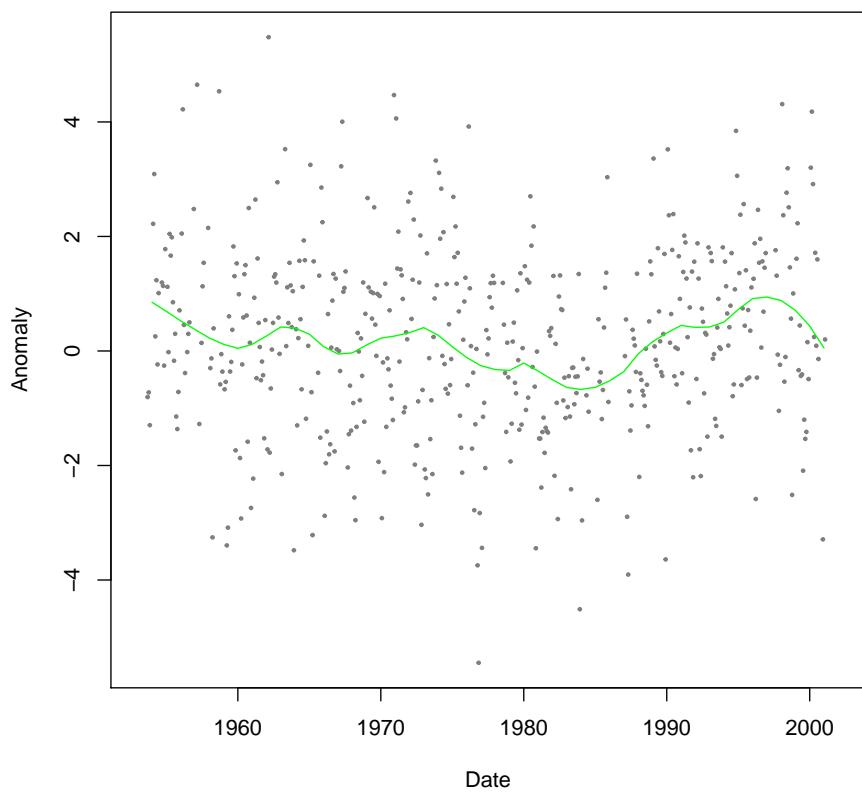


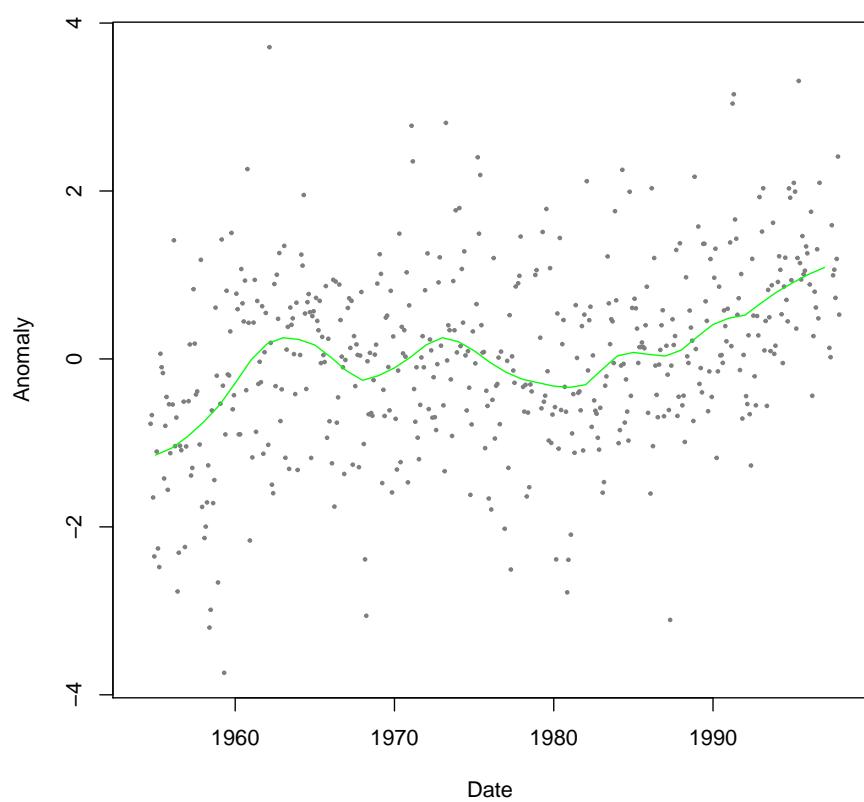


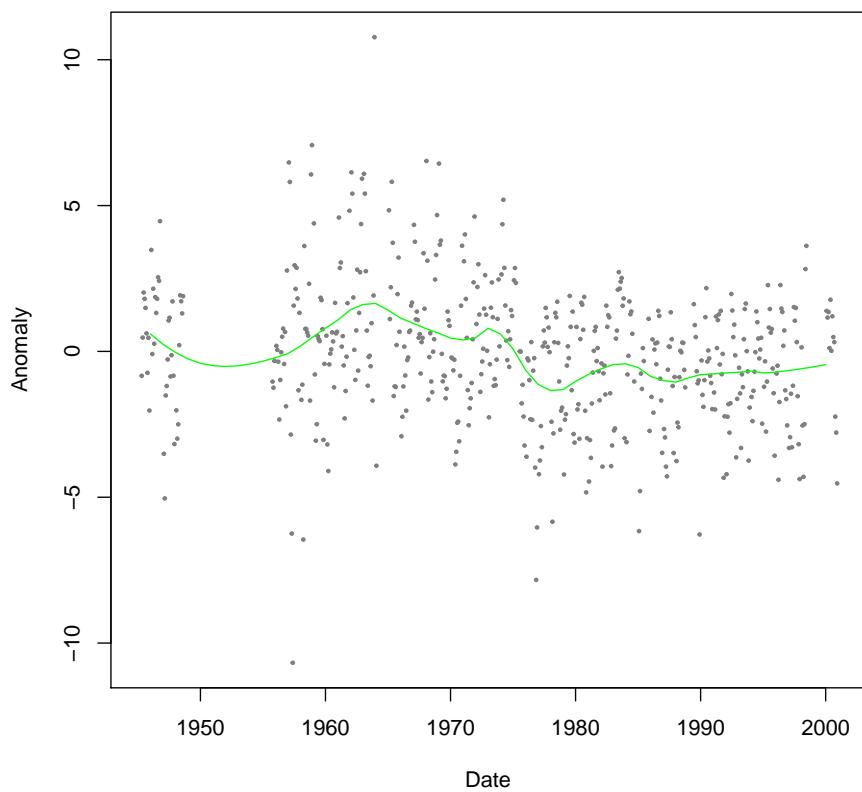


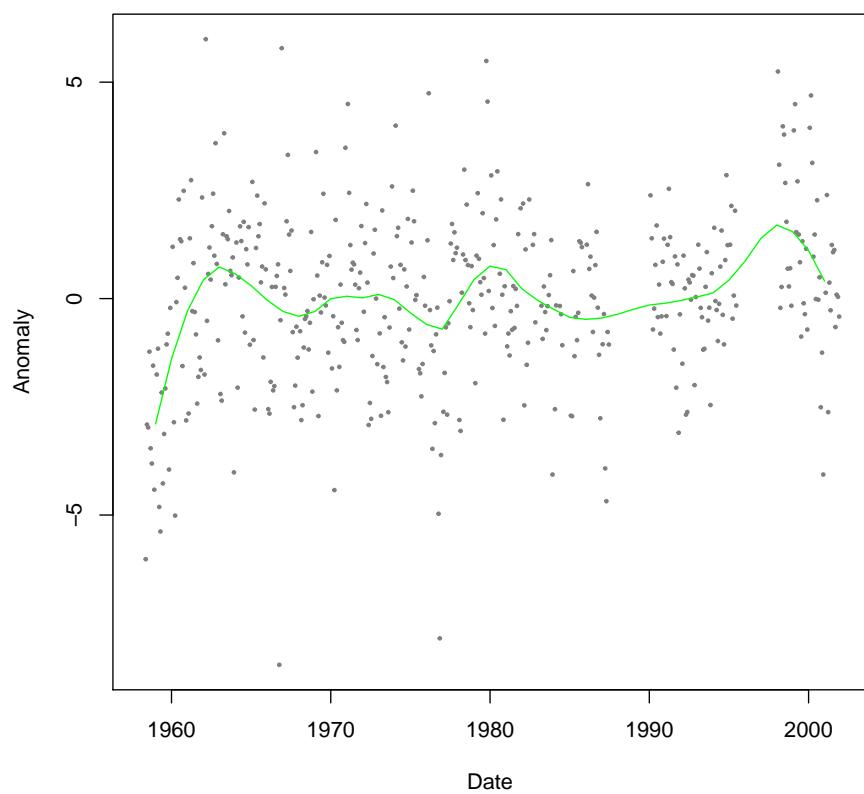




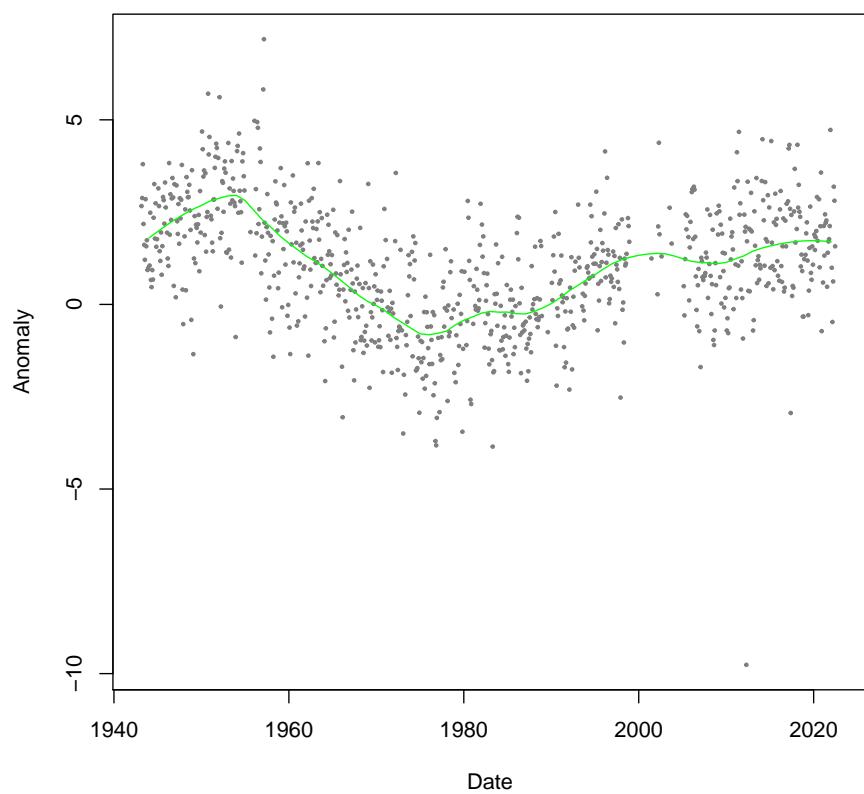


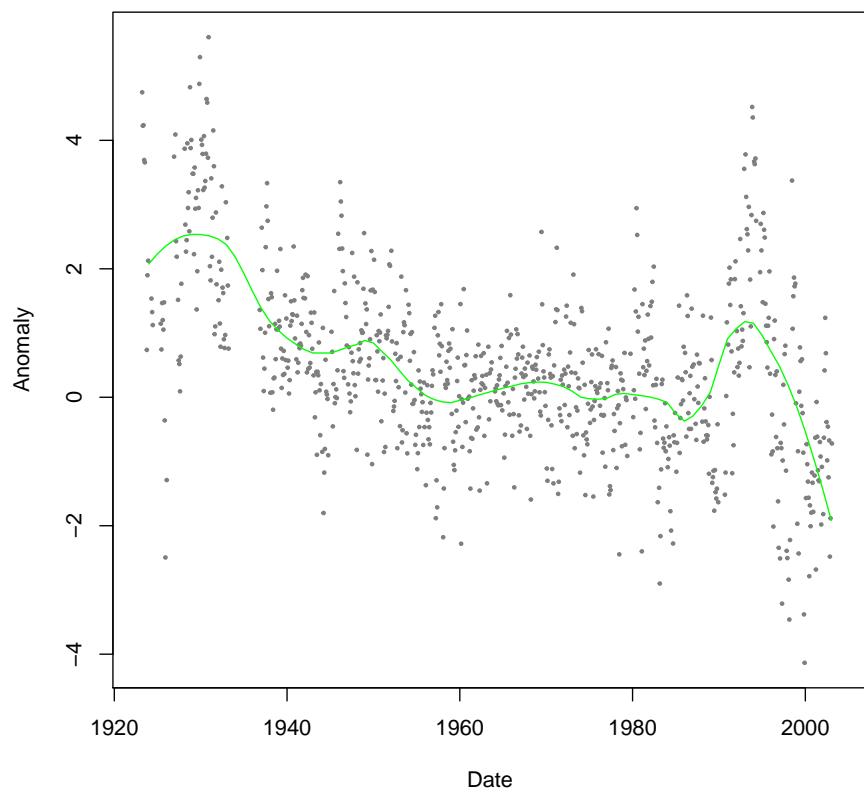


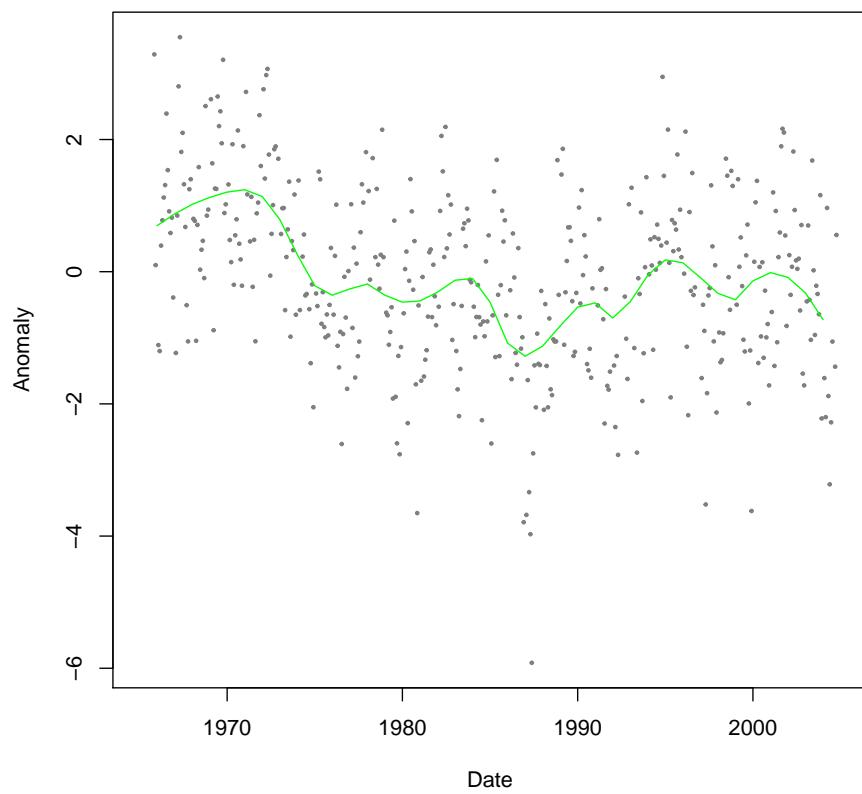


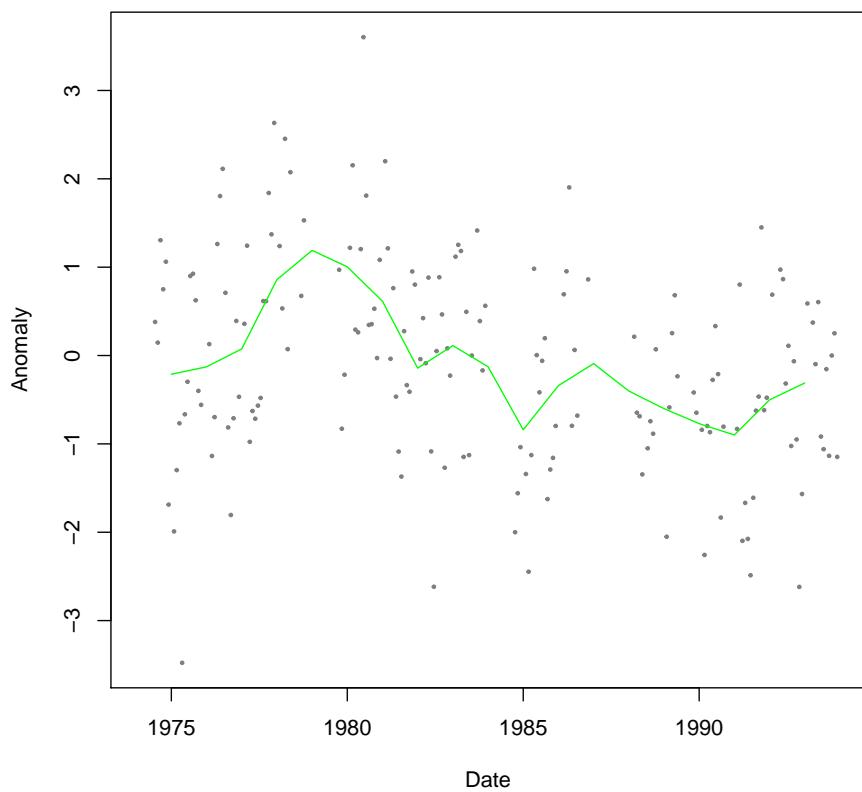


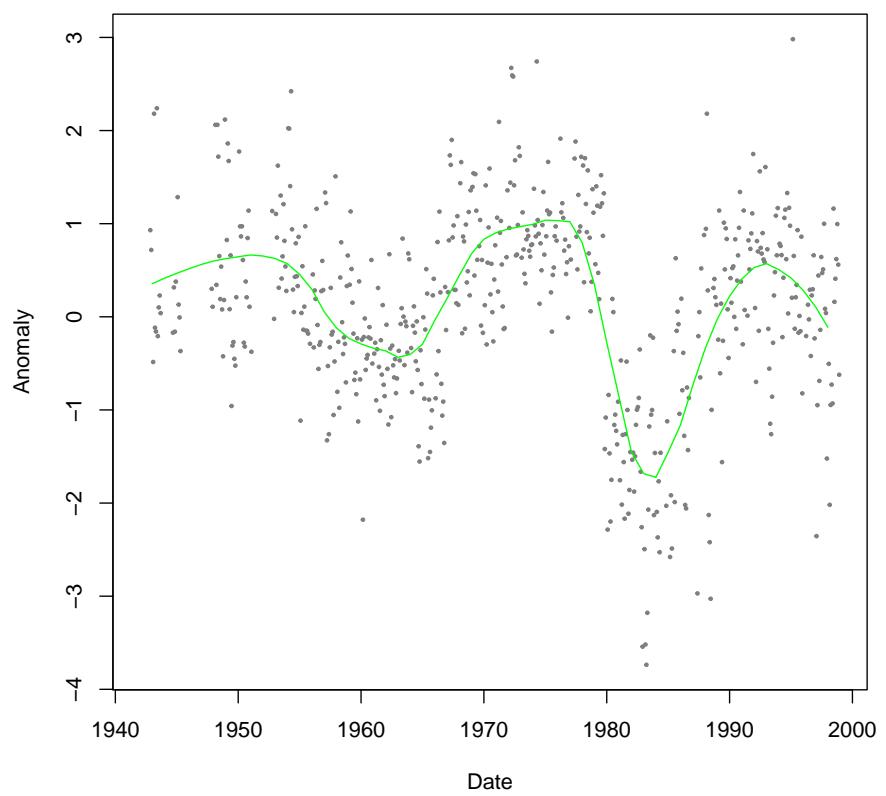


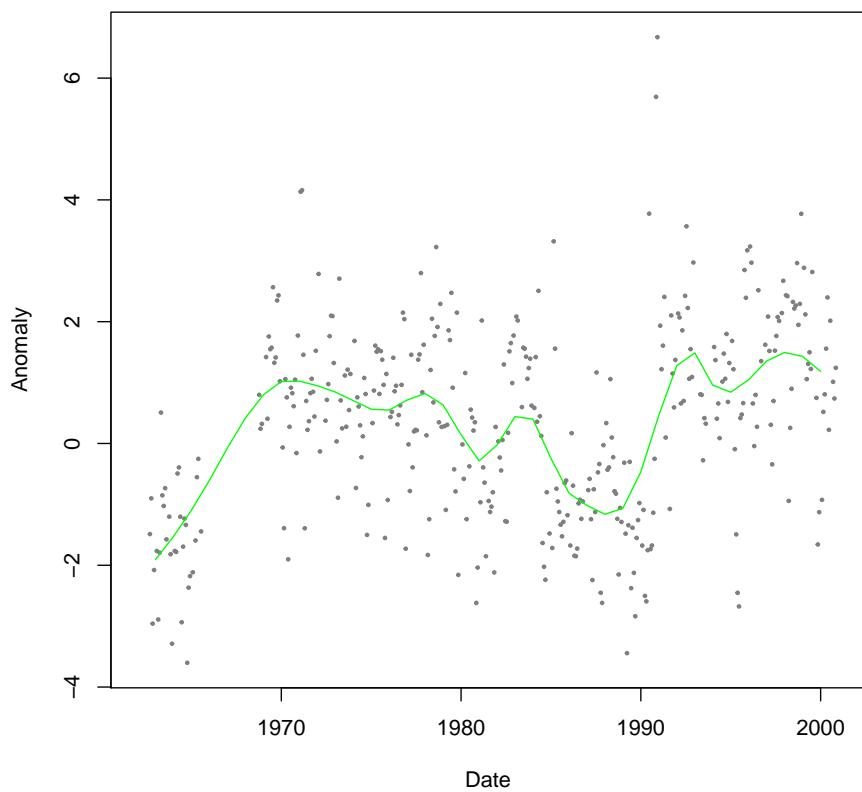


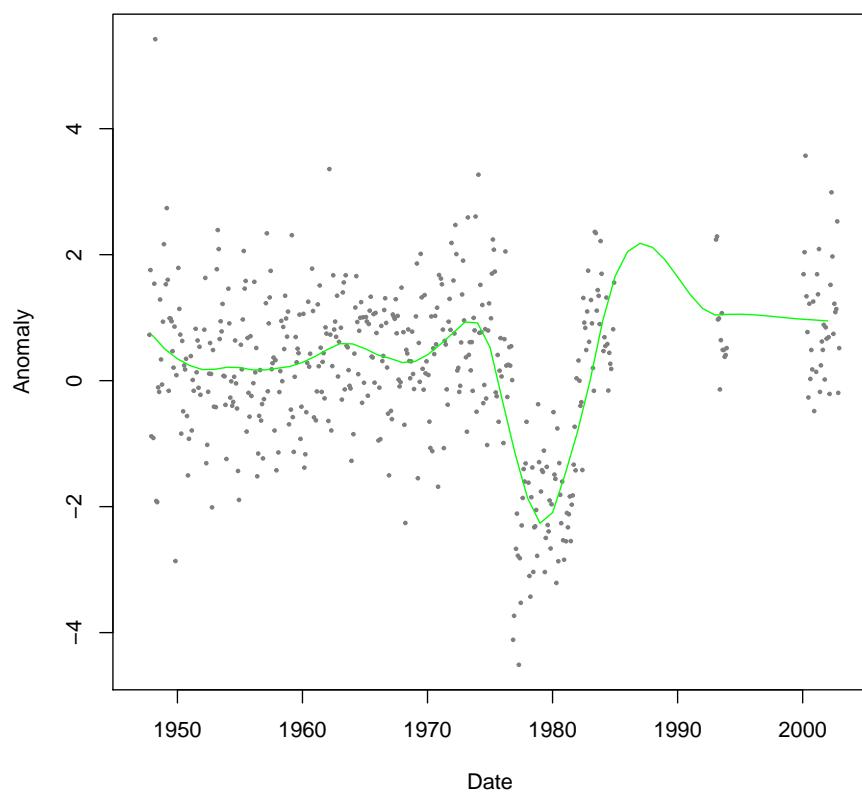


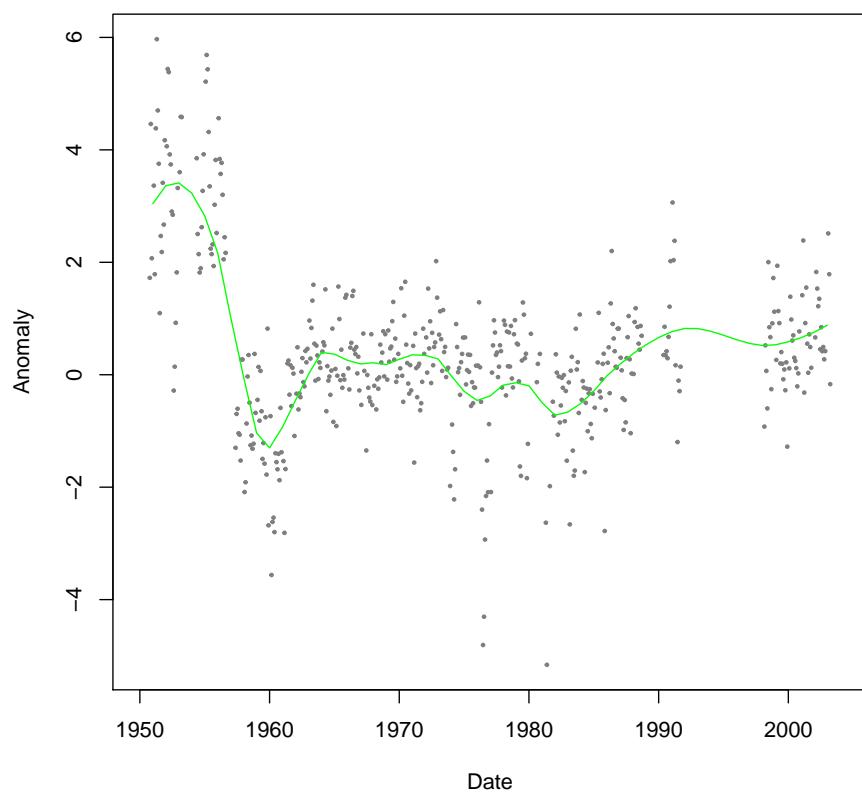


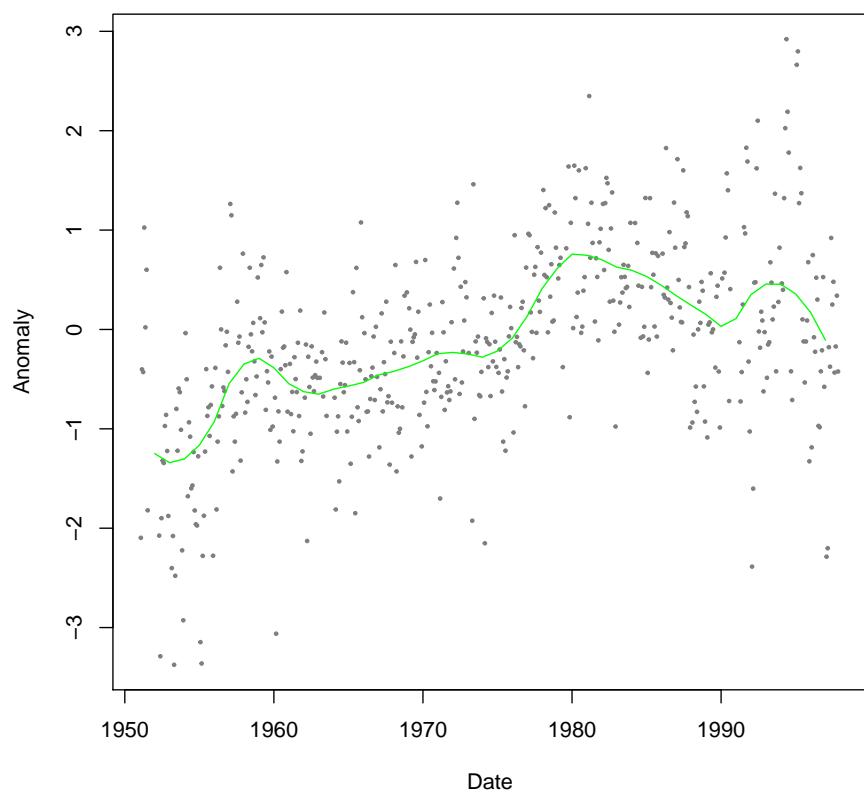


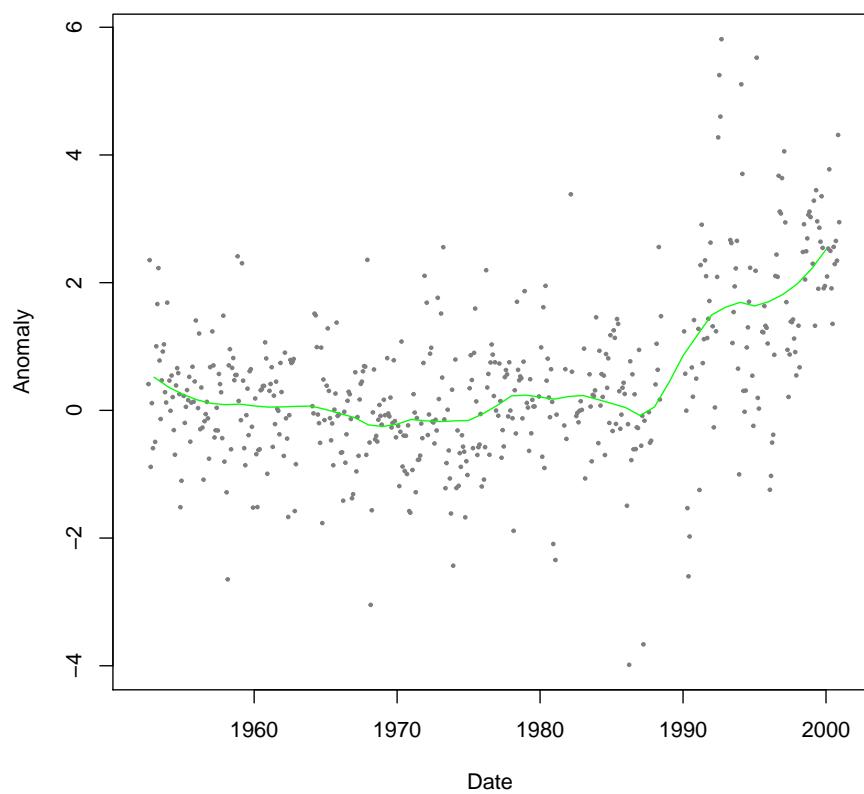


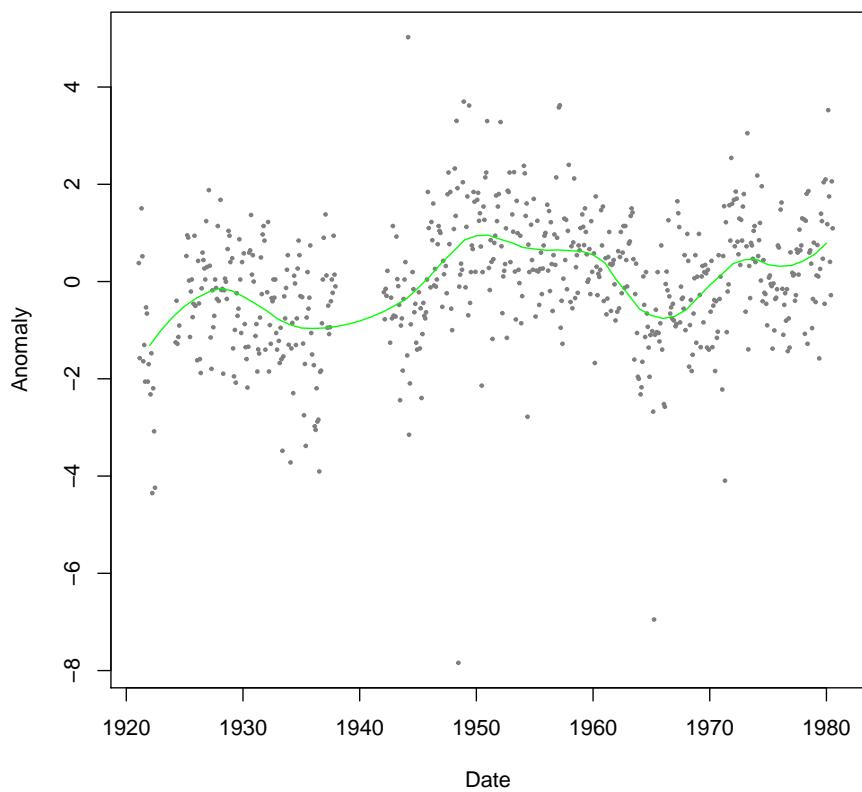


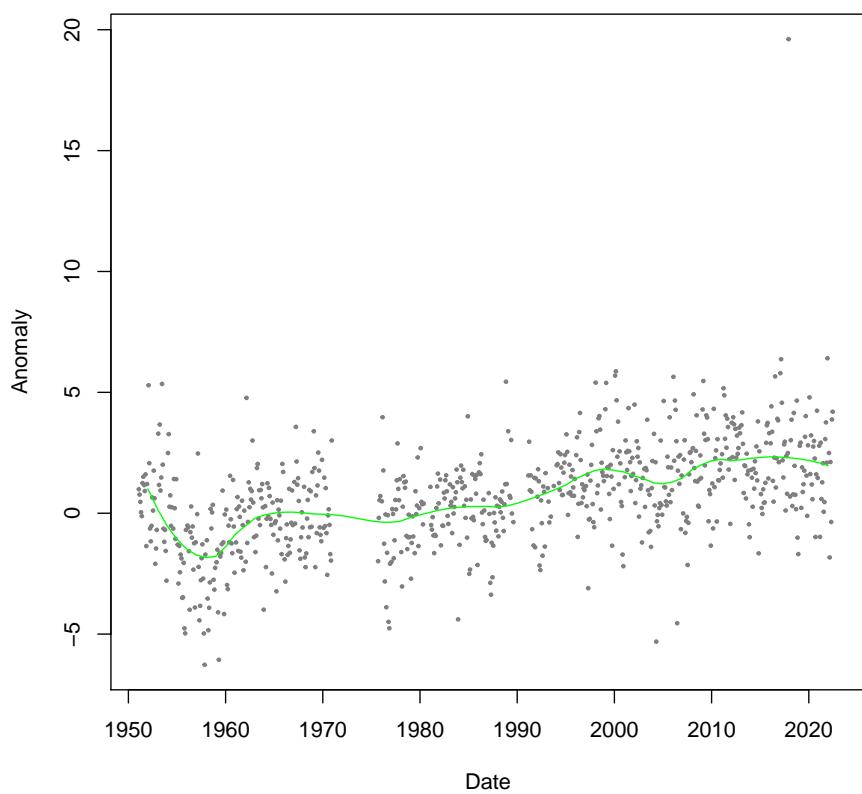


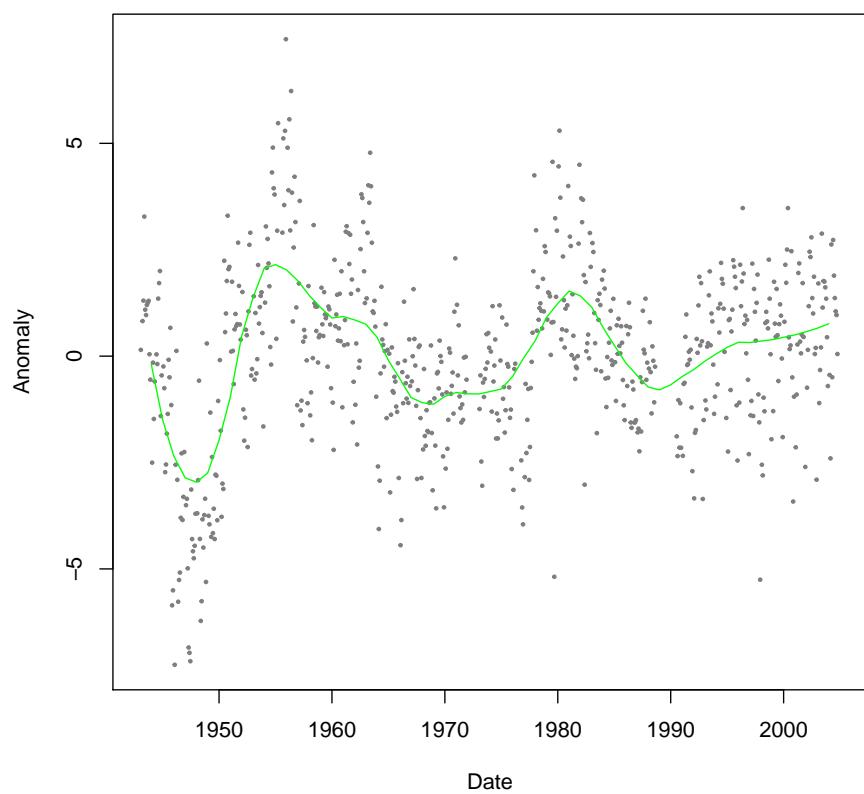


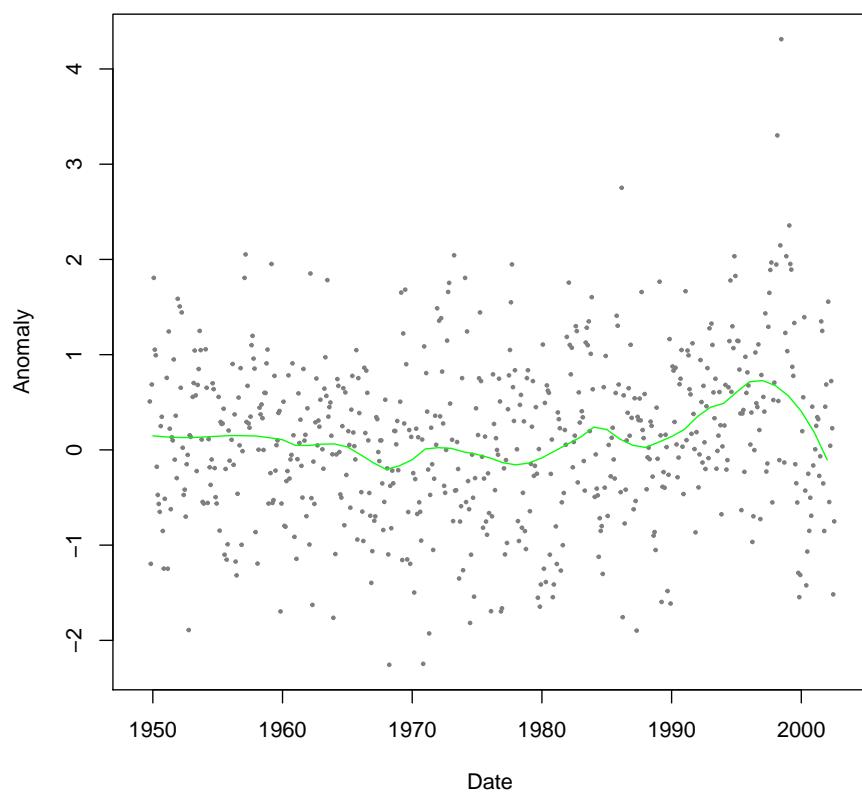


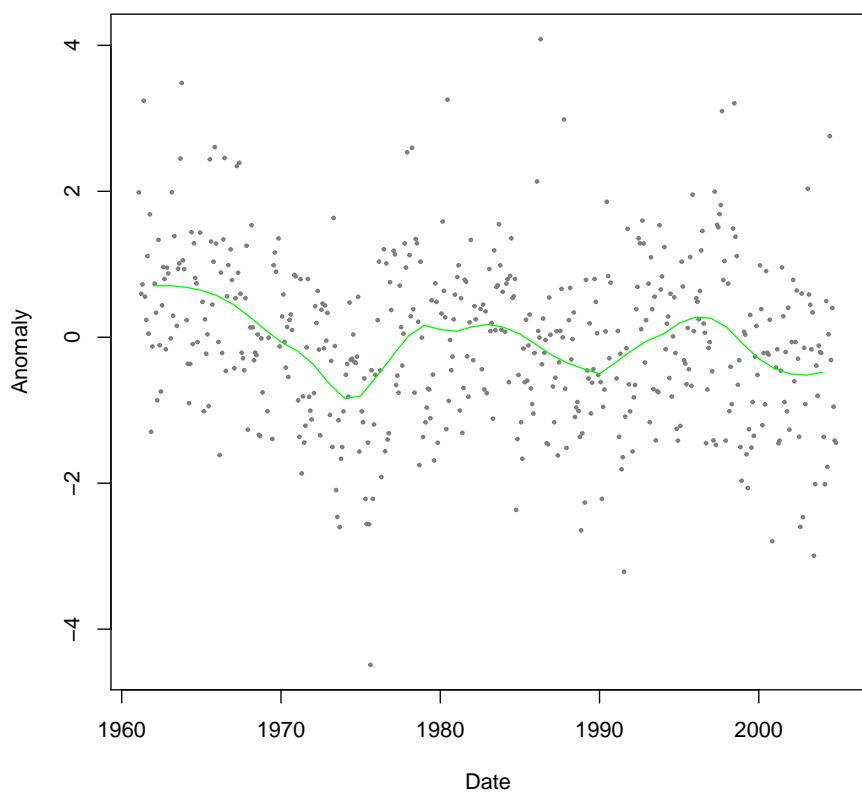


