Results for MSc Thesis

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June 2020

1 Introduction

This document will consist of every result produced for my thesis, categorised and labelled correctly.

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2 Time series

2.1 Nimbus-7 seaice timeseries

Below are the mean SIC time series for seaice in Antarctica. All of these are produced from the NSIDC dataset with different variations of post-processing.

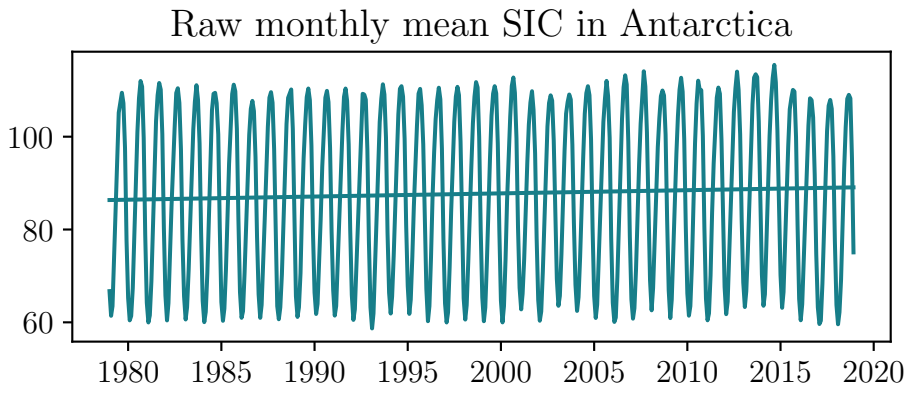


Figure 1: Mean raw monthly raw SIC in Antarctica from the NSIDC dataset.

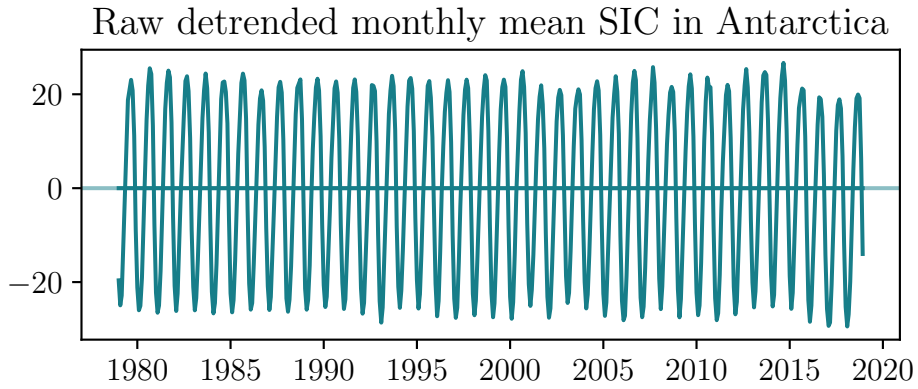


Figure 2: Mean raw monthly detrended SIC in Antarctica from the NSIDC dataset.

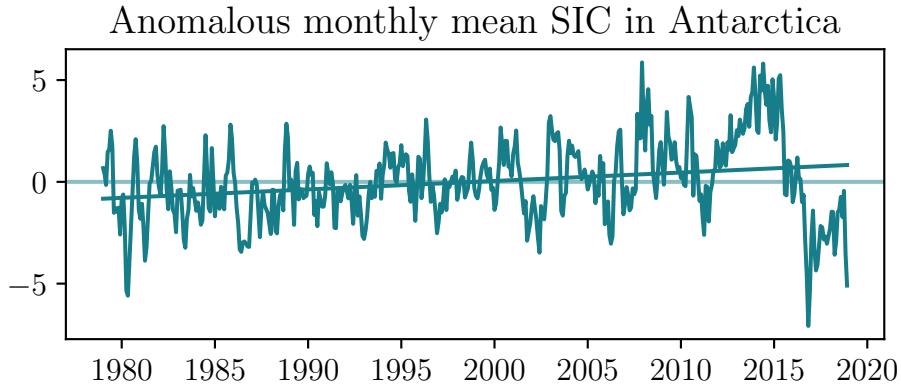


Figure 3: Mean anomalous monthly raw SIC in Antarctica from the NSIDC dataset.