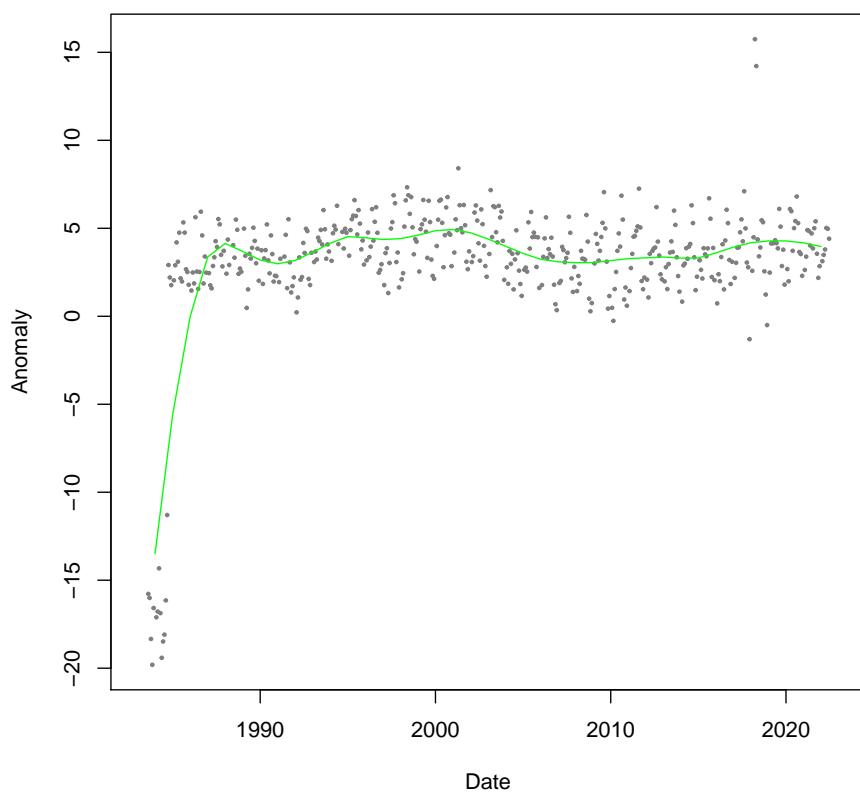


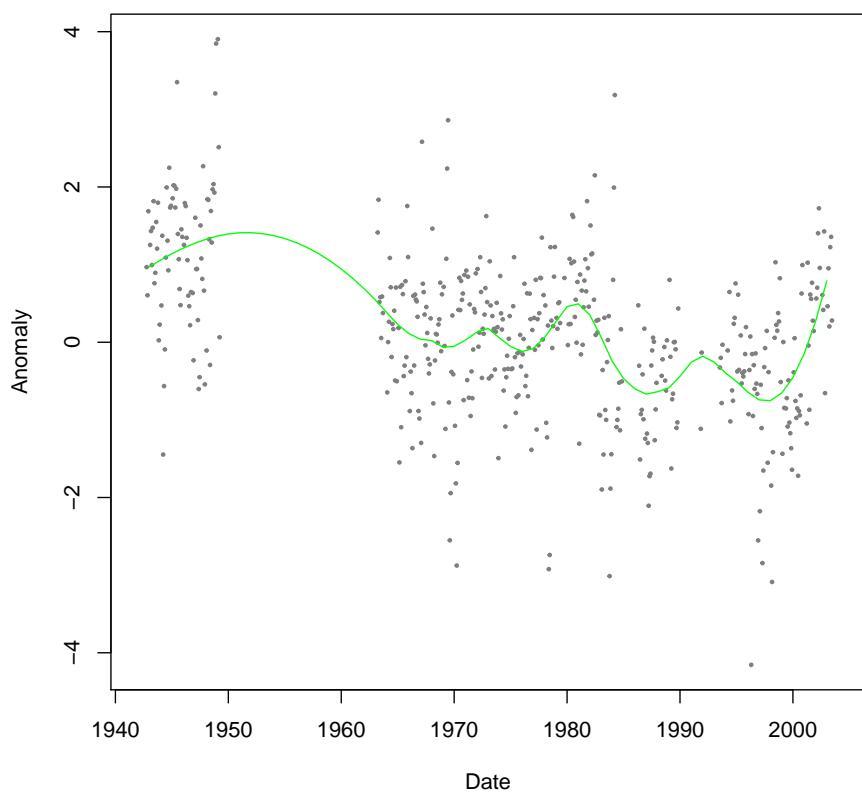


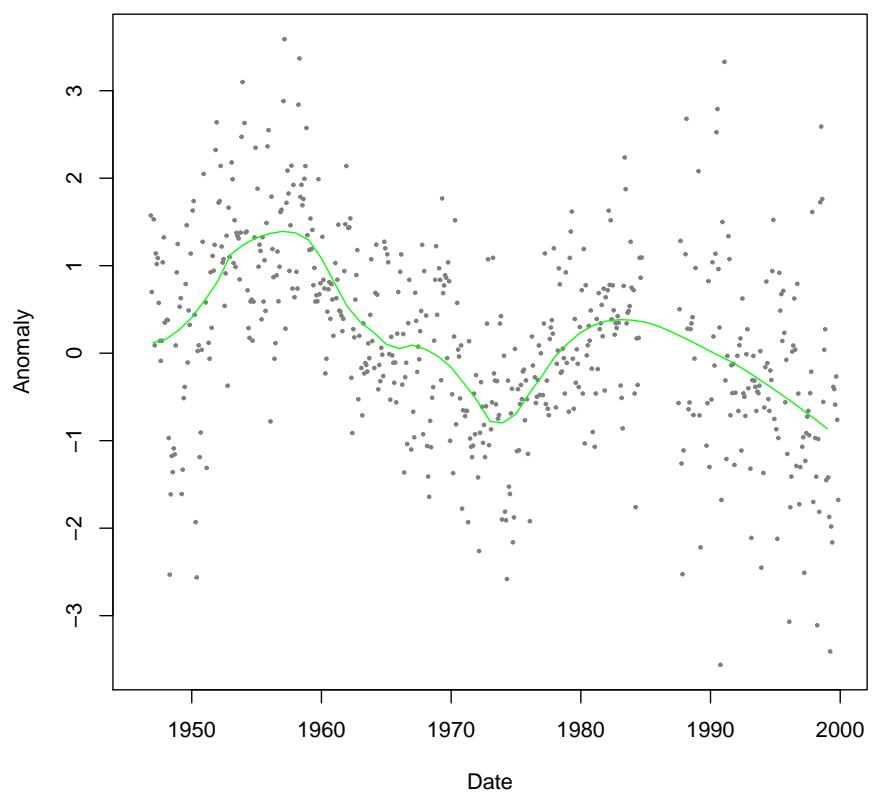


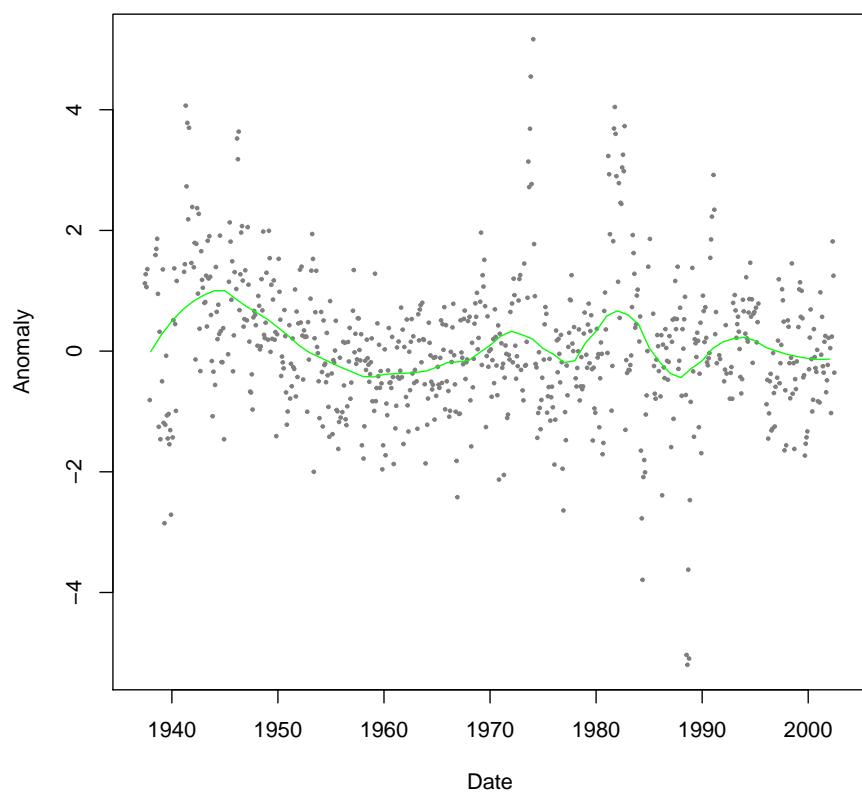


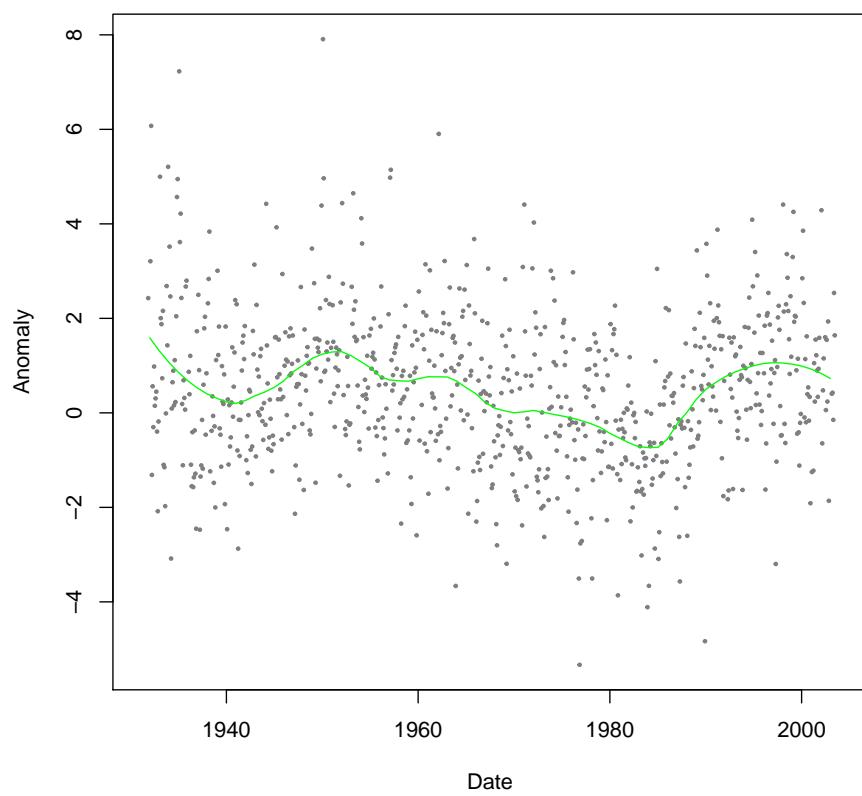


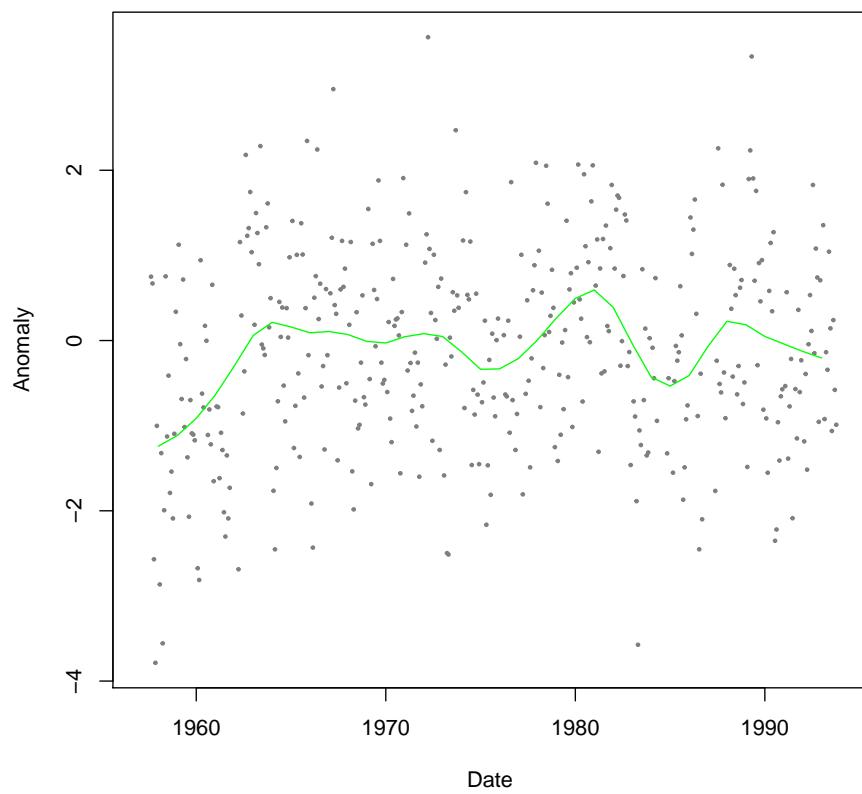


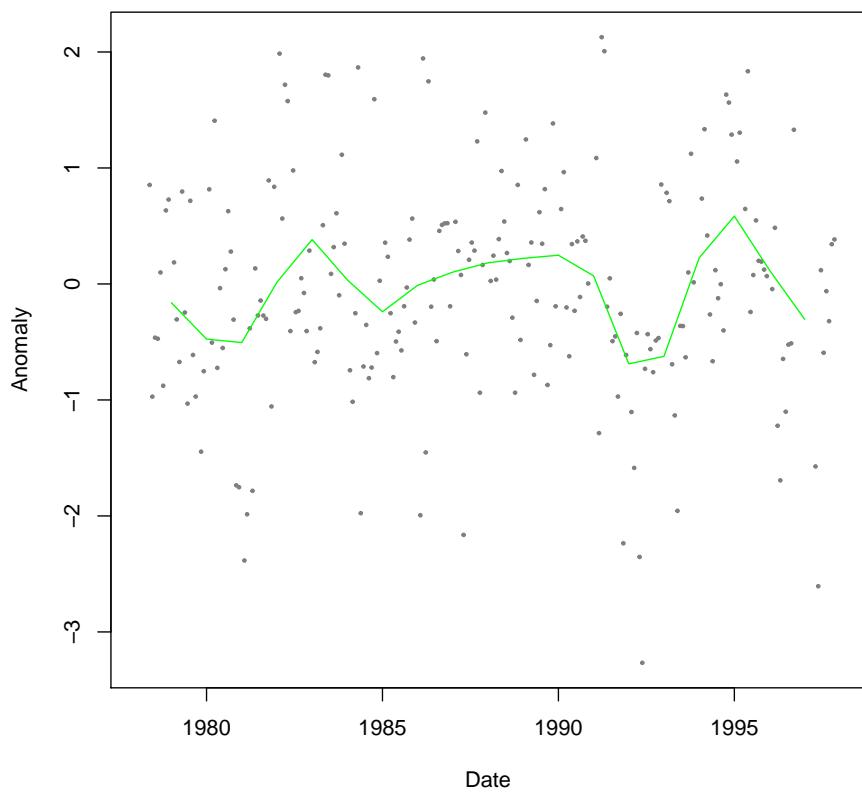


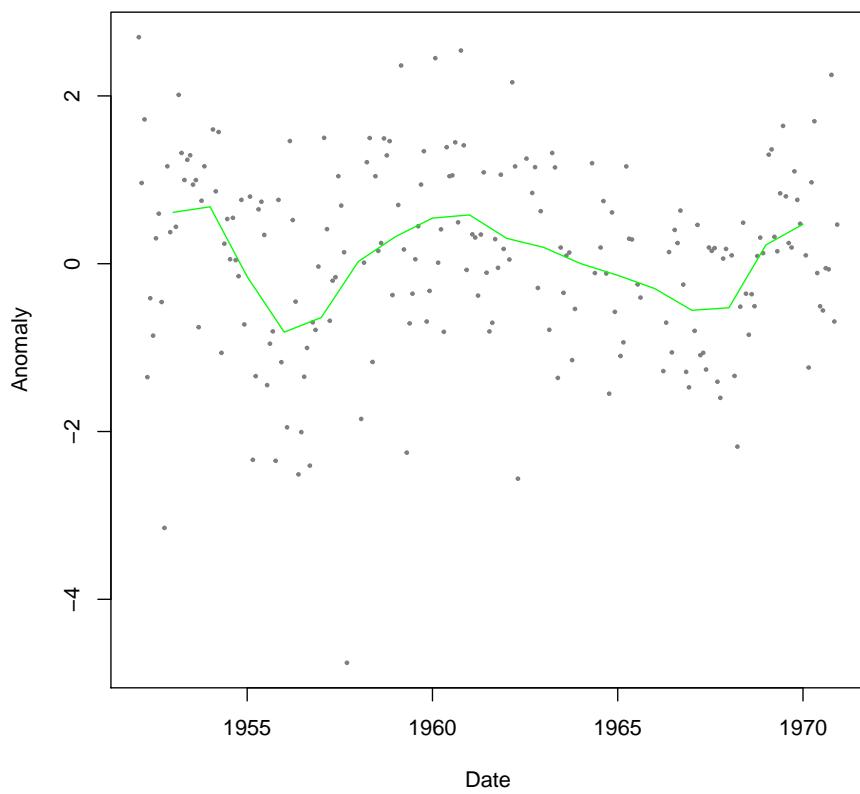


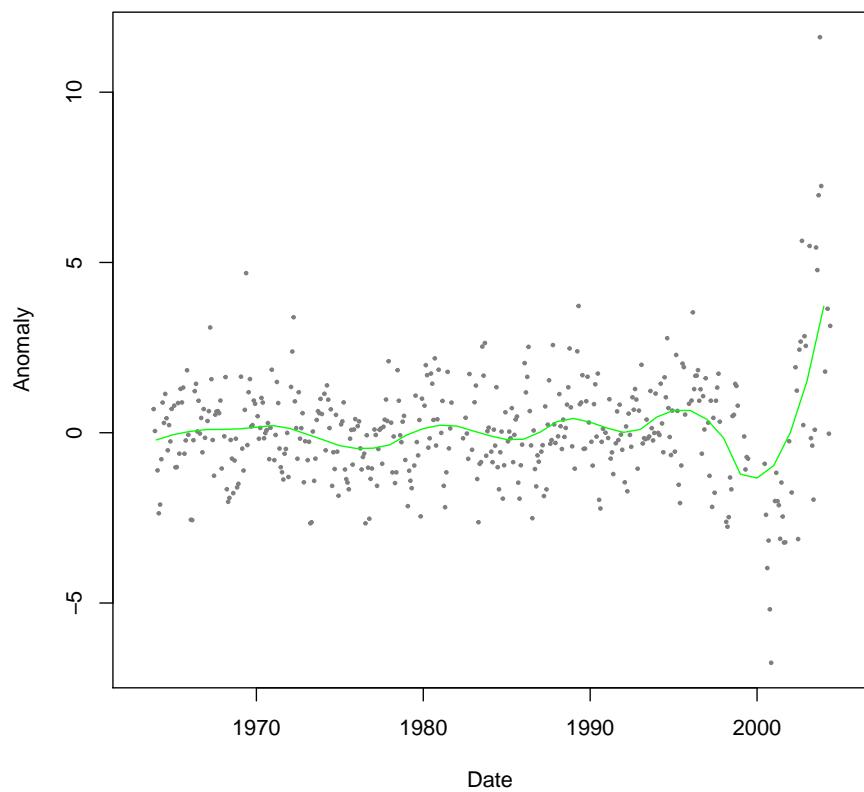


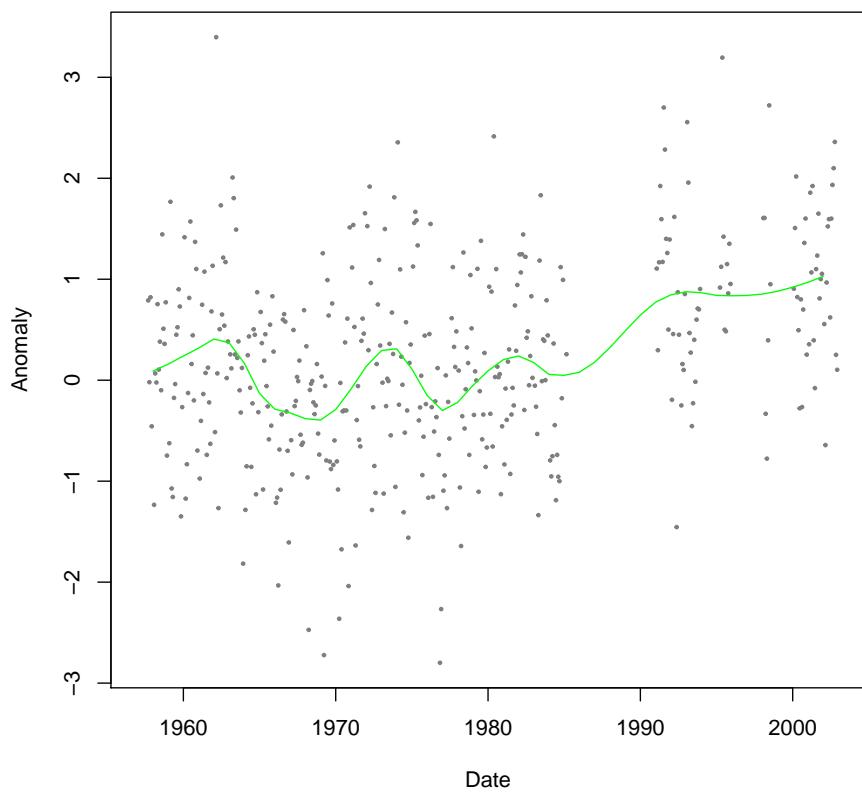


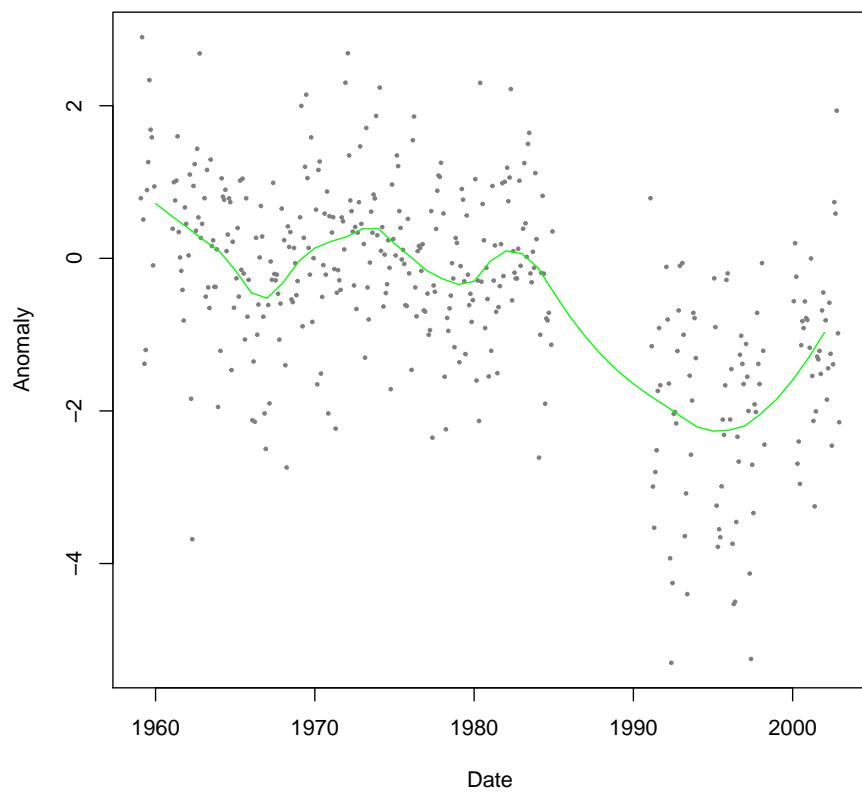


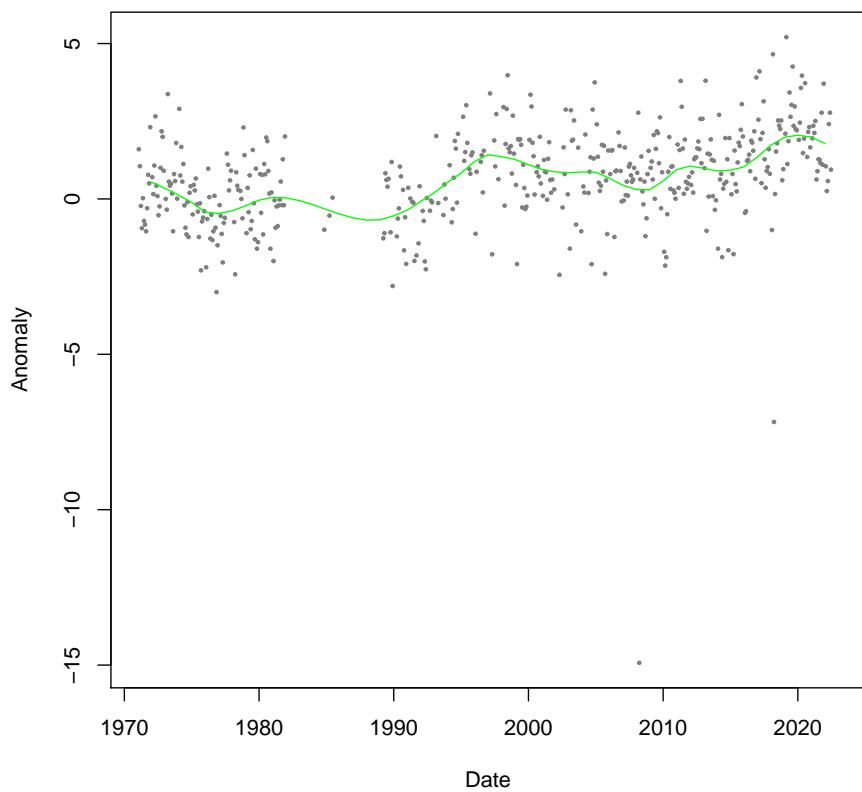


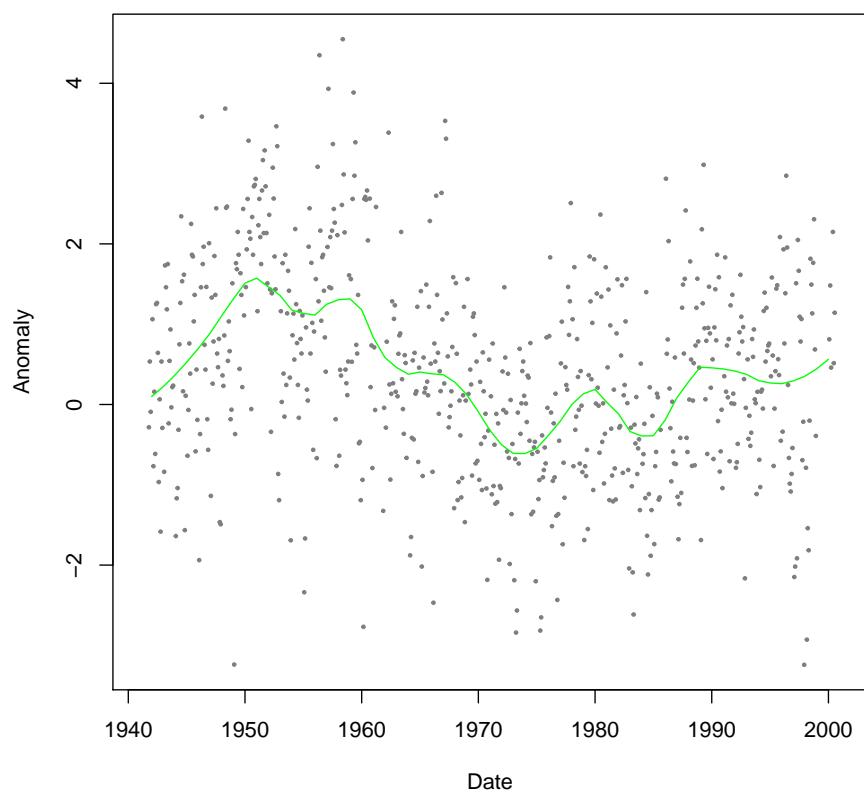


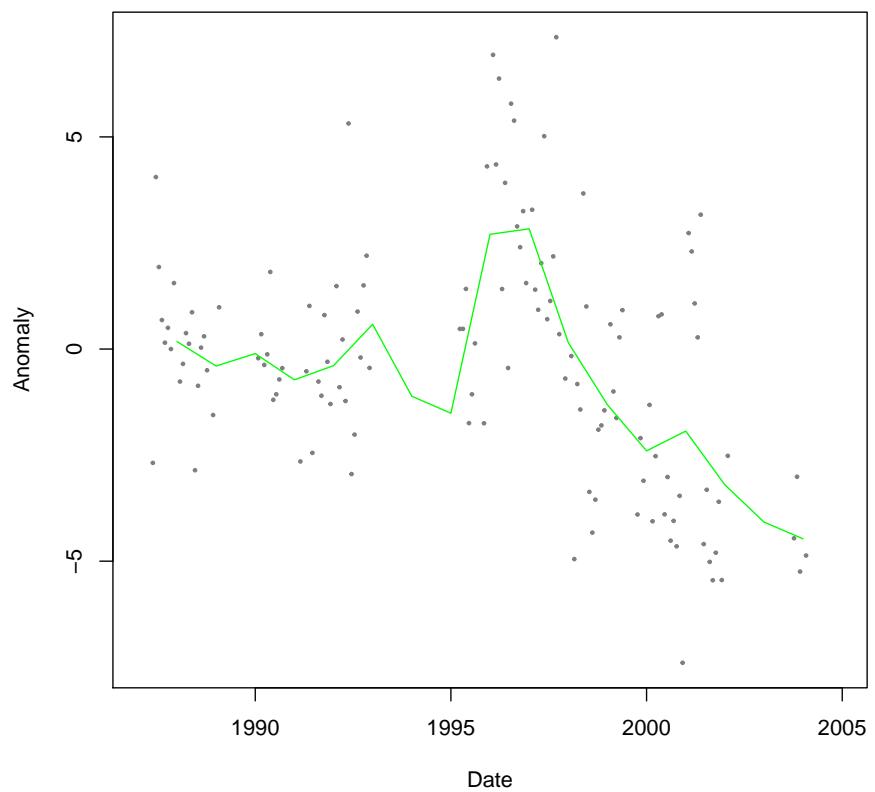


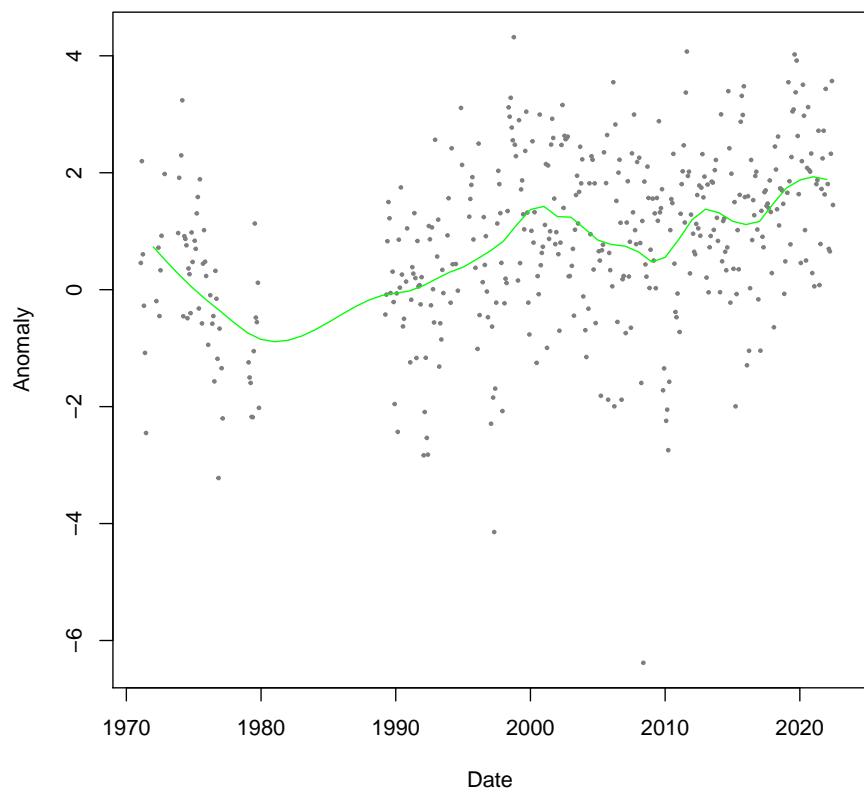


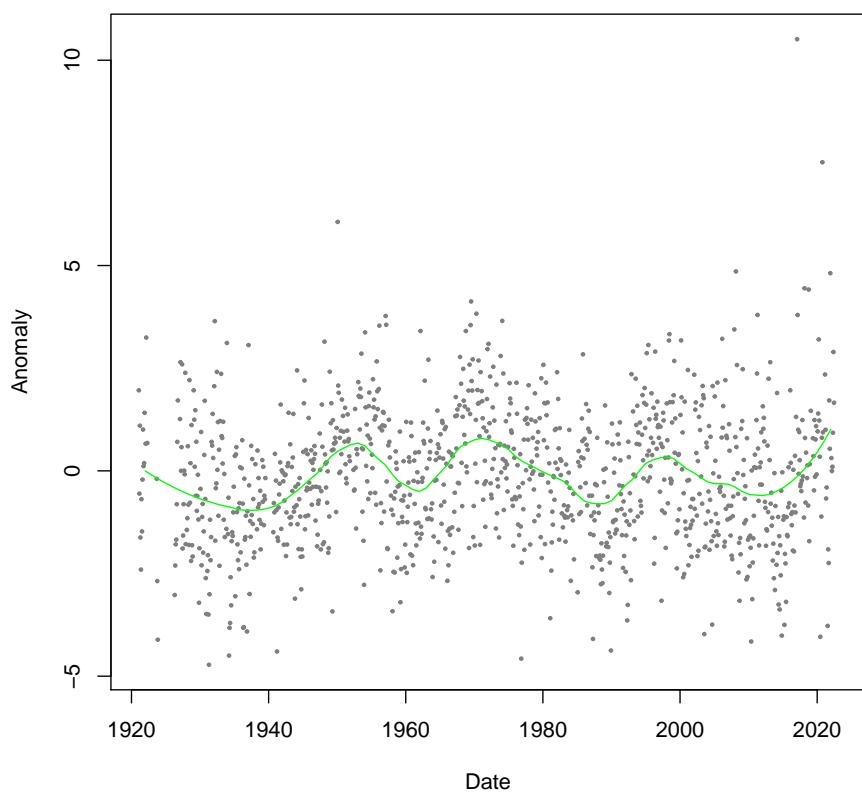


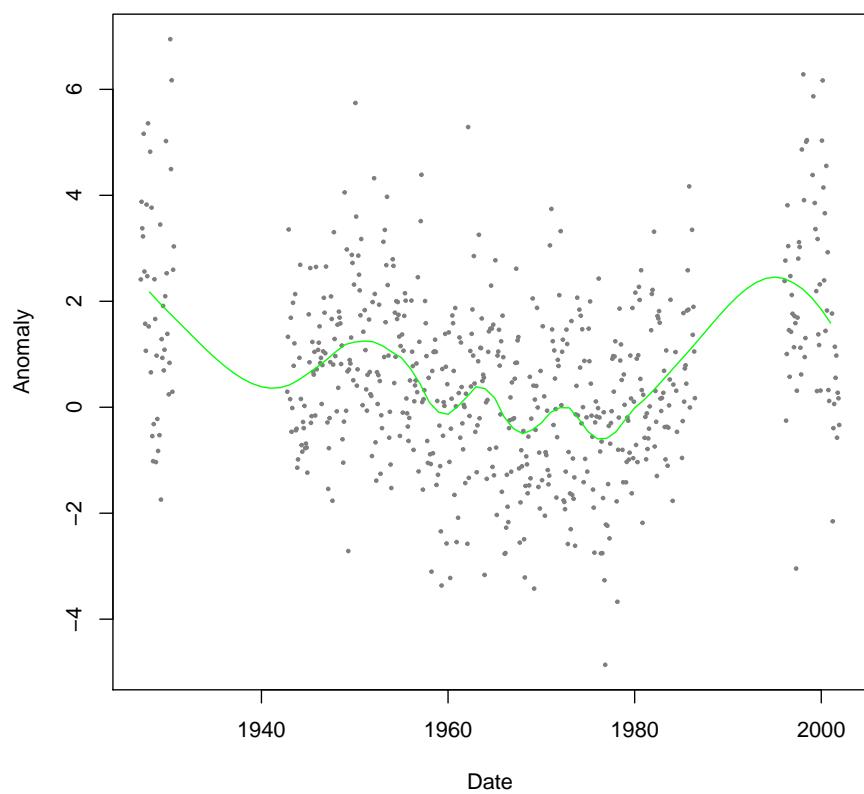


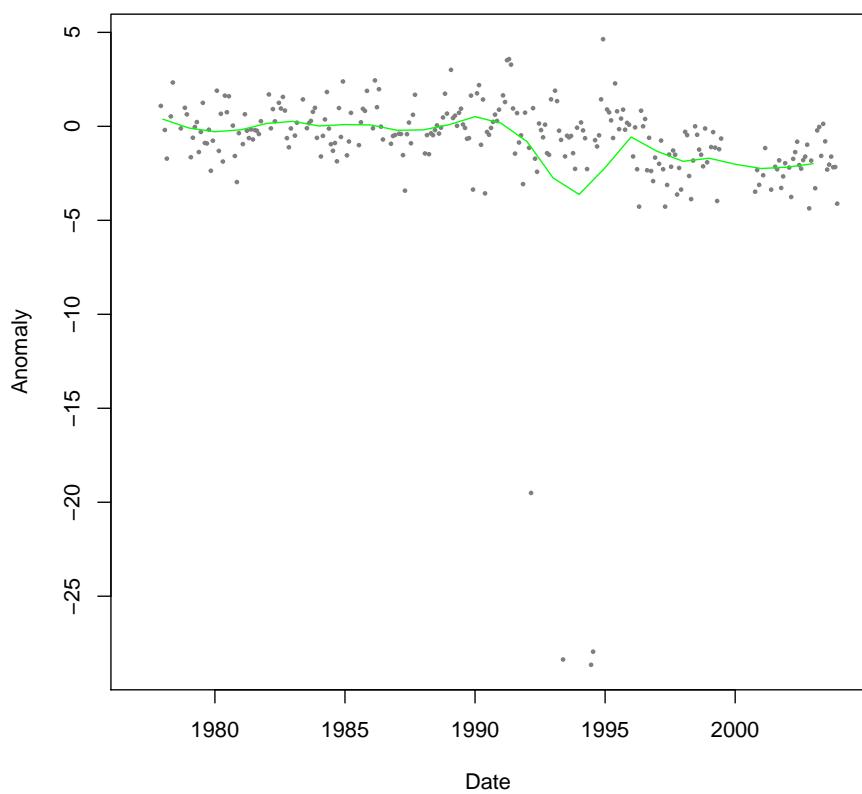


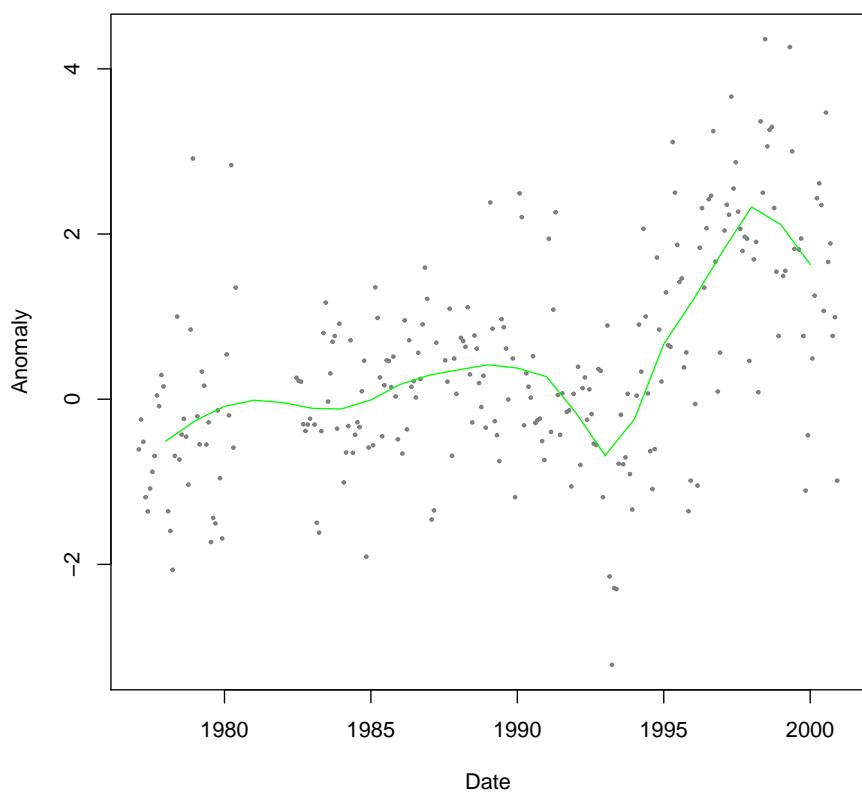


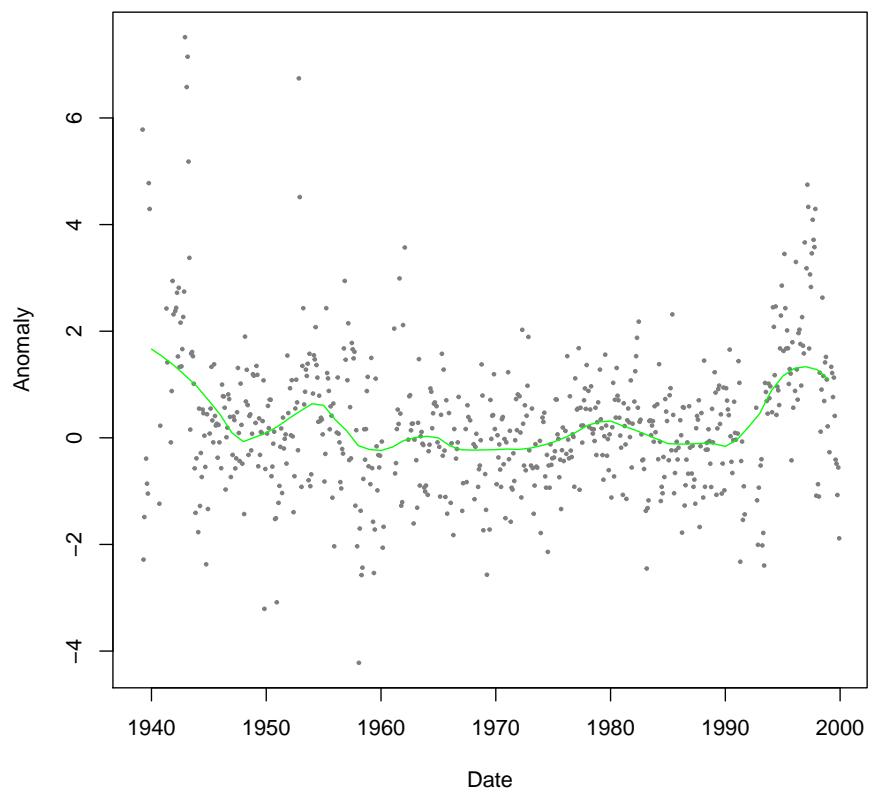


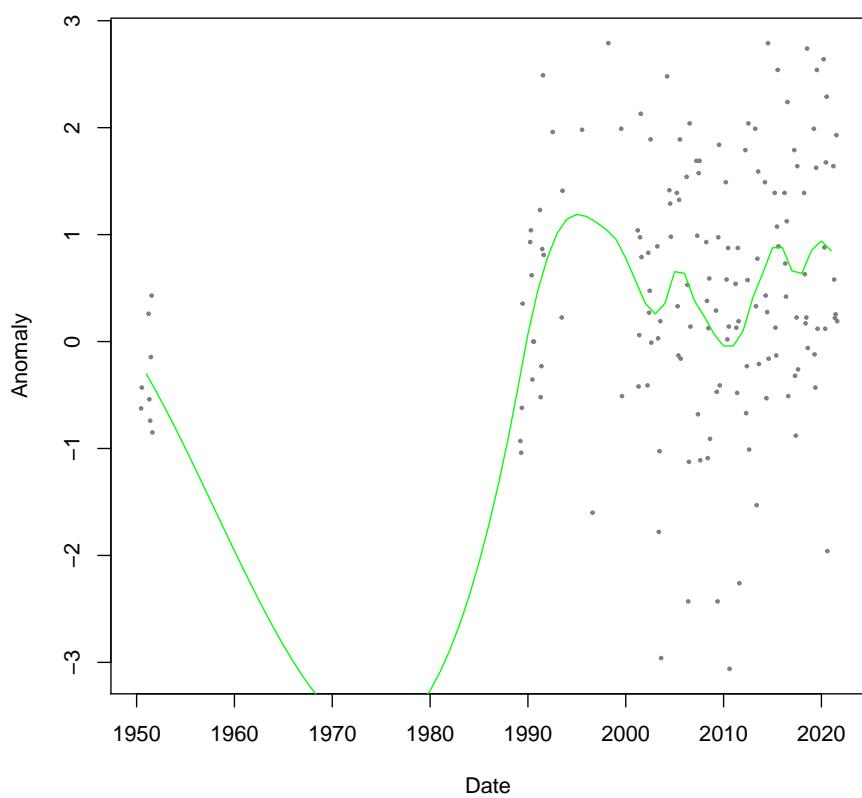


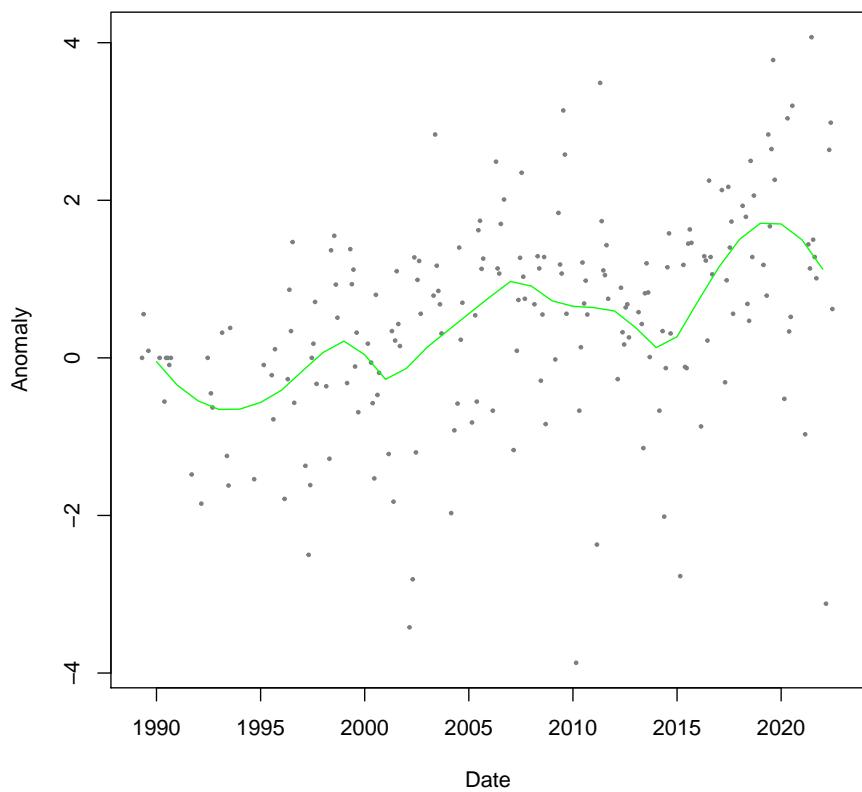


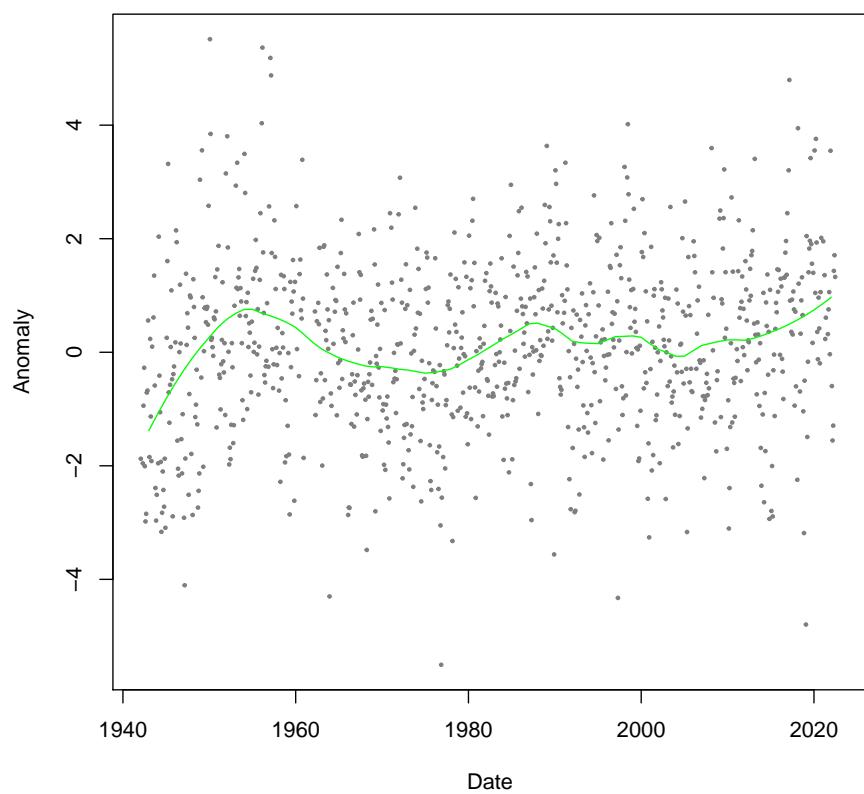


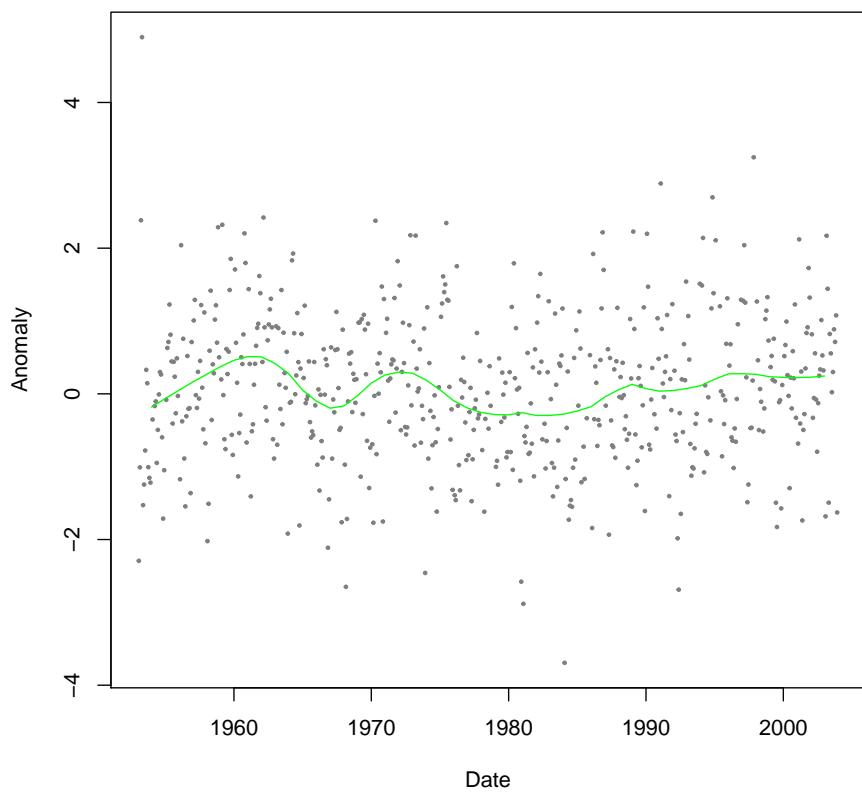


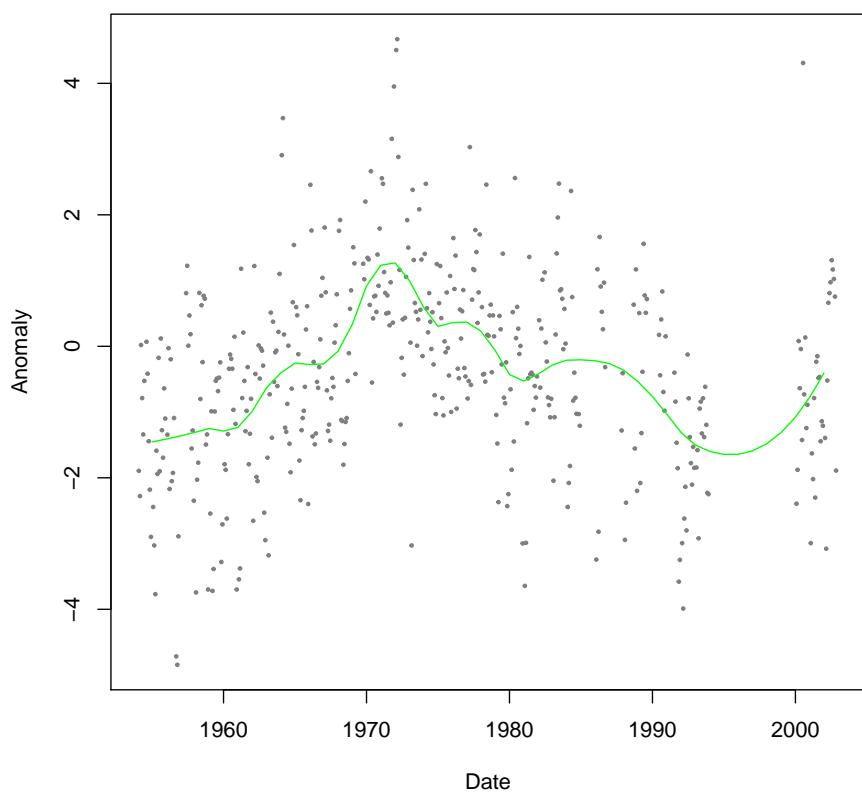


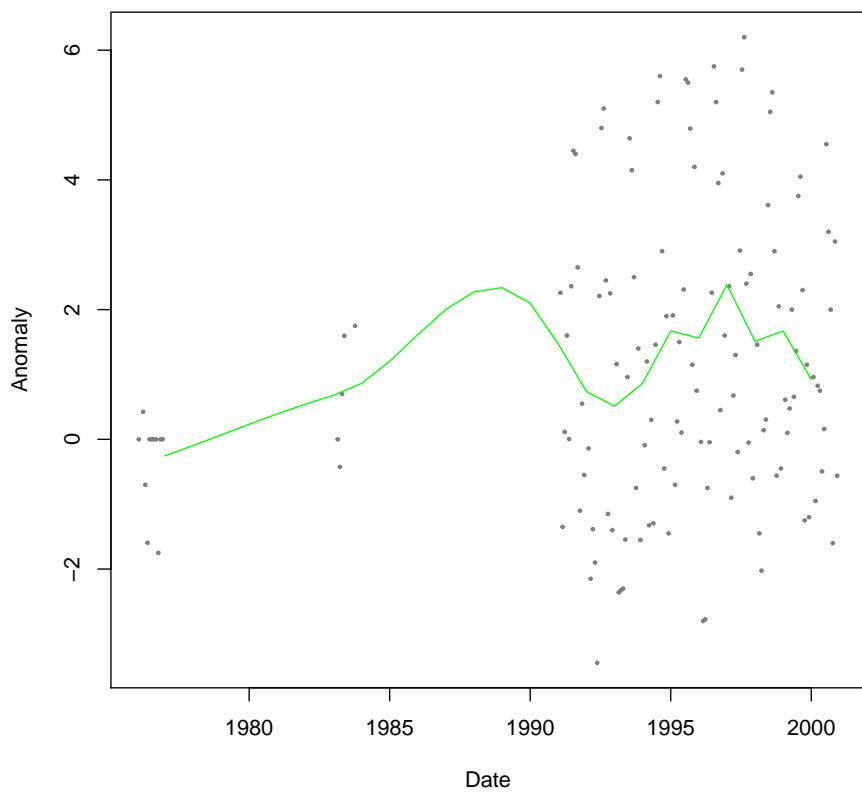


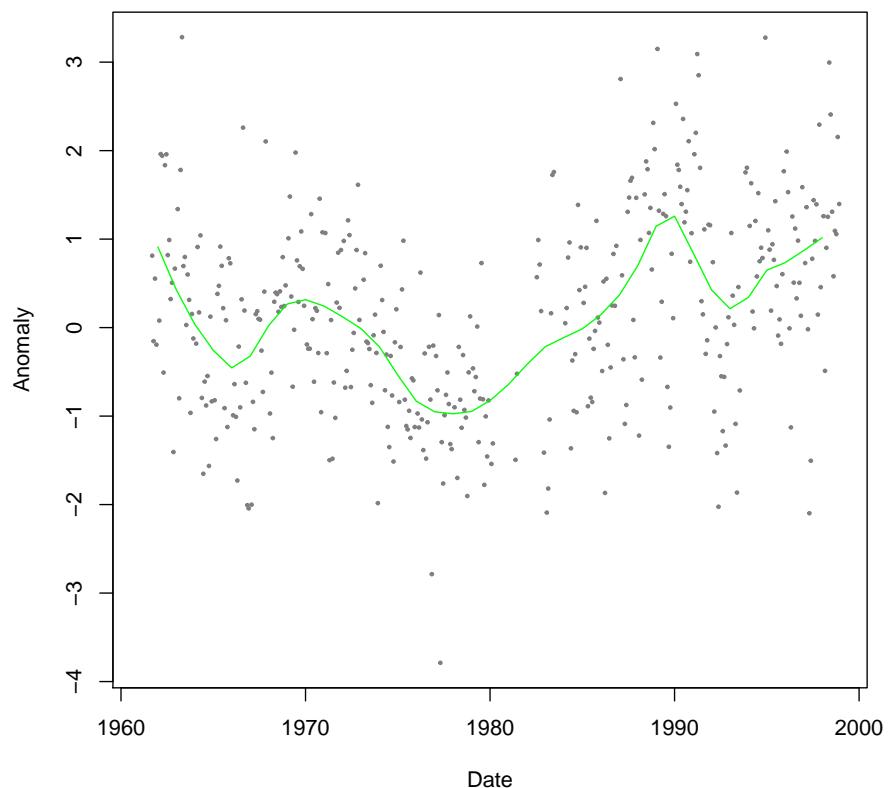


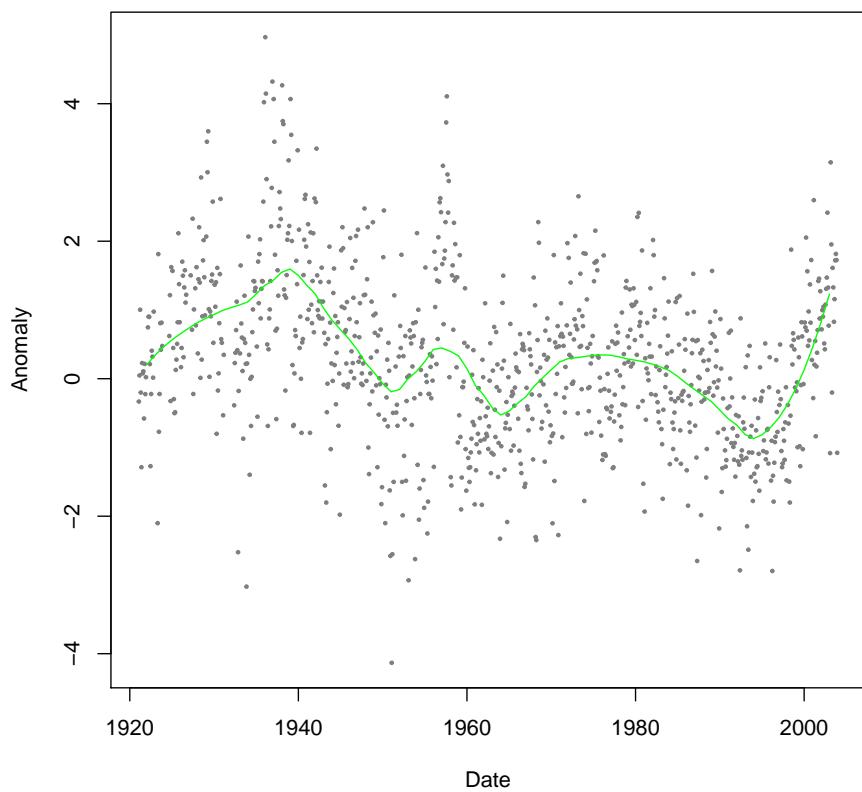


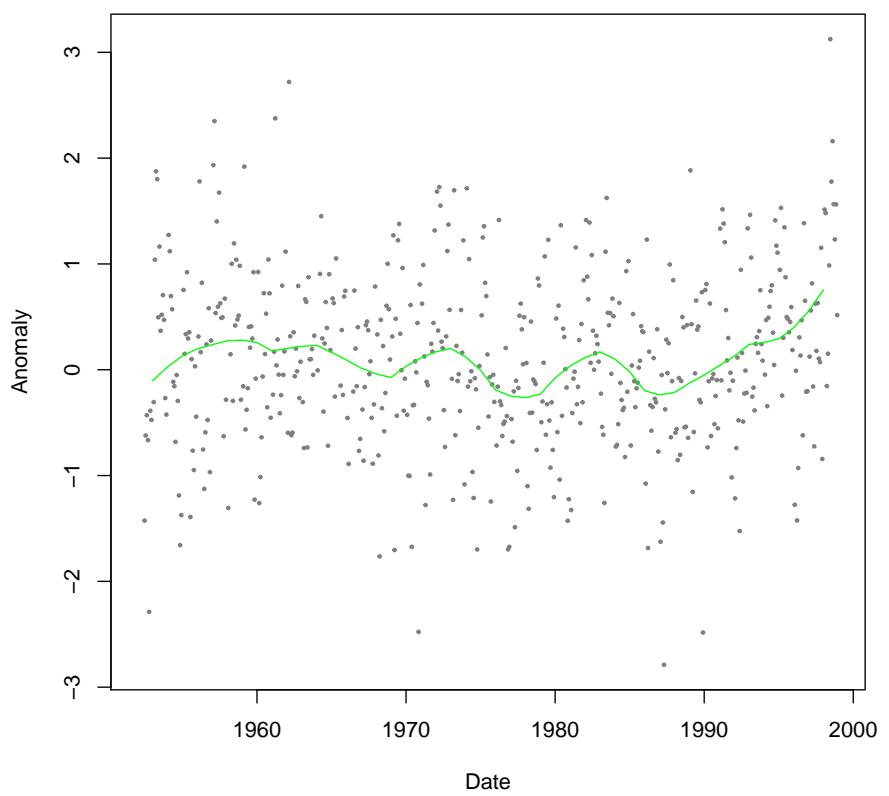


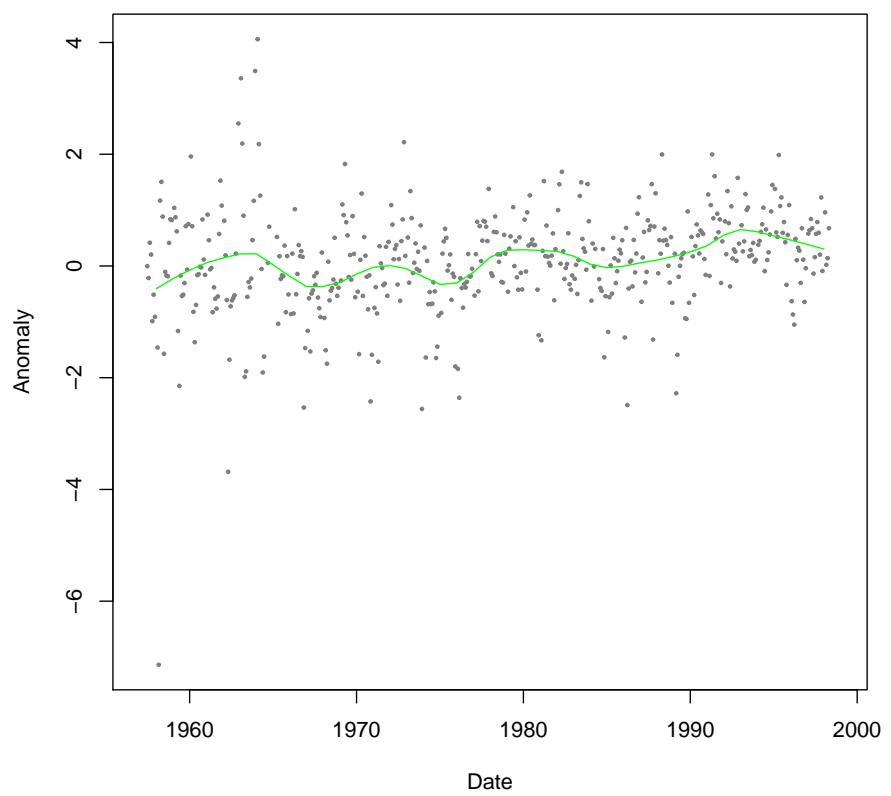


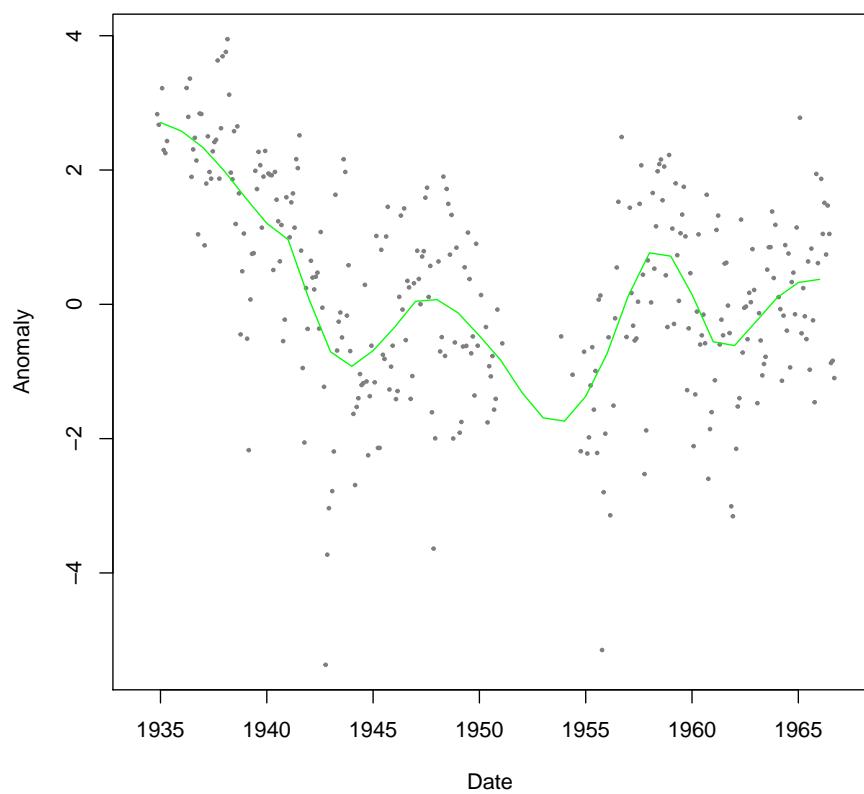


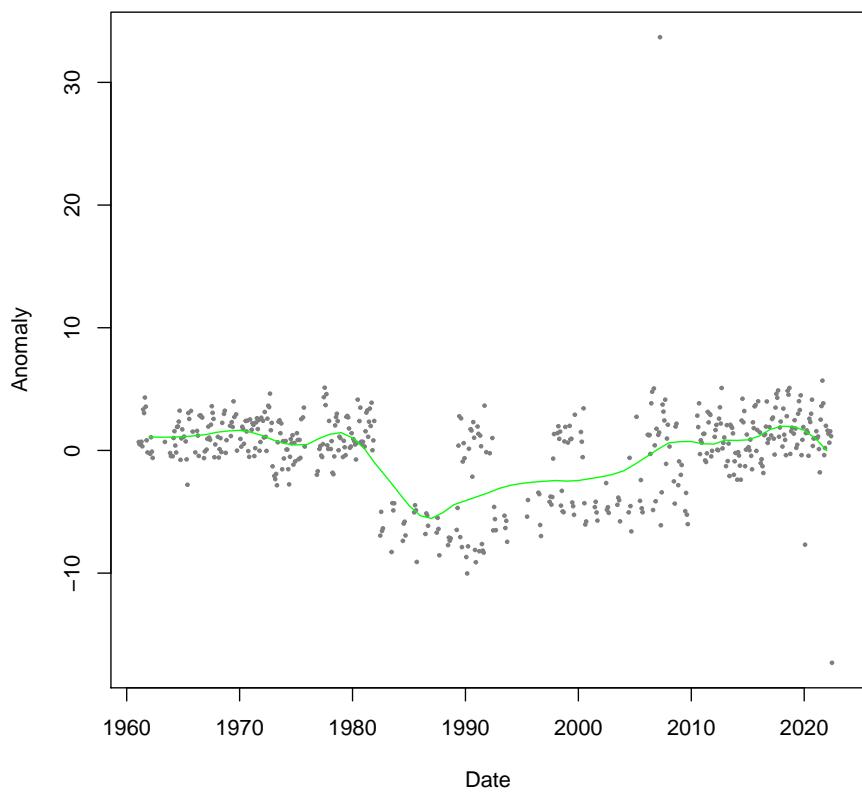


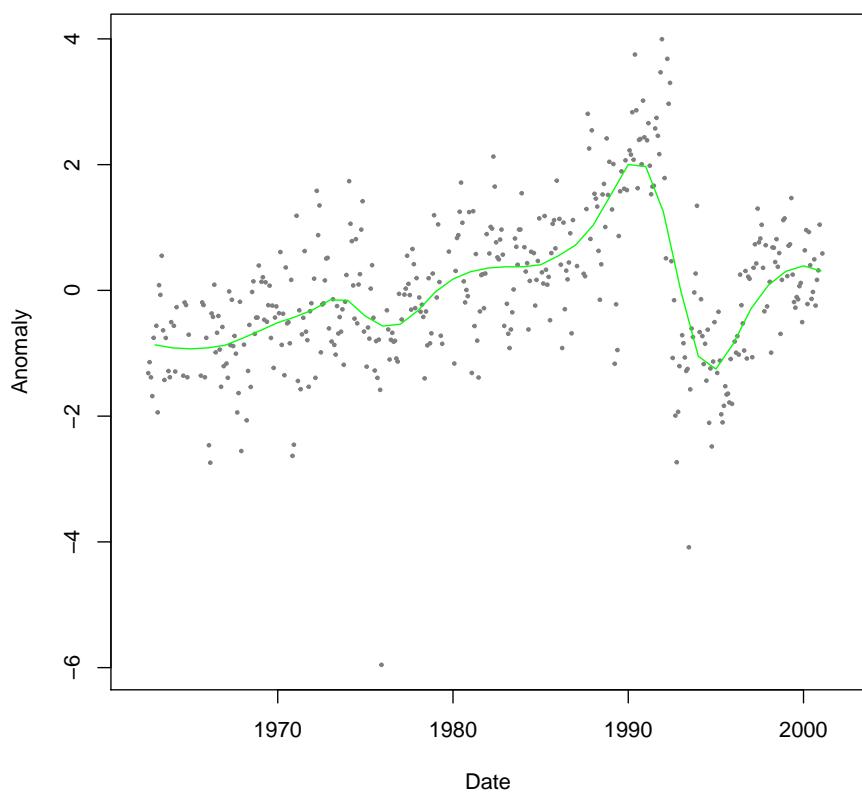




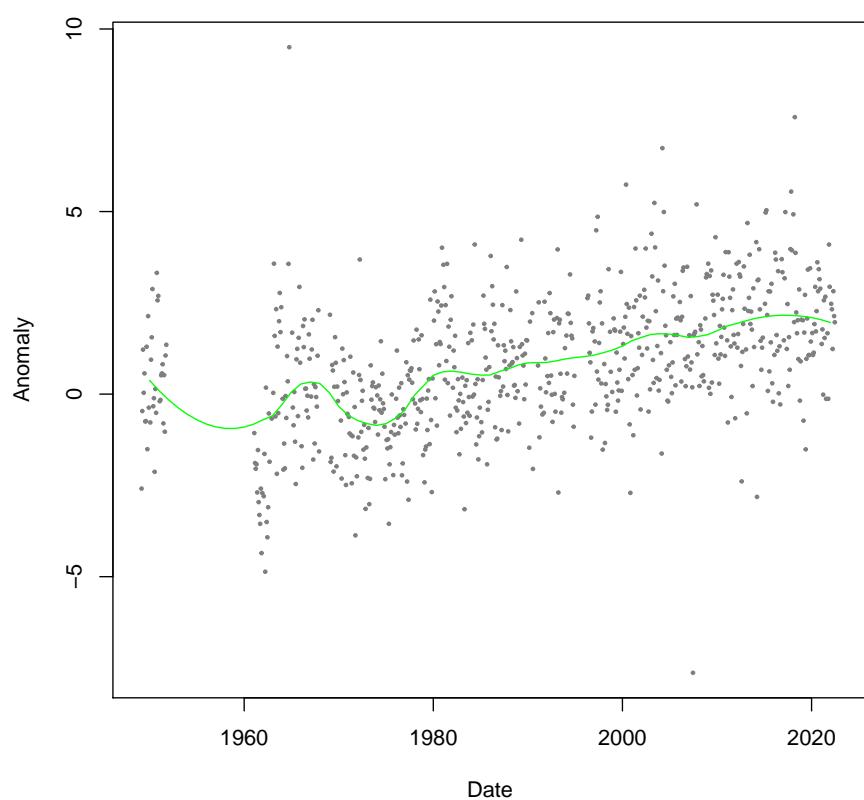


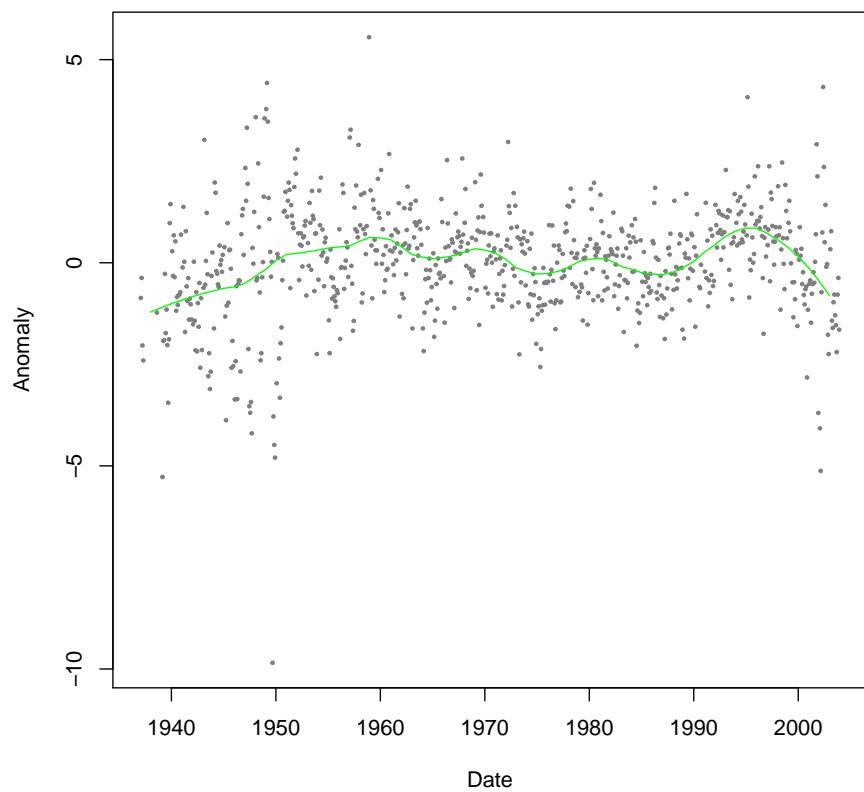


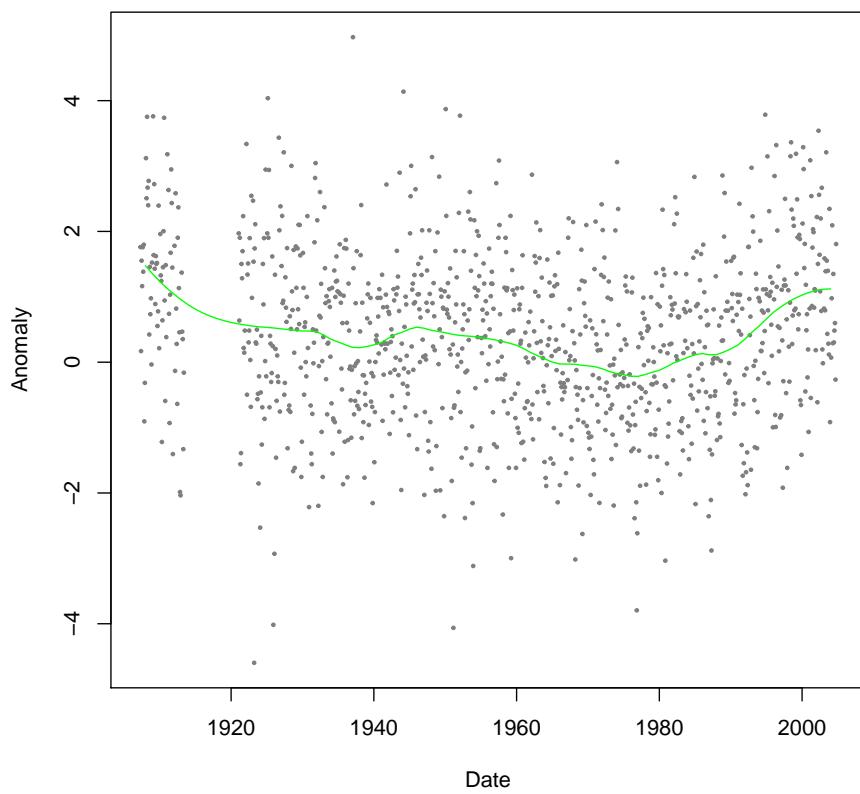


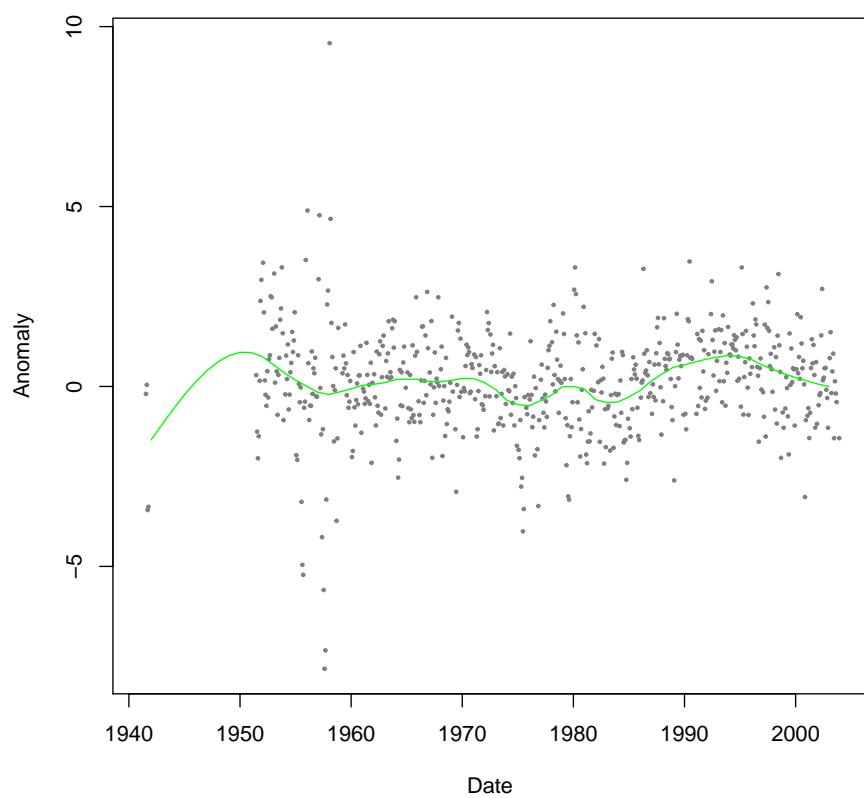


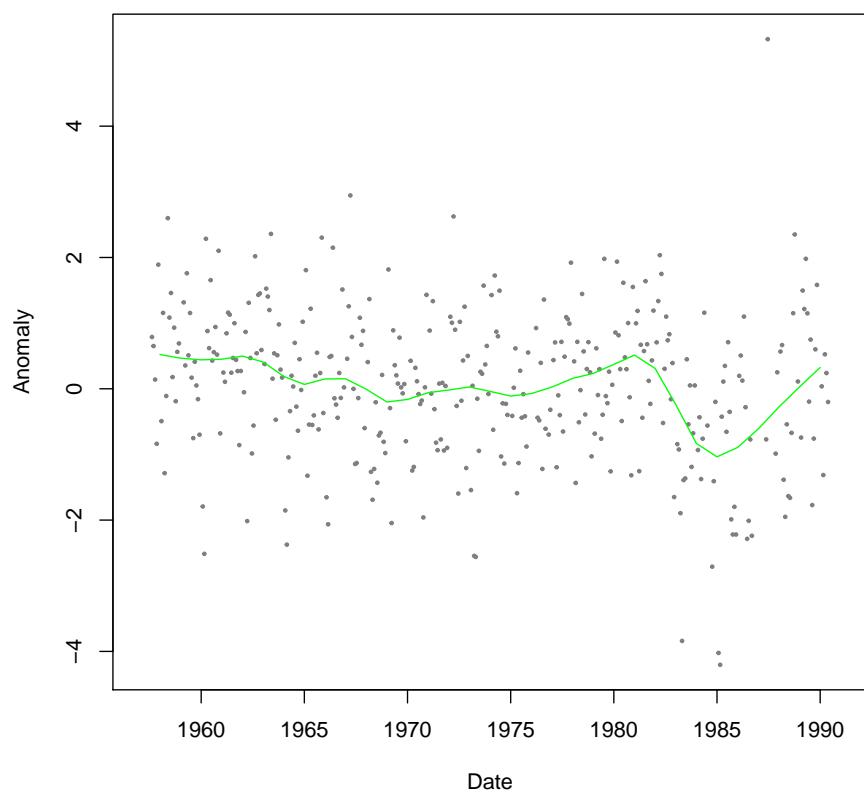


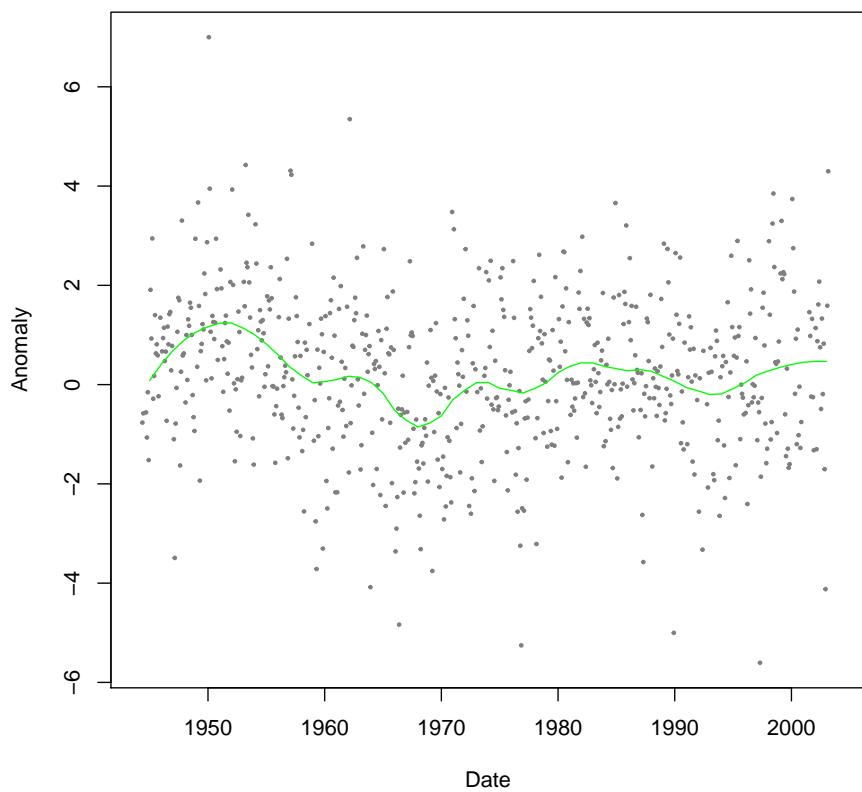


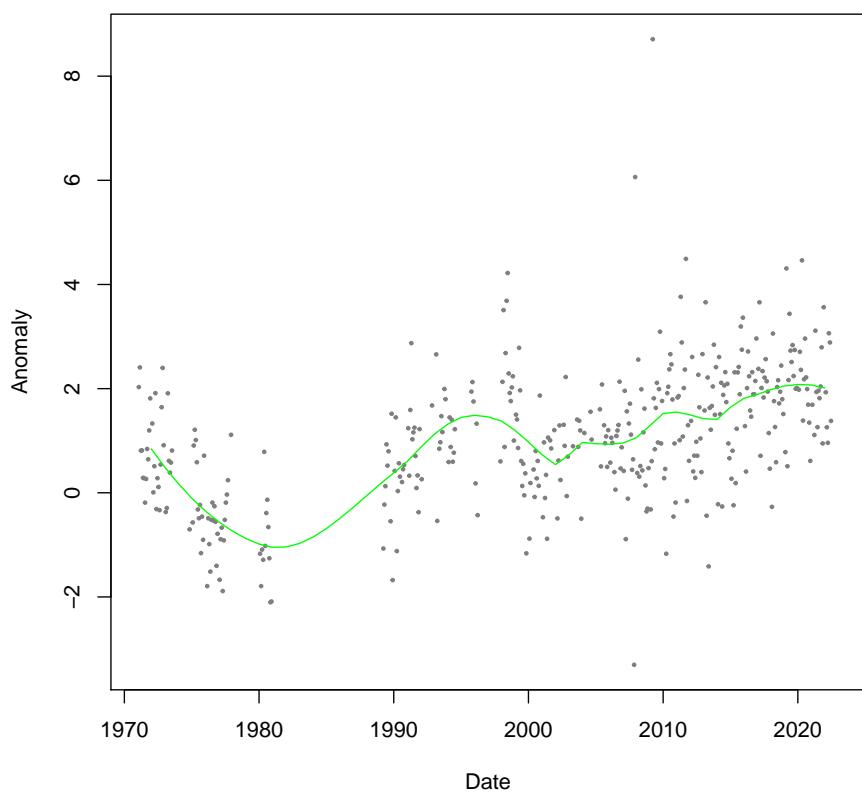


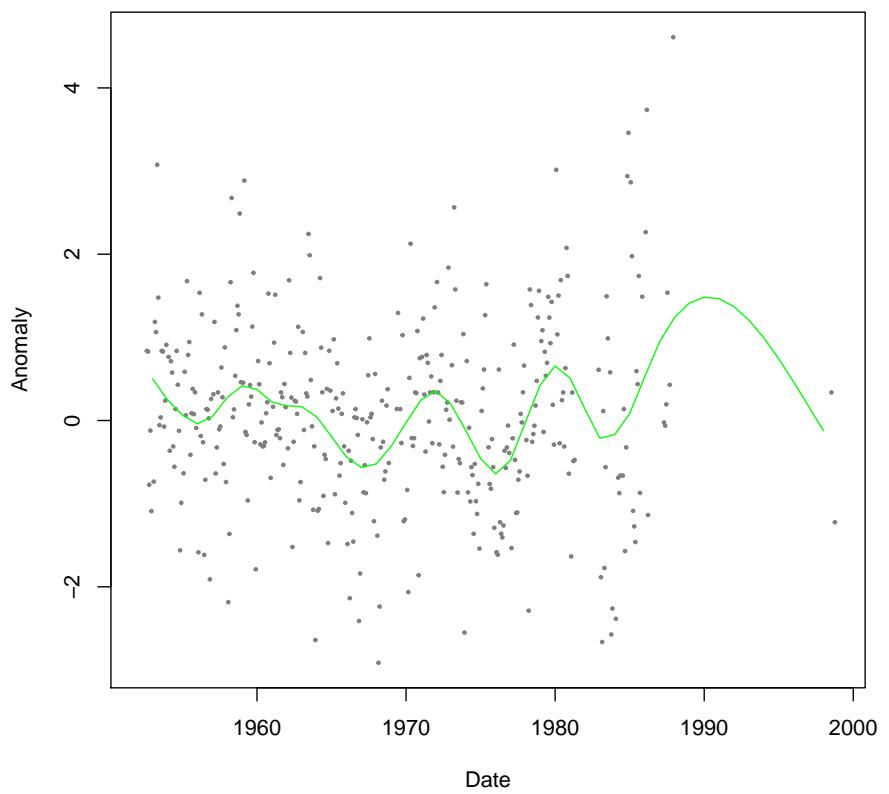


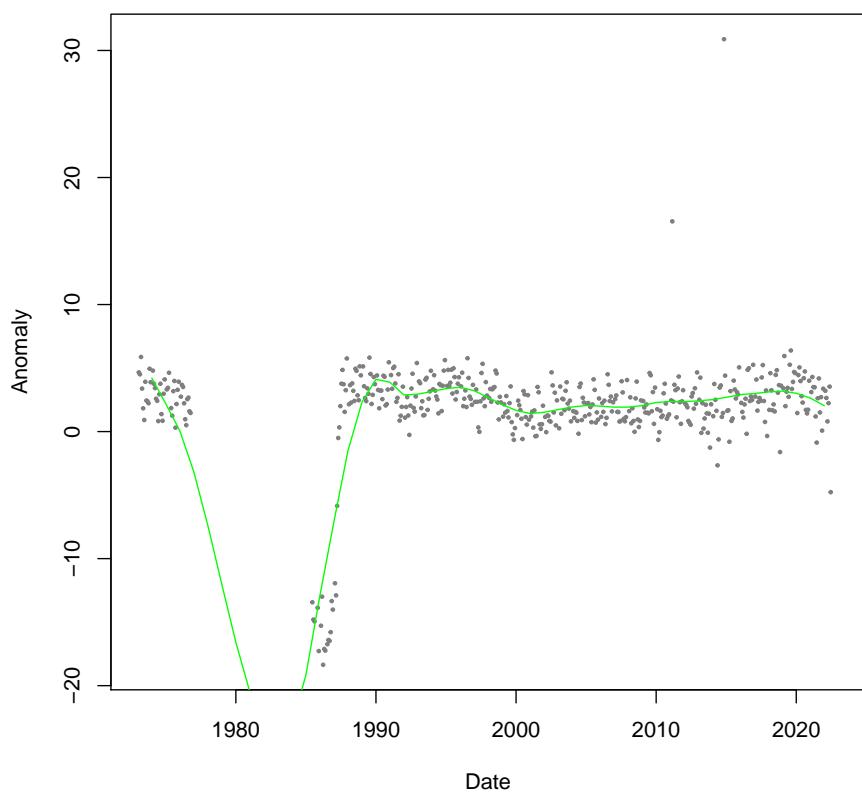


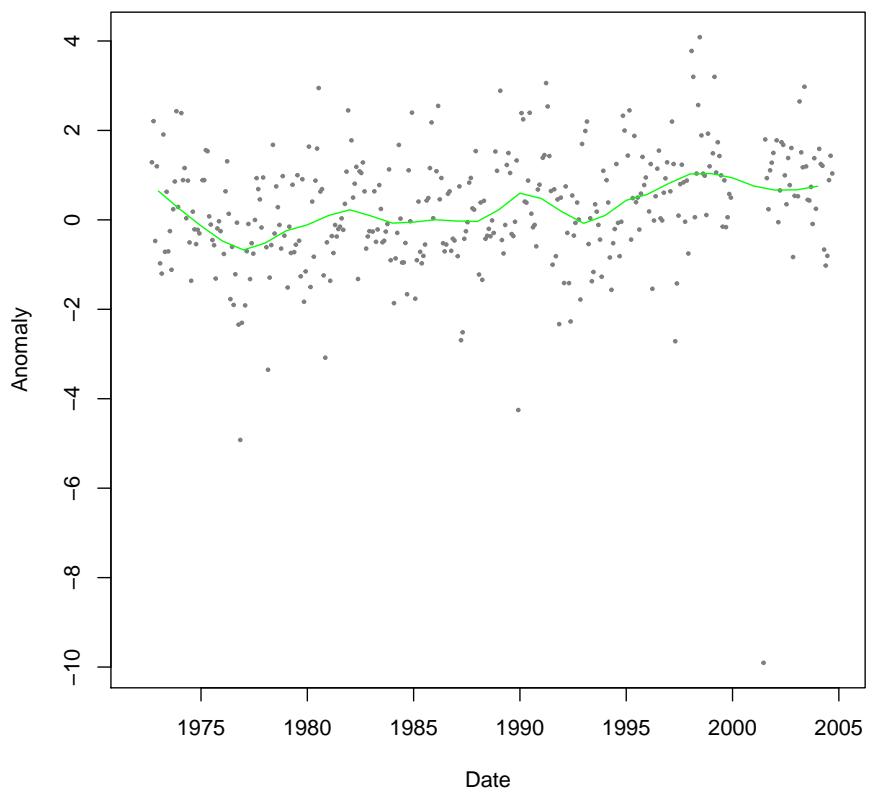


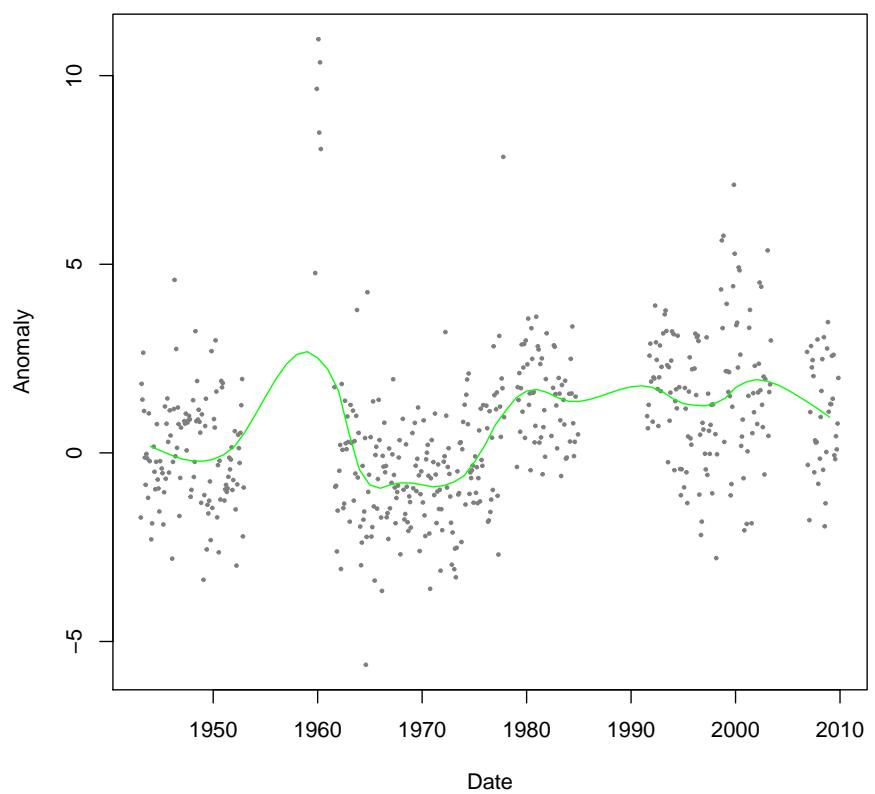


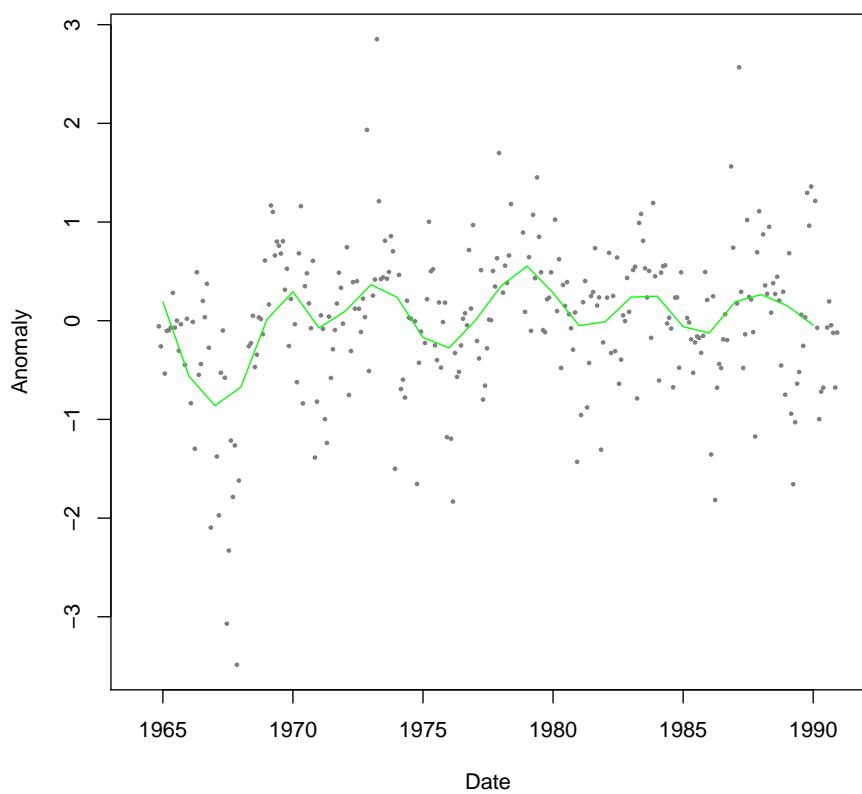


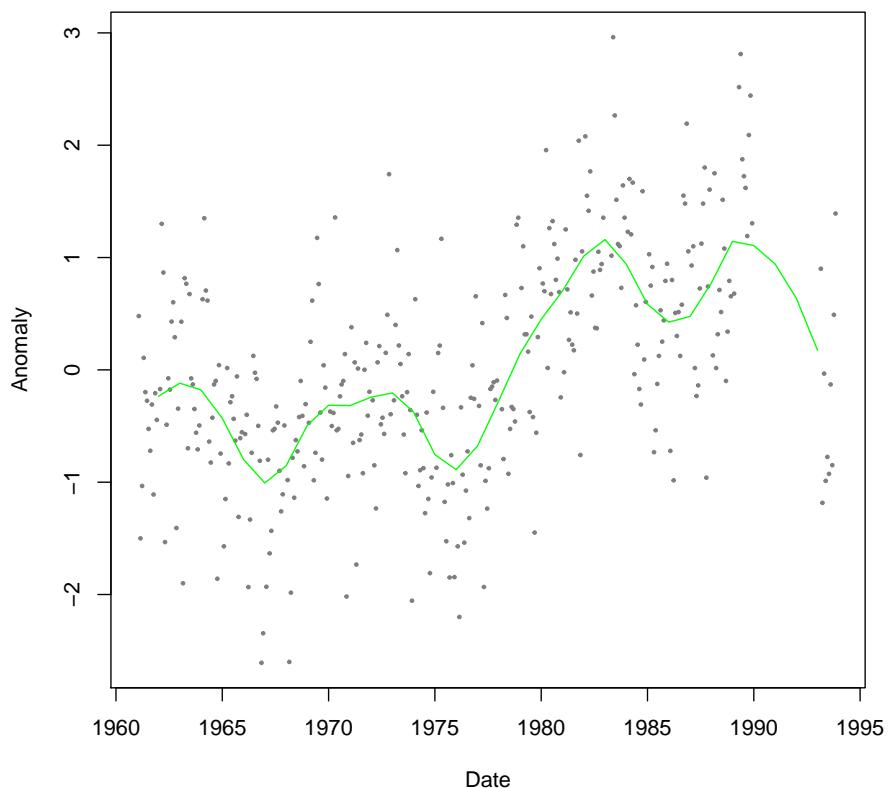


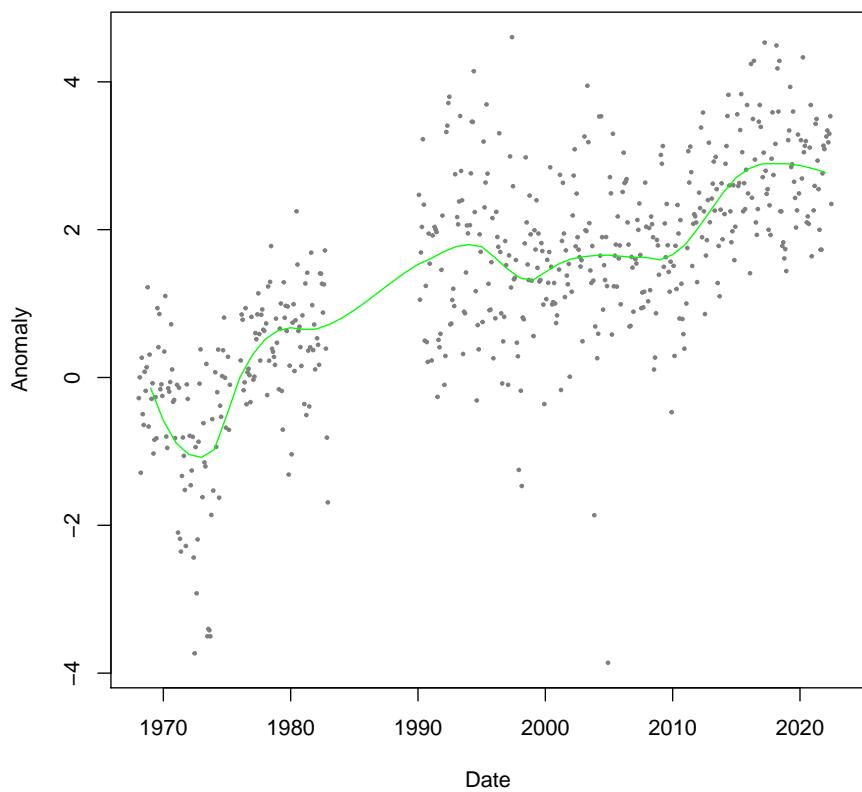


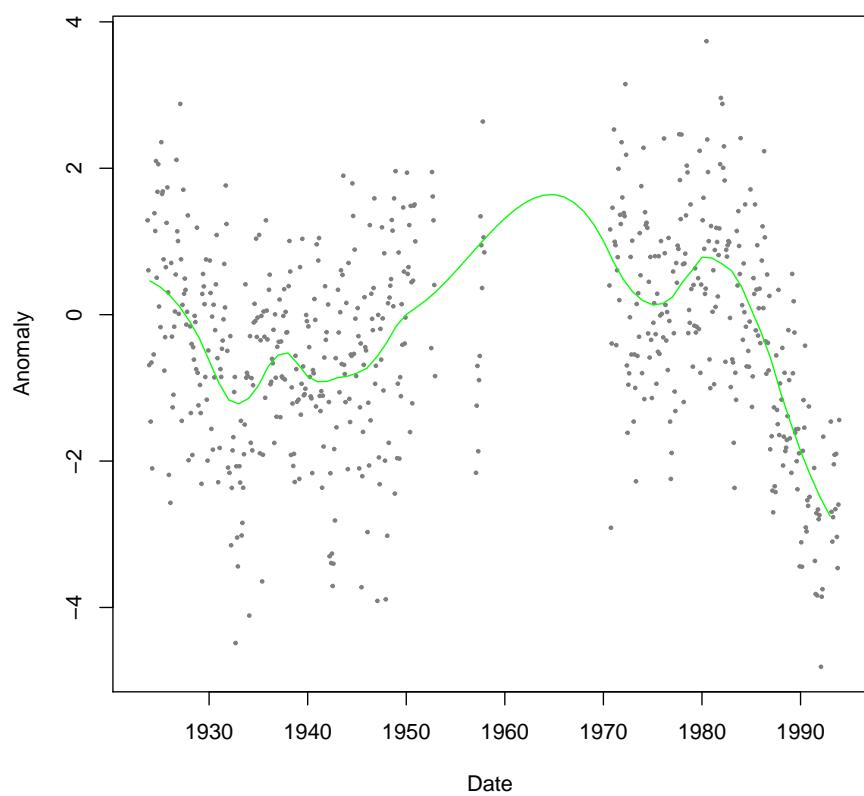


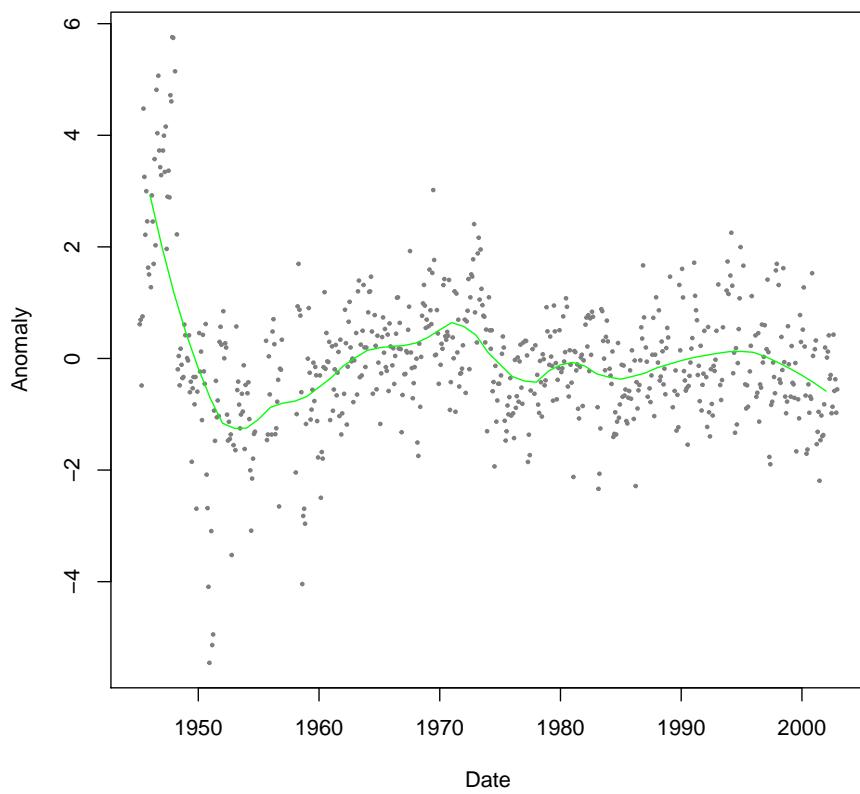


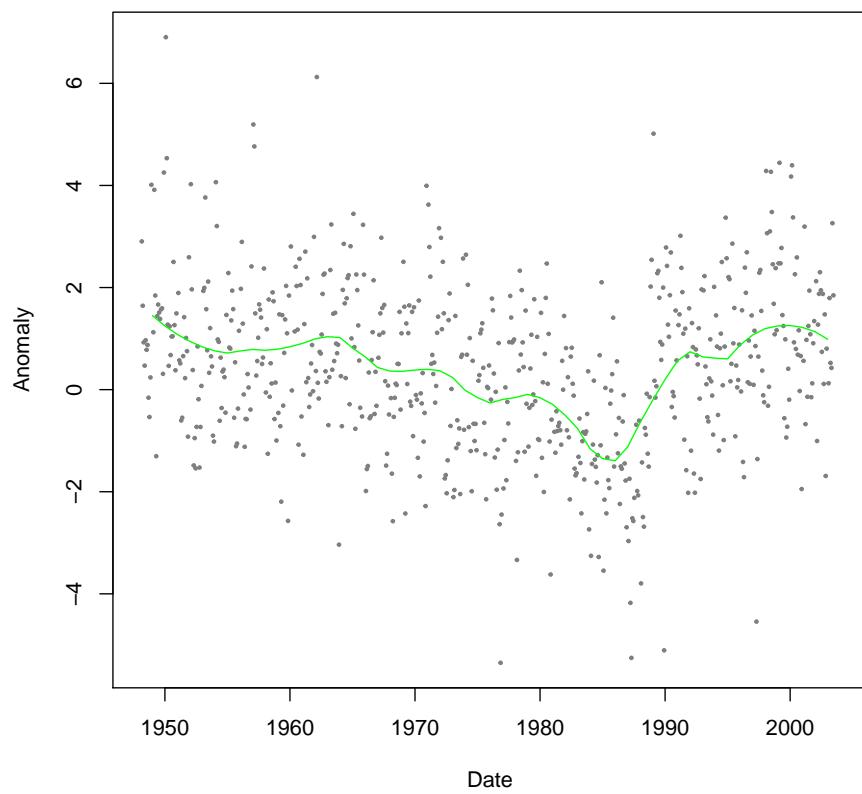


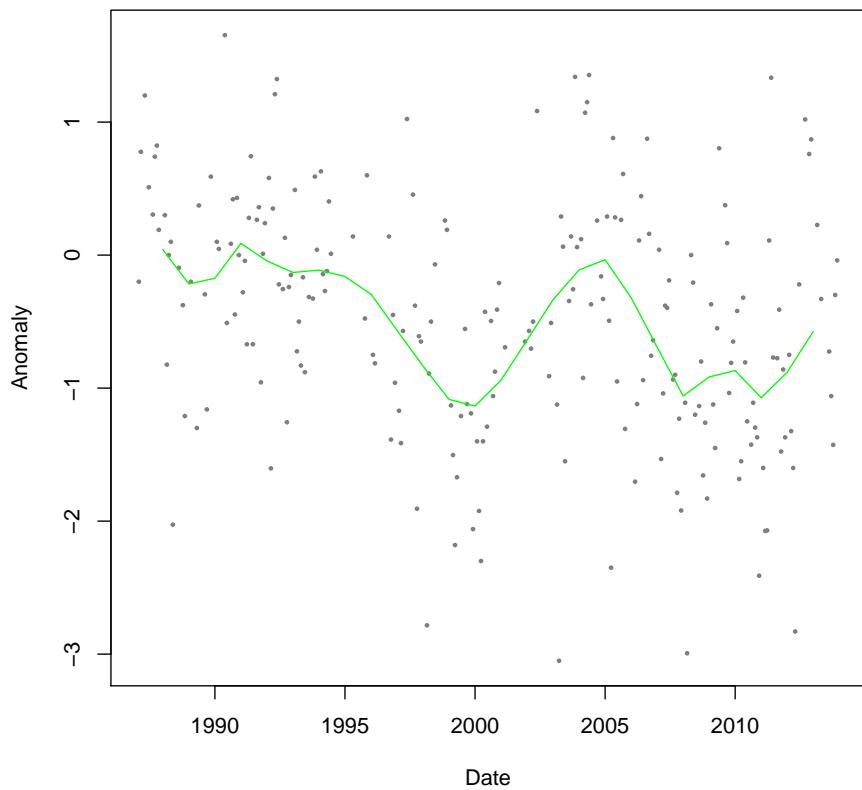


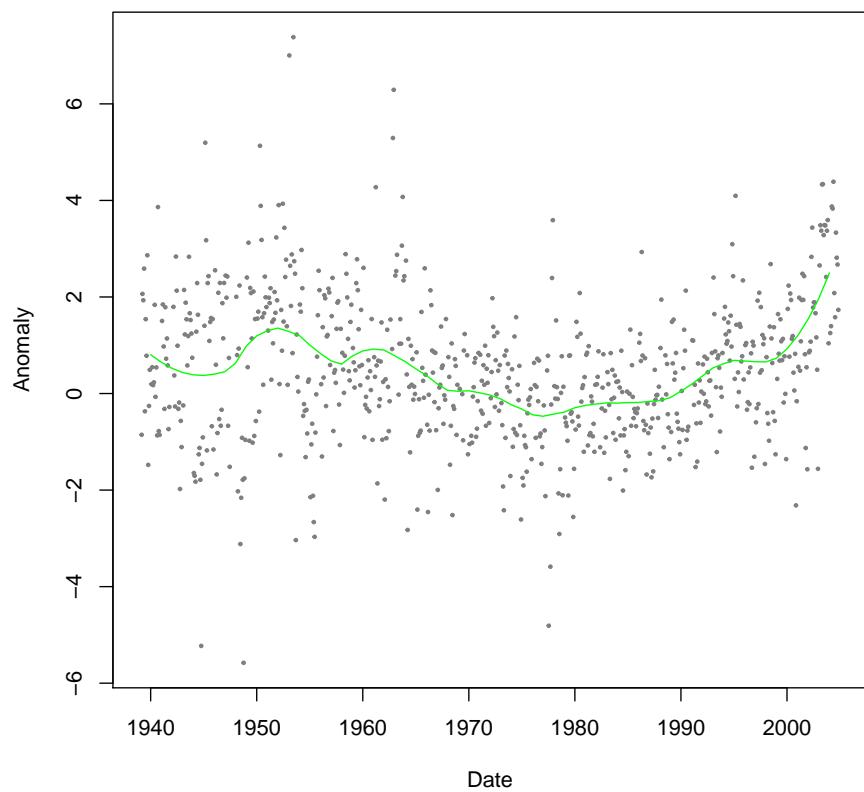


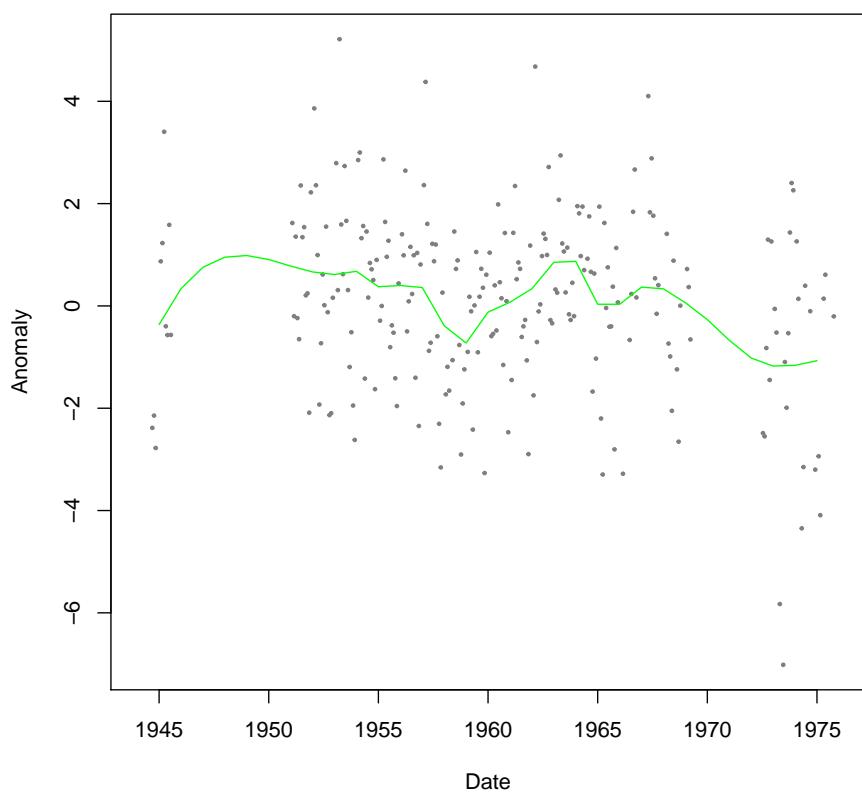


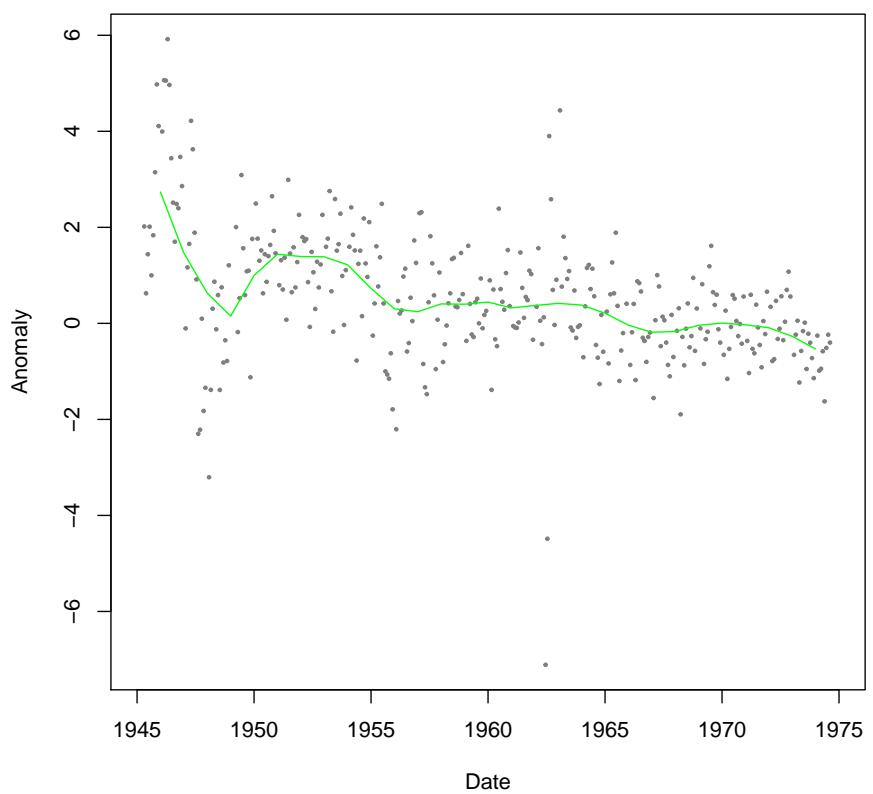


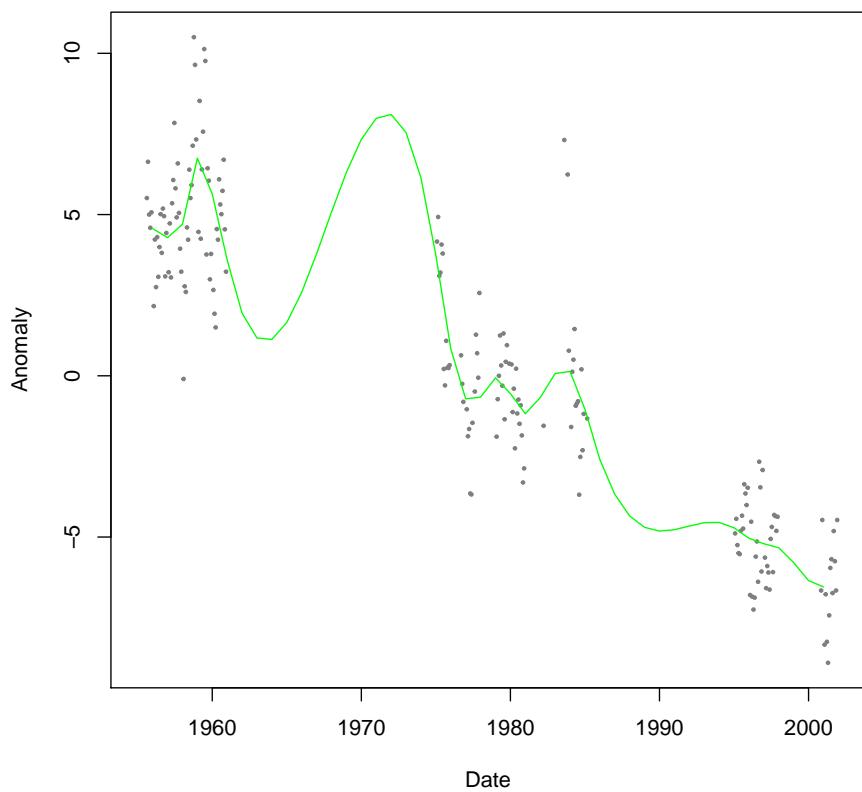


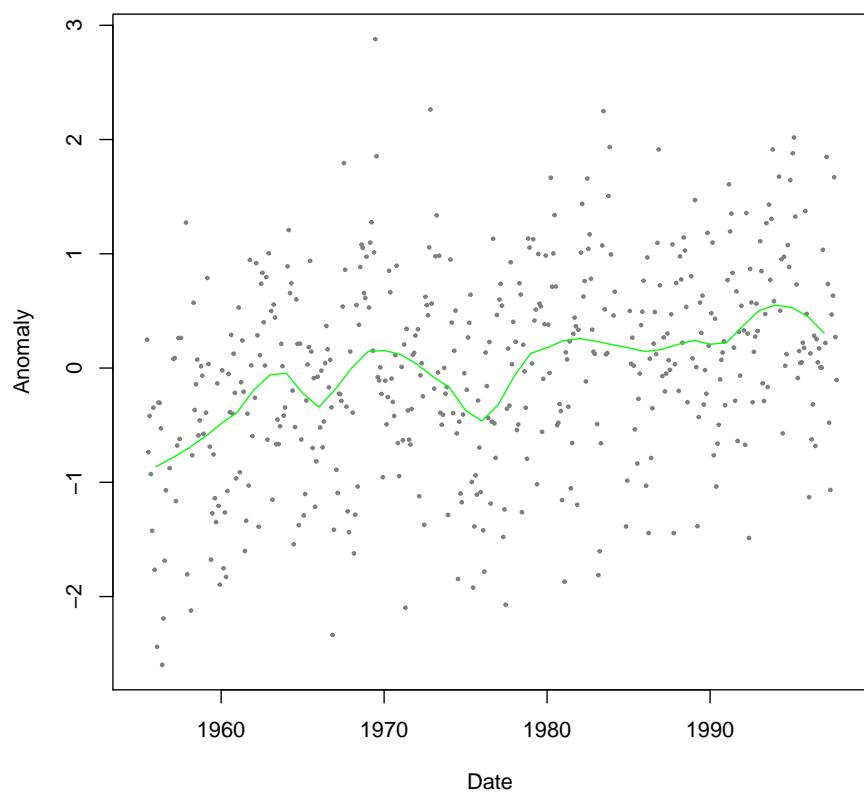


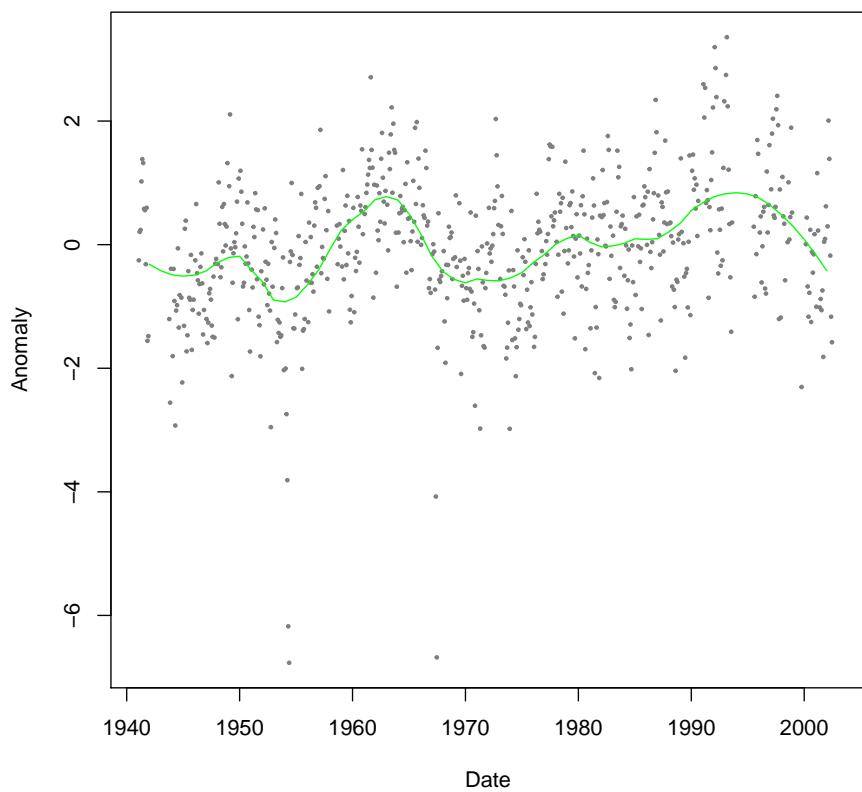


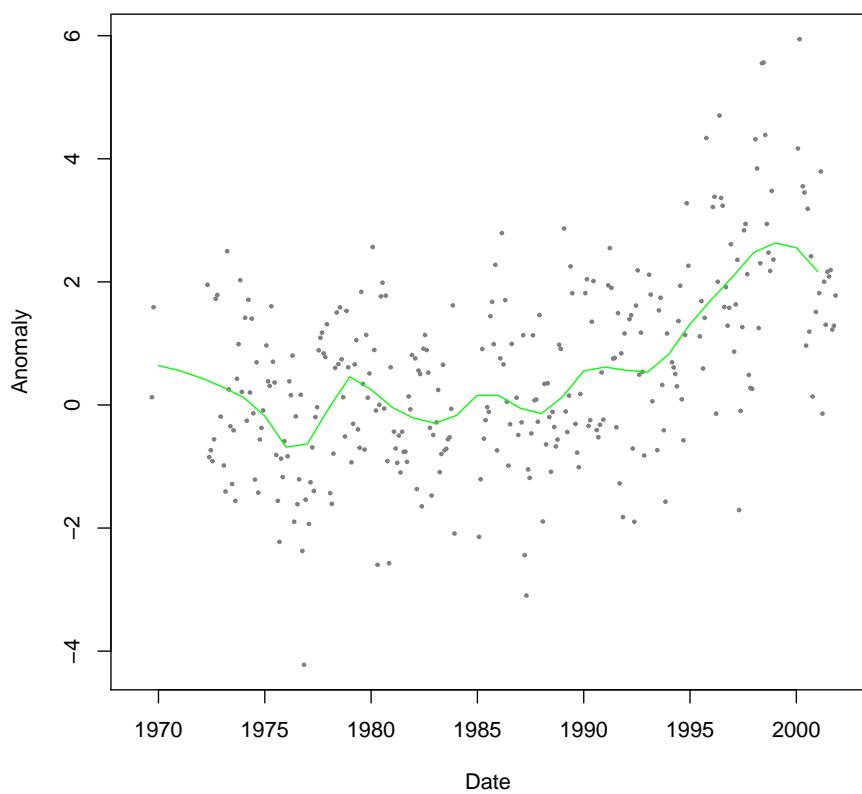


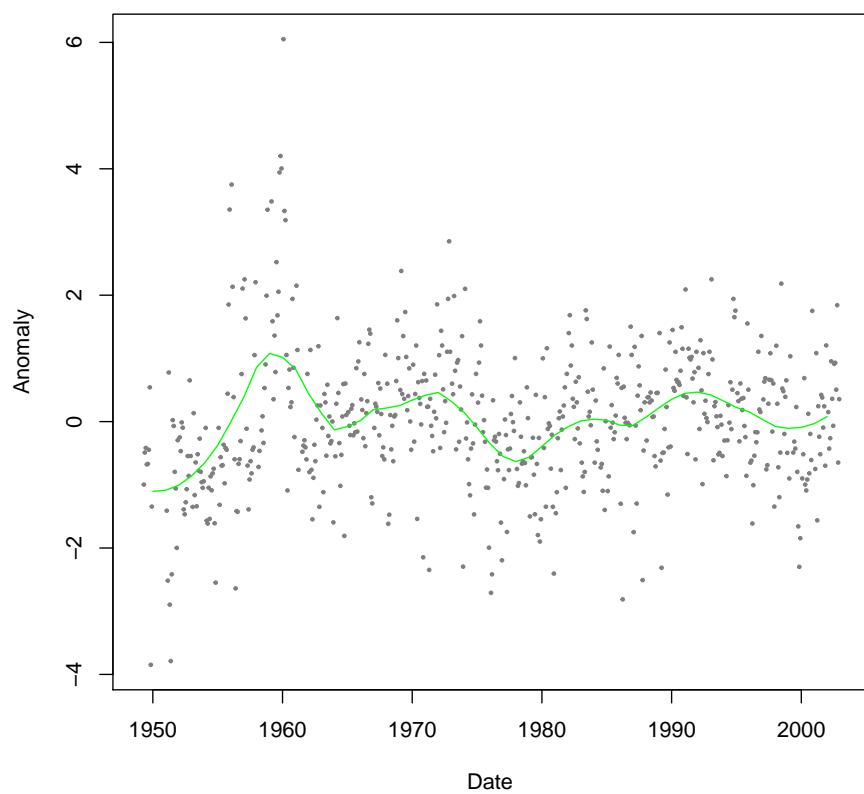


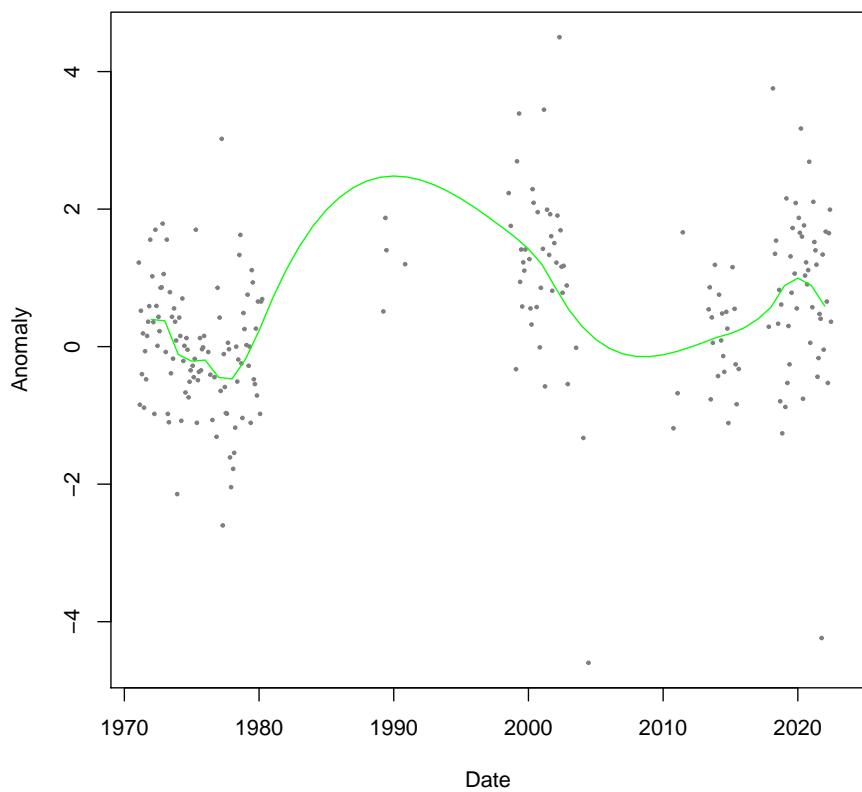


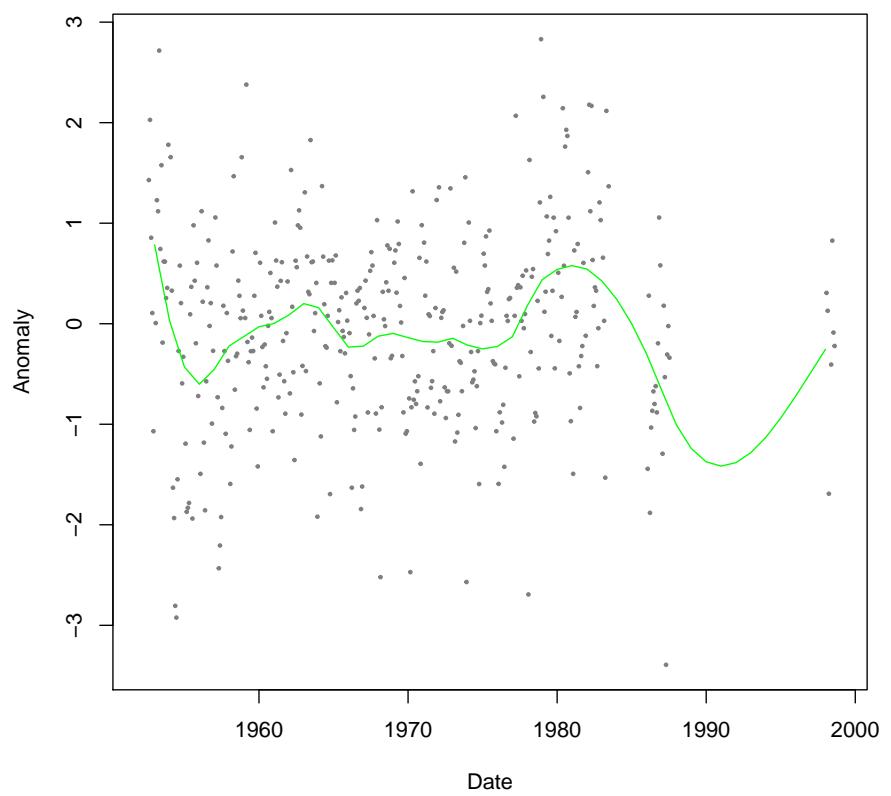


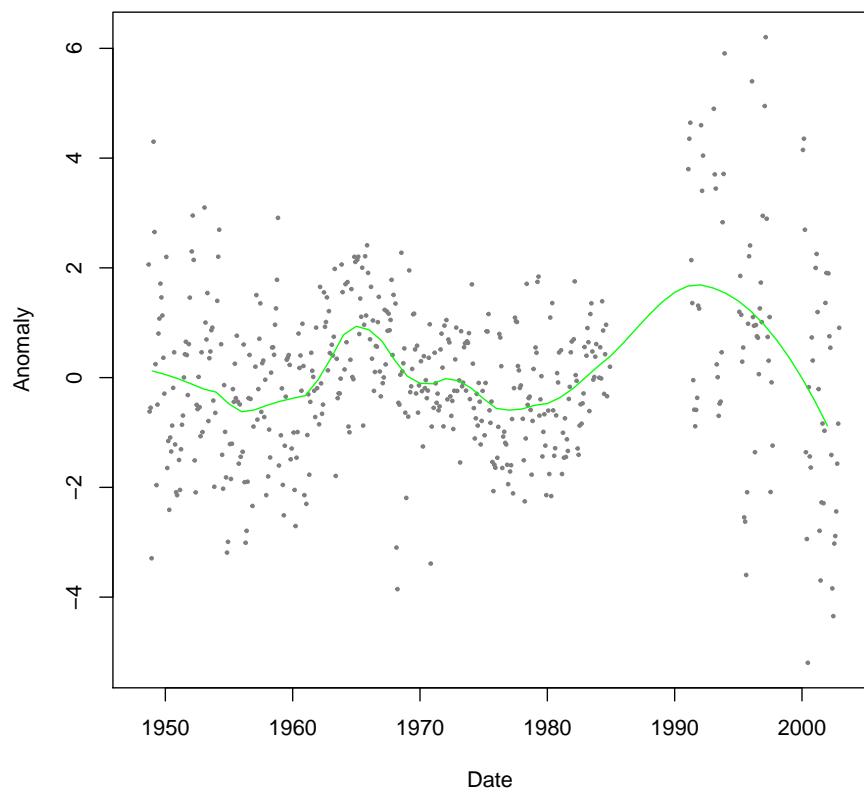




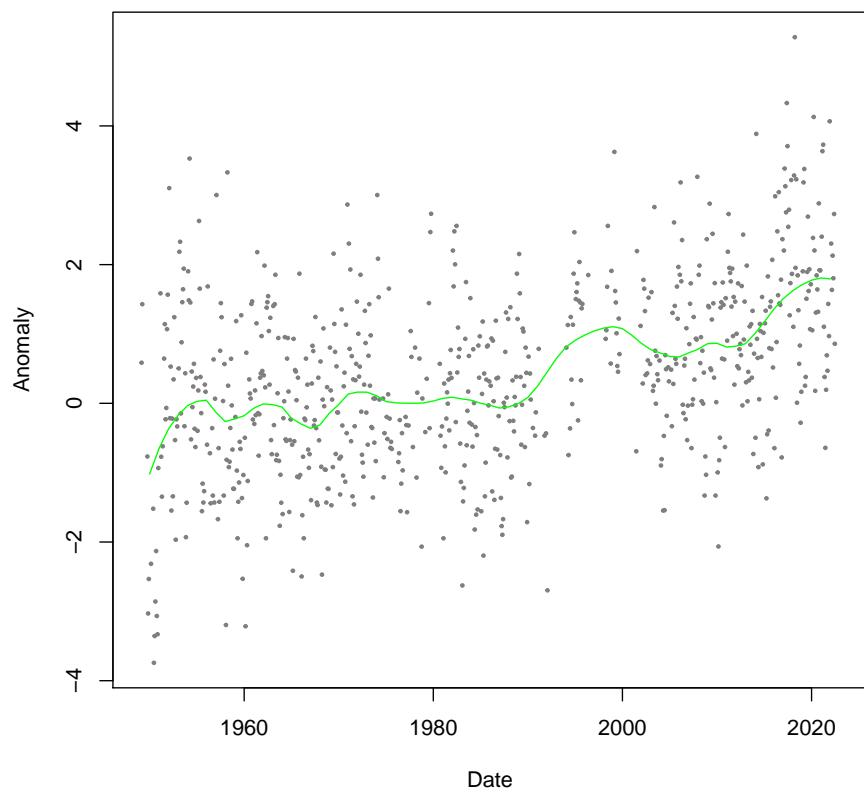


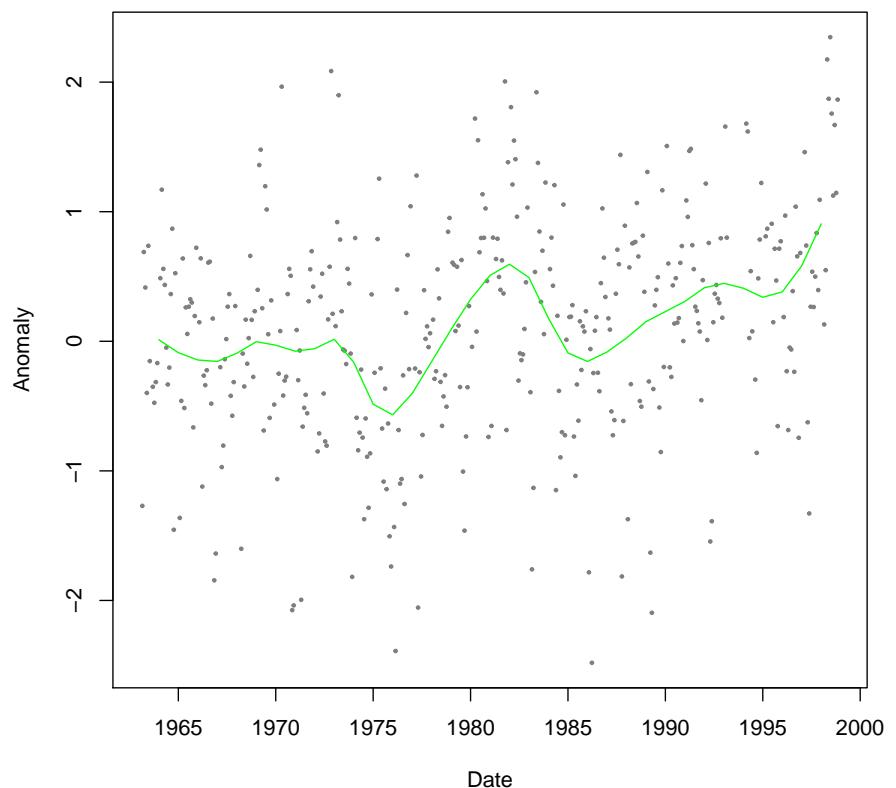


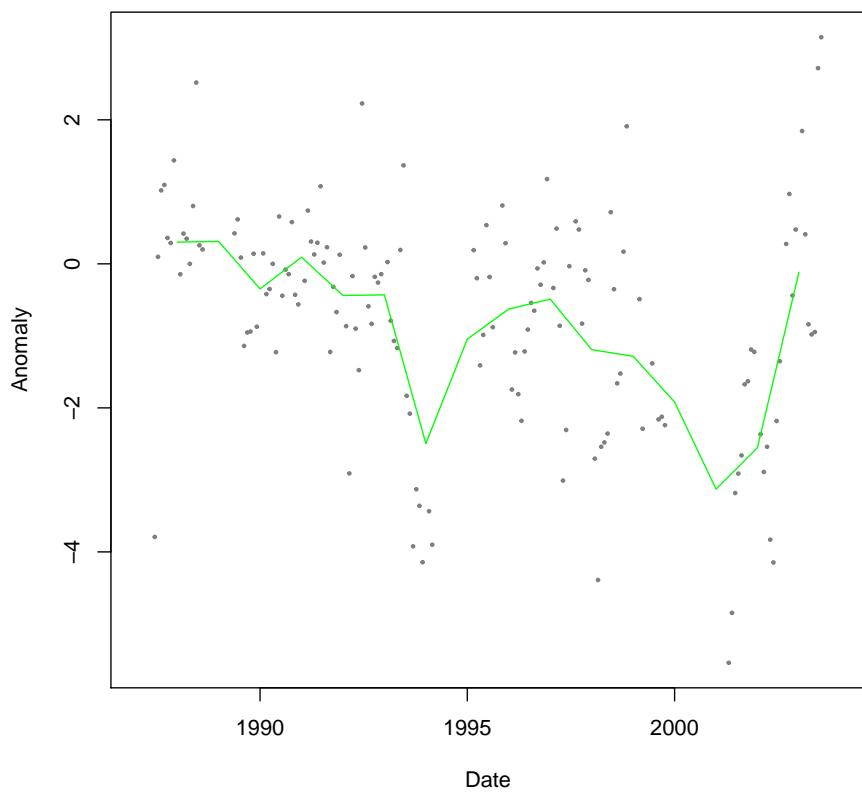




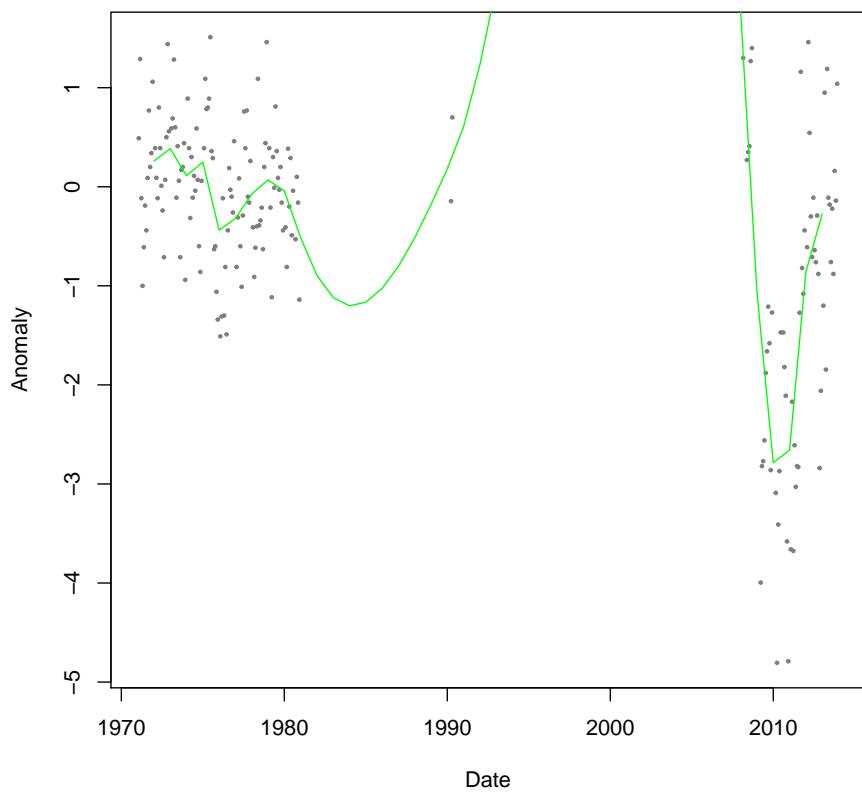


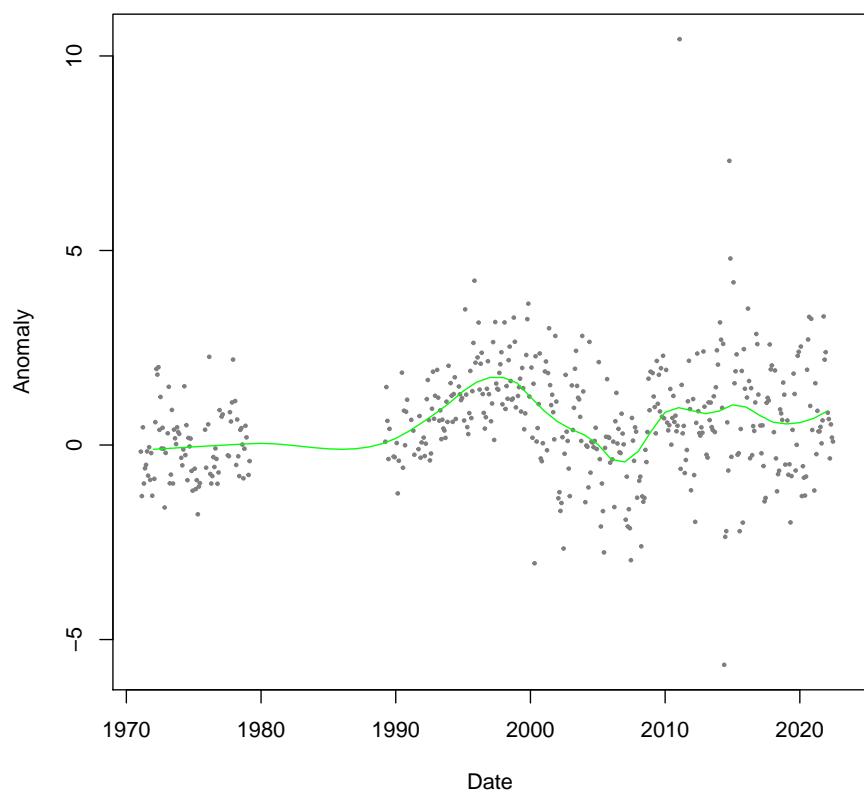


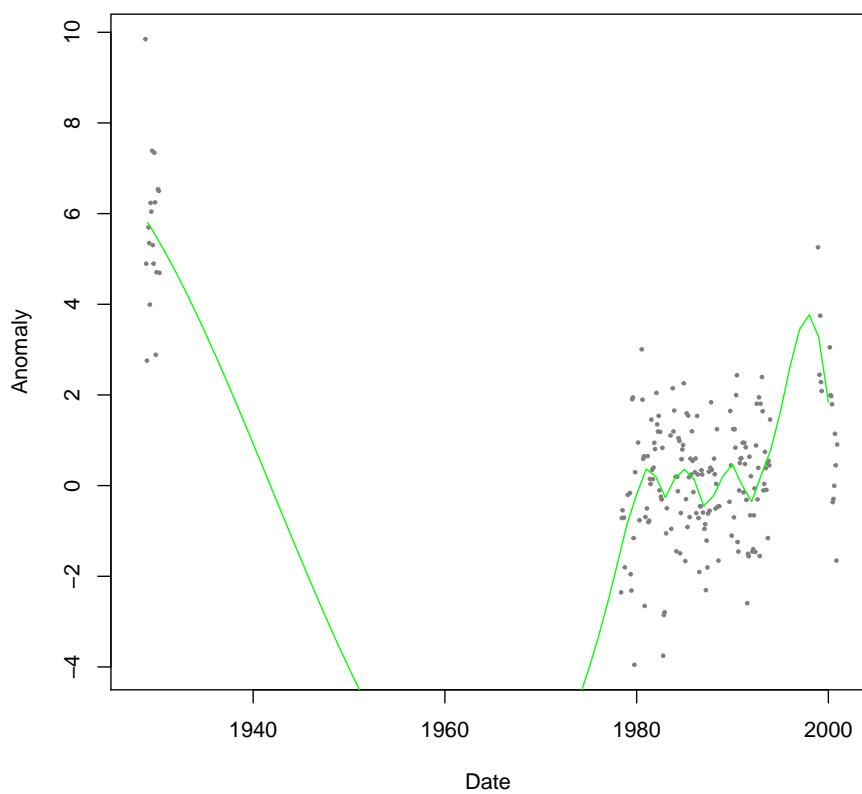


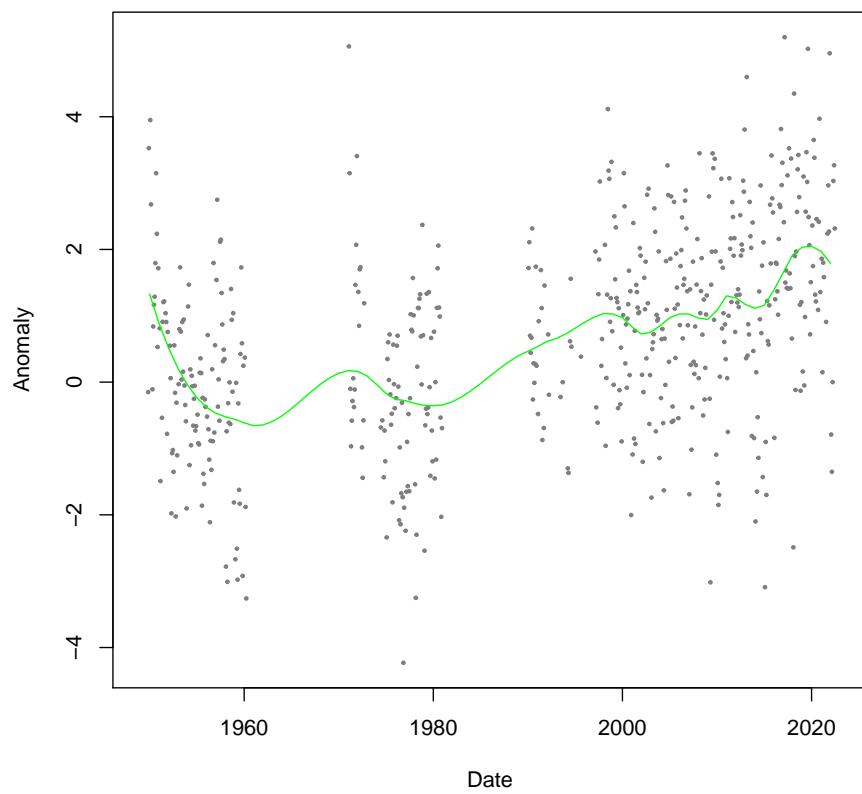


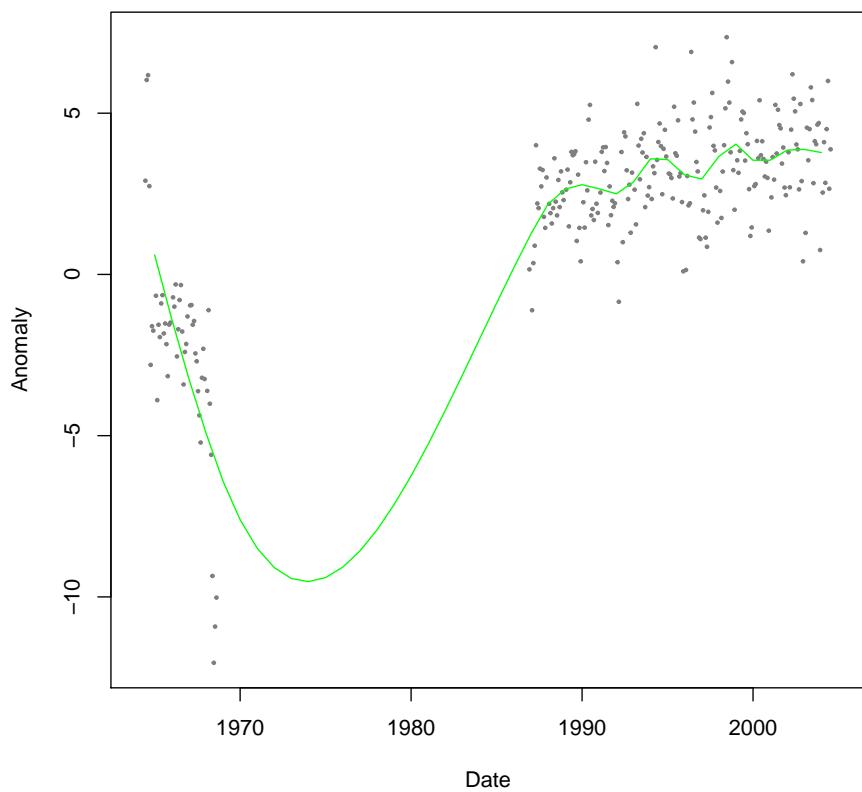


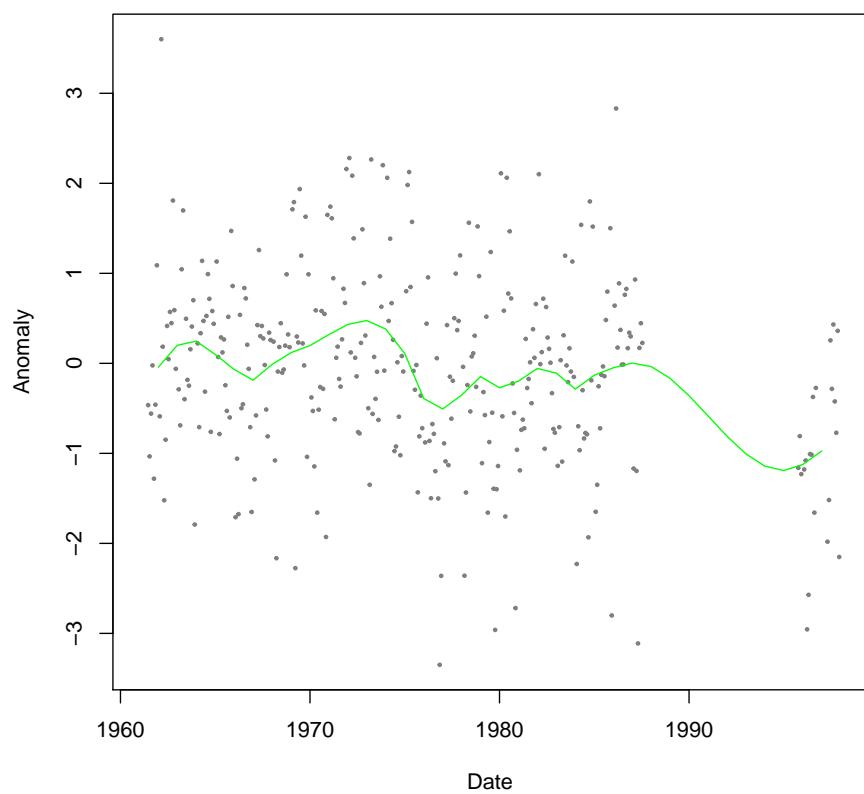


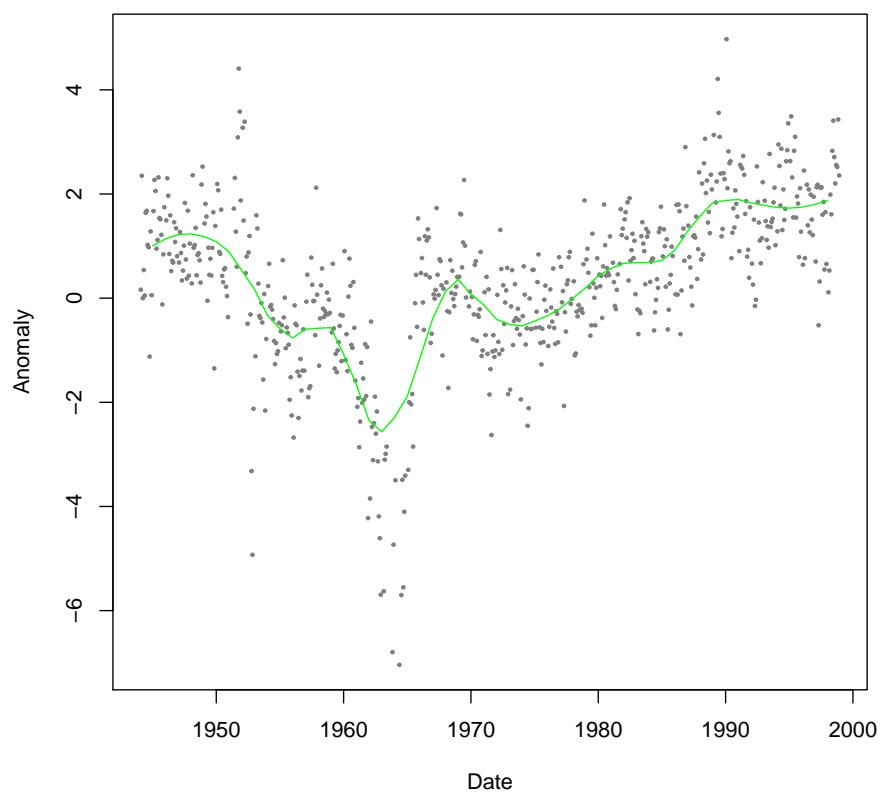


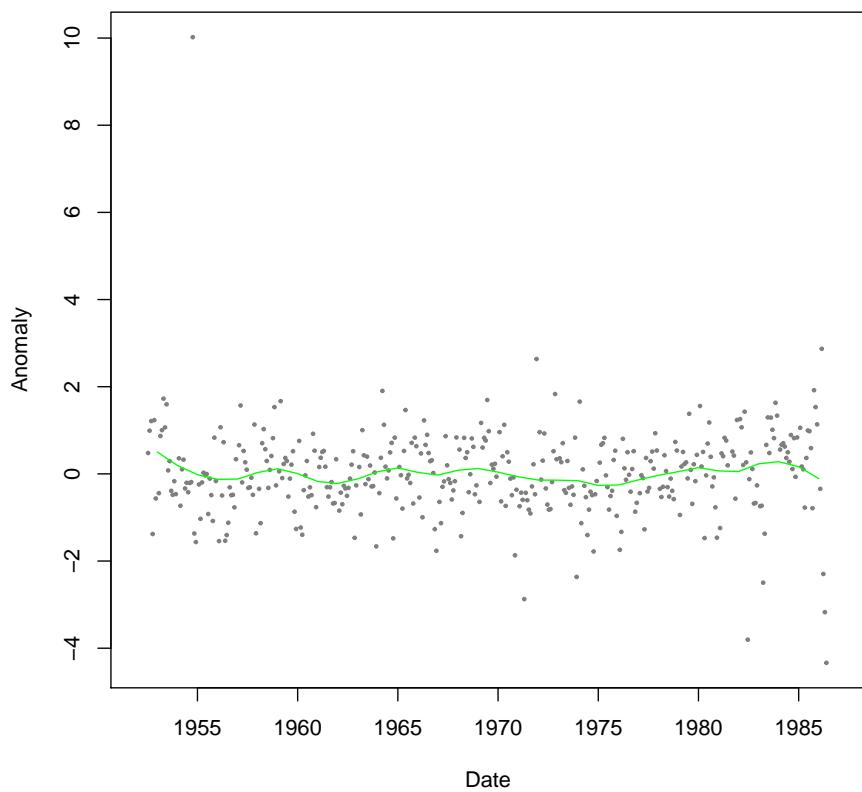


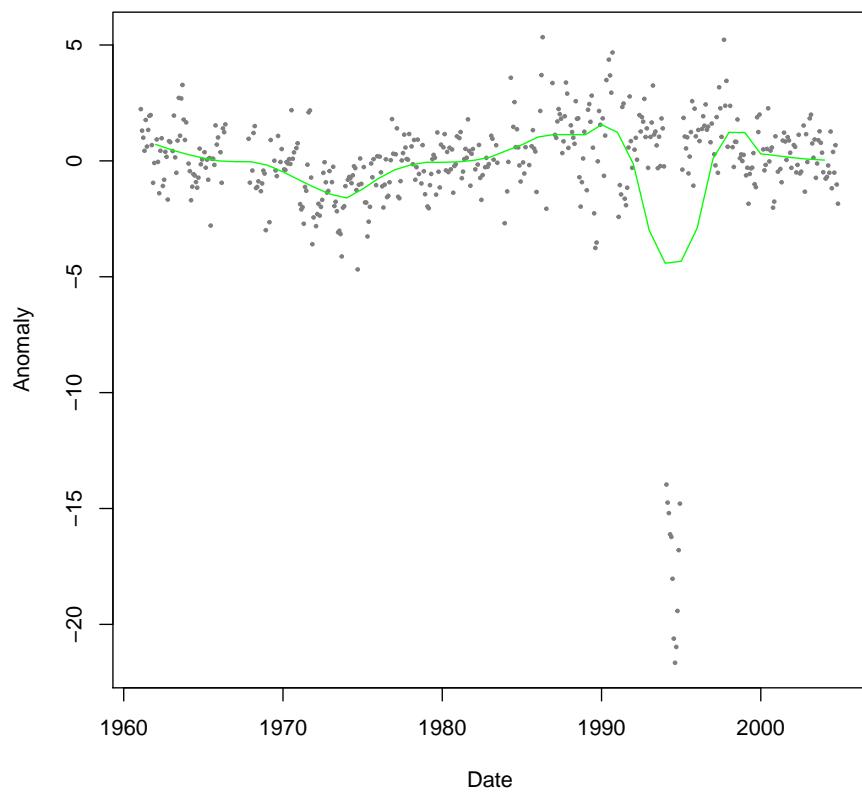


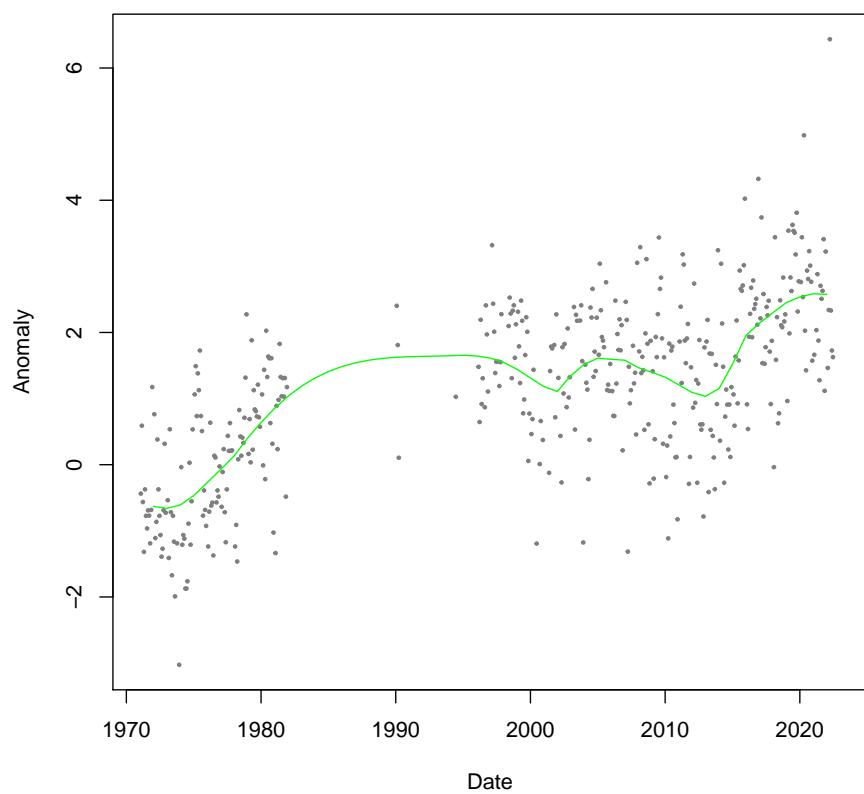


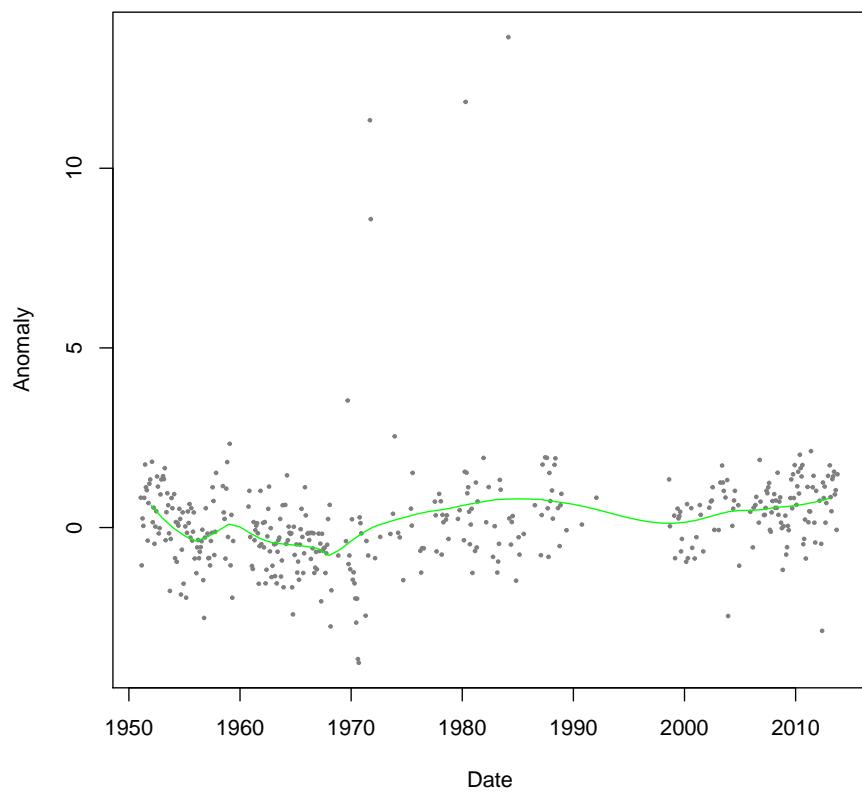


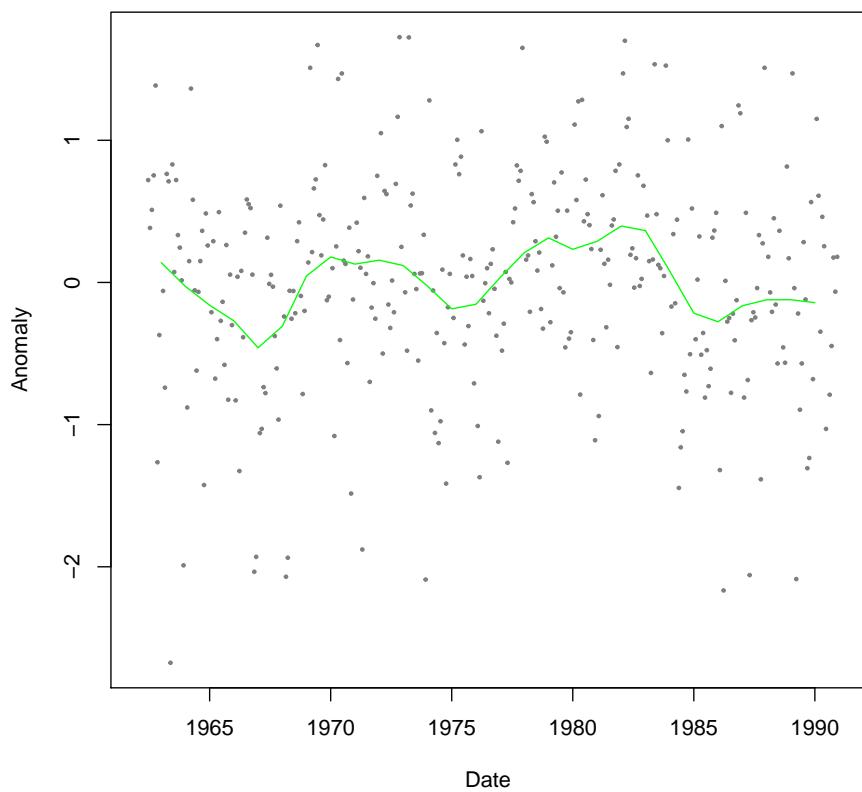


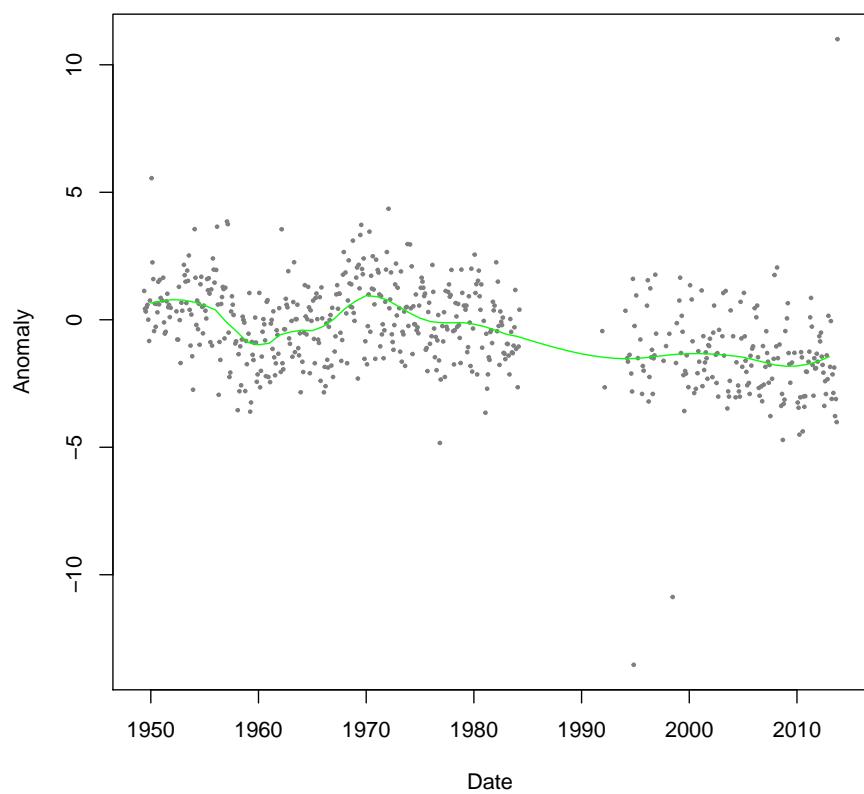


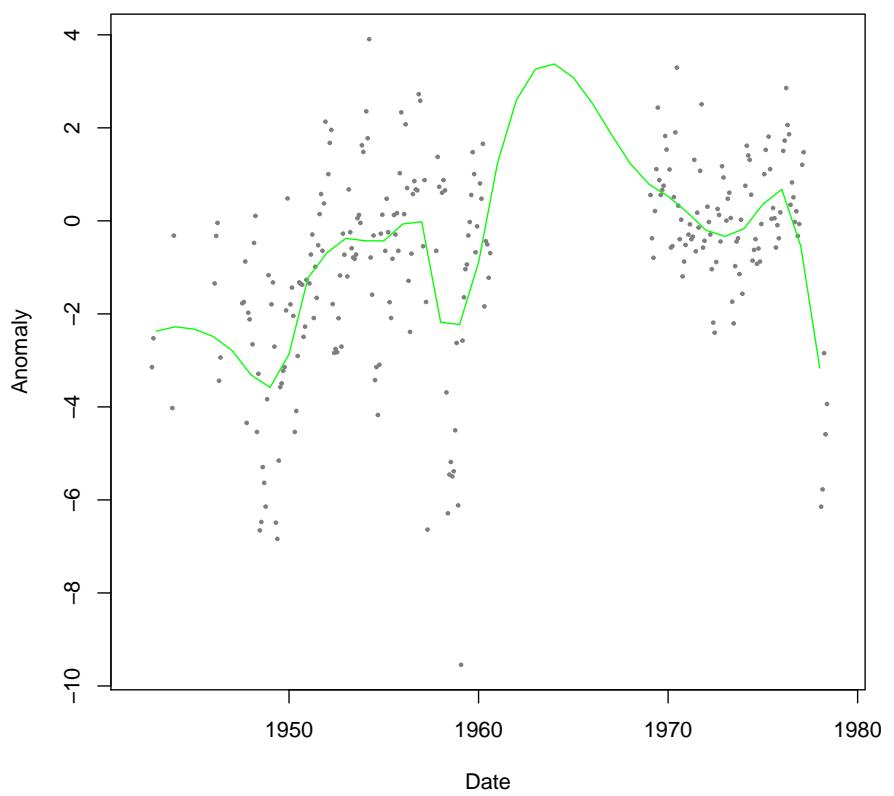


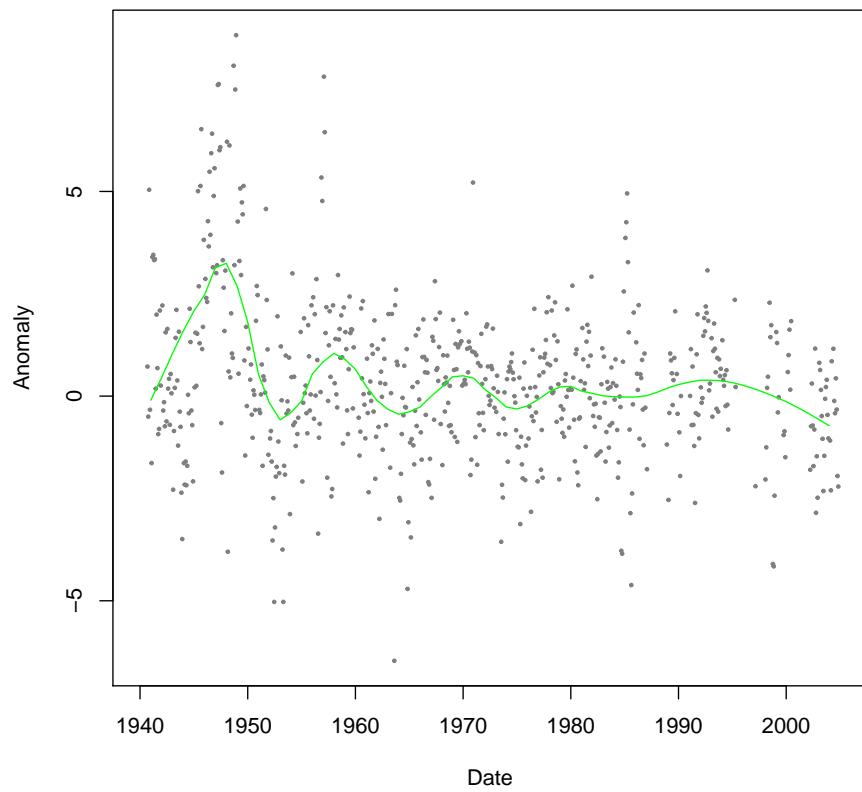


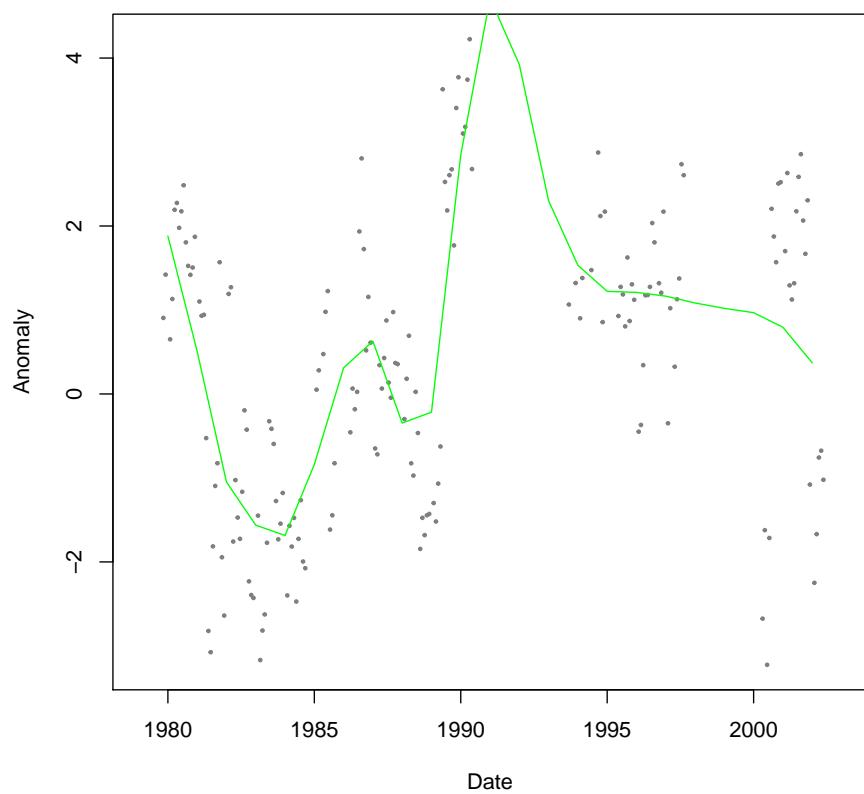


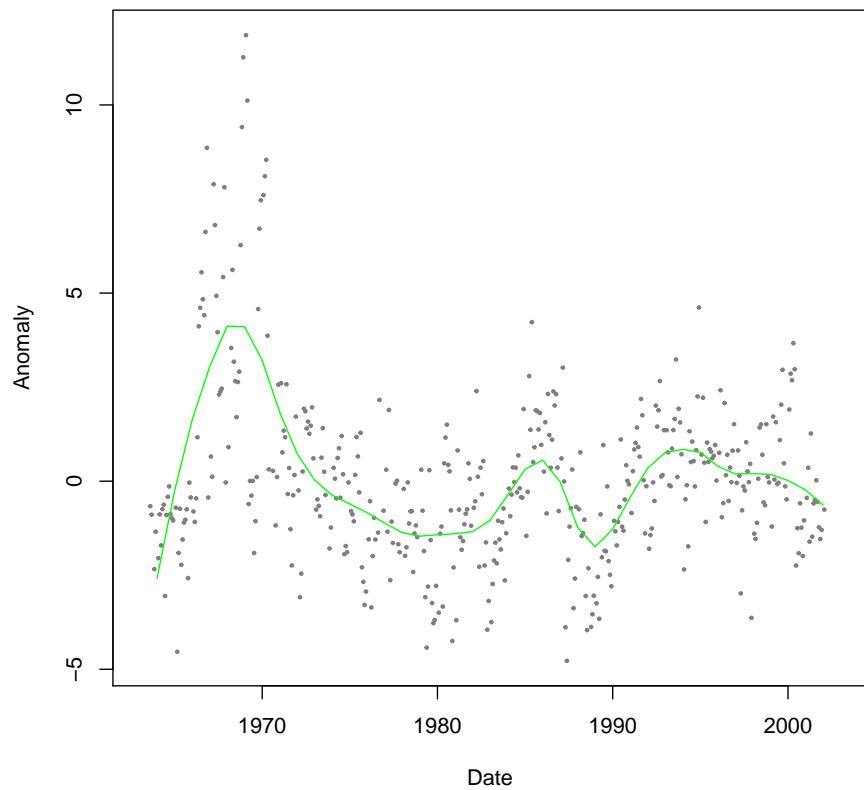


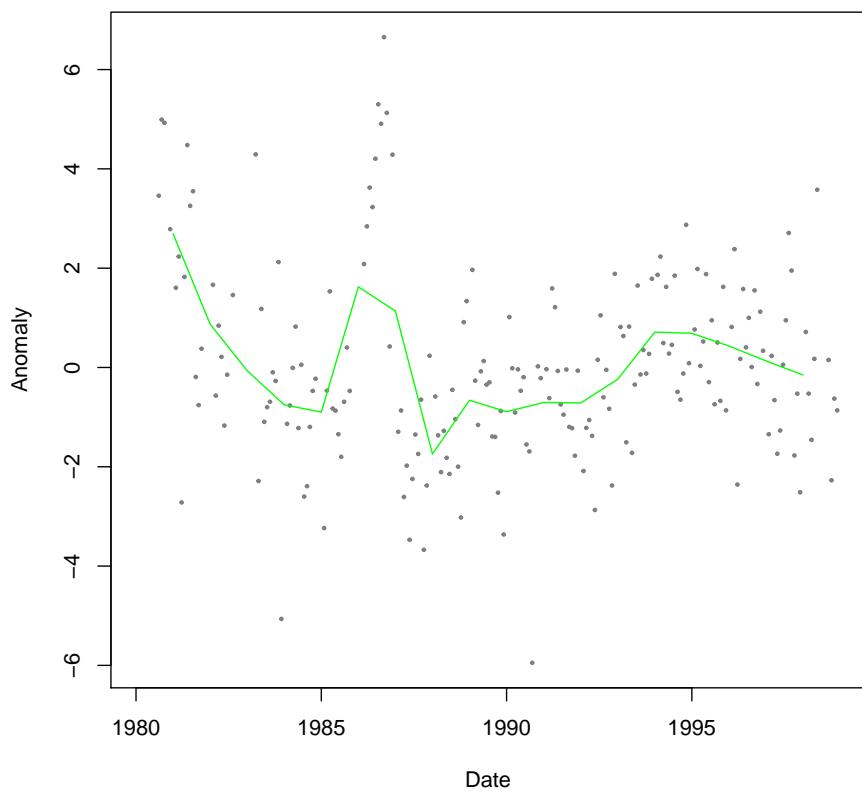


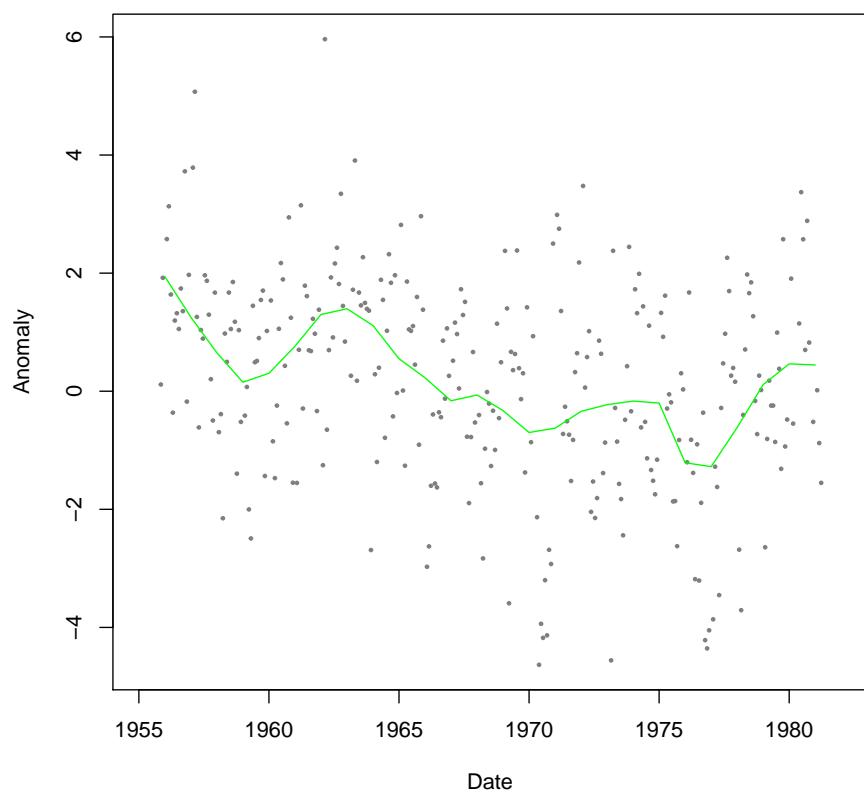


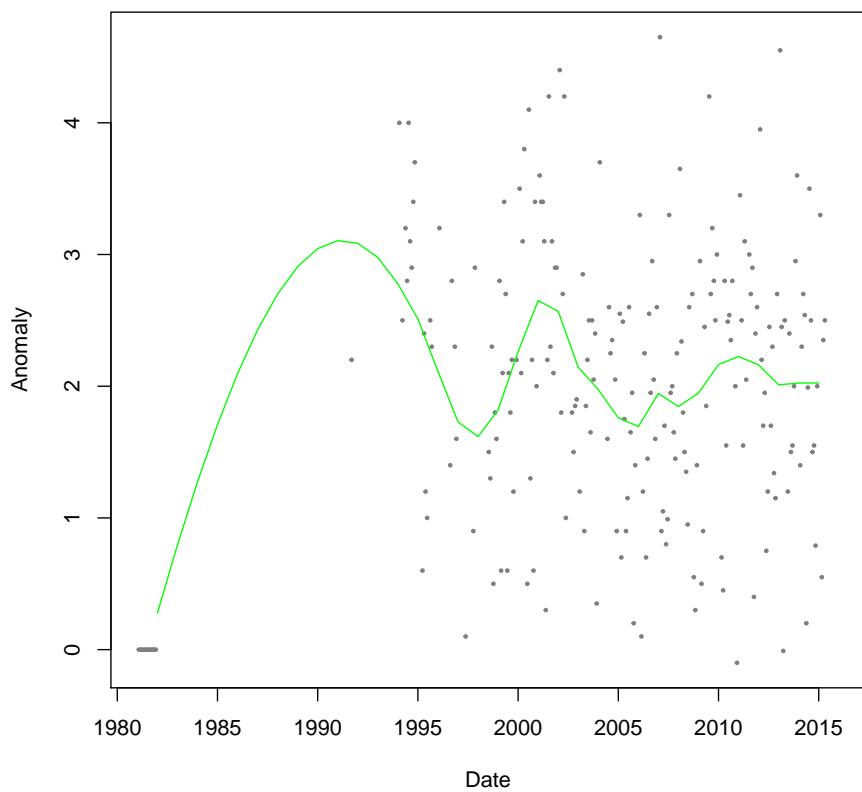






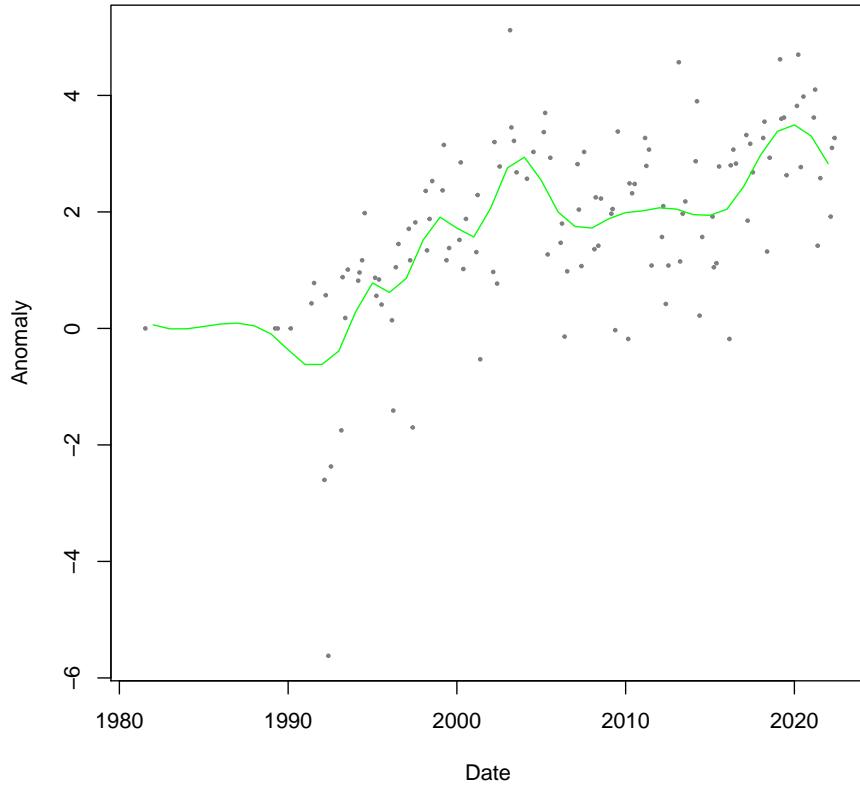








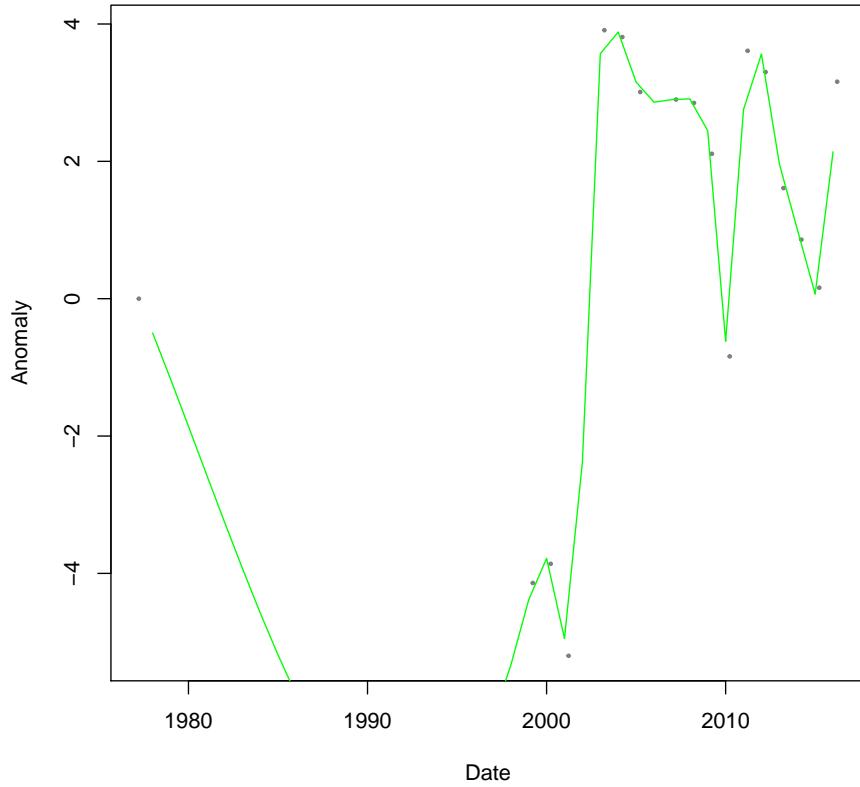
```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric = parametric, : pseudoinverse used at 2003.2
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric = parametric, : neighborhood radius 2
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric = parametric, : reciprocal condition number 0
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric = parametric, : There are other near singularities as well. 4
```



```

## `geom_smooth()` using method = 'loess' and formula 'y ~ x'
## Warning: Removed 446 row(s) containing missing values (geom_path).
## Source : https://maps.googleapis.com/maps/api/staticmap?center=Mexico&zoom=8&size=640x640
## Source : https://maps.googleapis.com/maps/api/geocode/json?address=Mexico&key=xxx-5aitK
## Warning: Removed 81 rows containing missing values (geom_point).
## Warning: Removed 81 rows containing missing values (geom_label_repel).
## Warning in min(x): no non-missing arguments to min; returning Inf
## Warning in max(x): no non-missing arguments to max; returning -Inf
## Warning in min(x): no non-missing arguments to min; returning Inf
## Warning in max(x): no non-missing arguments to max; returning -Inf

```



## 1 Conclusions

Developing a robust method to analyze weather stations is both time consuming and difficult to justify the outcome. In part because the data suggest that each station (region) requires different types of analysis, based on the expected patterns of temperature and rainfall. As climate scientists have known for decades, the terminology of global warming is not very useful. Not because scientists are trying to hide something or promote some biased agenda, but that even as warming of the global average is well documented, the impacts of climate change on each region is highly specific, requiring specificity in the analysis.

Hopefully, this little analysis has created some mechanism for others to appreciate this complexity.

The document took 52.8 minutes to process and compile. My next goal will be to optimize the process and streamline the time to analyze.

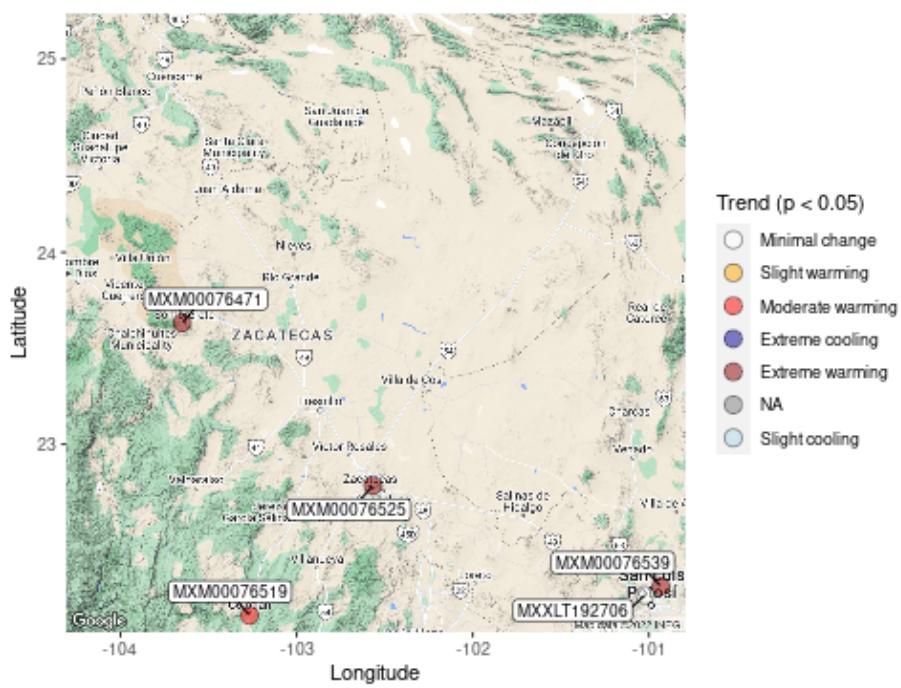


Figure 1: .aaaa