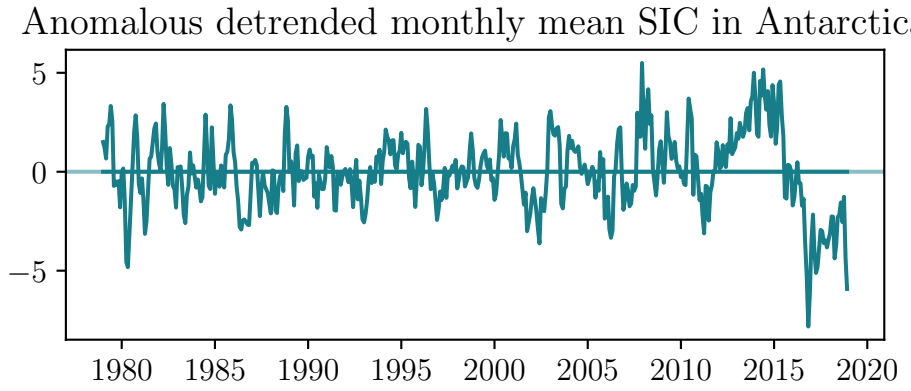


Figure 4: Mean anomalous monthly detrended SIC in Antarctica from the NSIDC dataset.

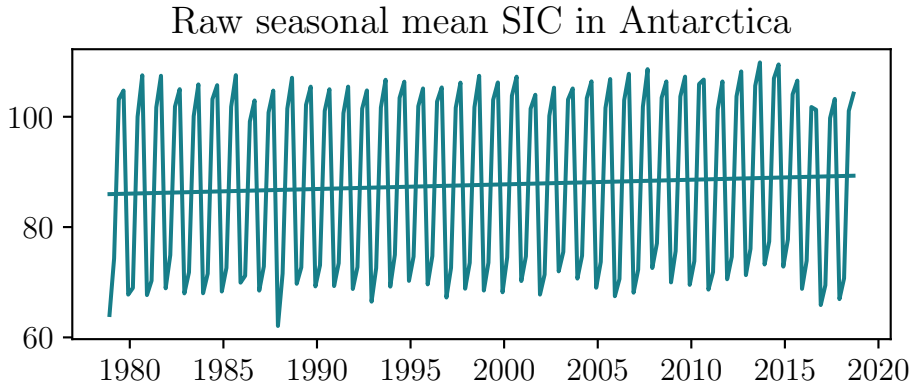


Figure 5: Mean raw seasonal raw SIC in Antarctica from the NSIDC dataset.

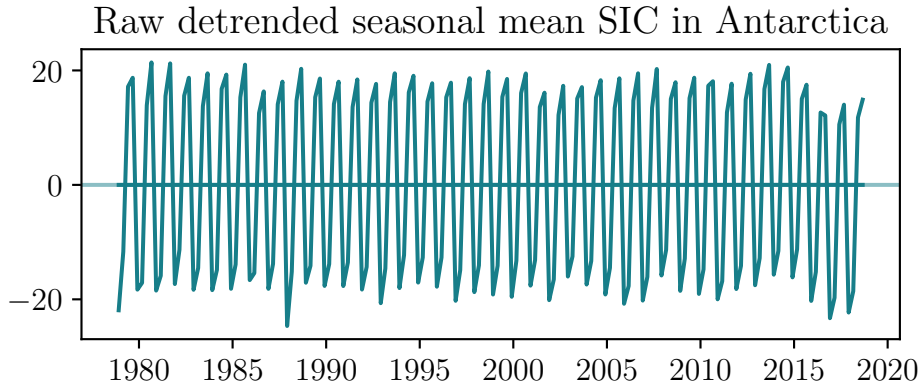


Figure 6: Mean raw seasonal detrended SIC in Antarctica from the NSIDC dataset.

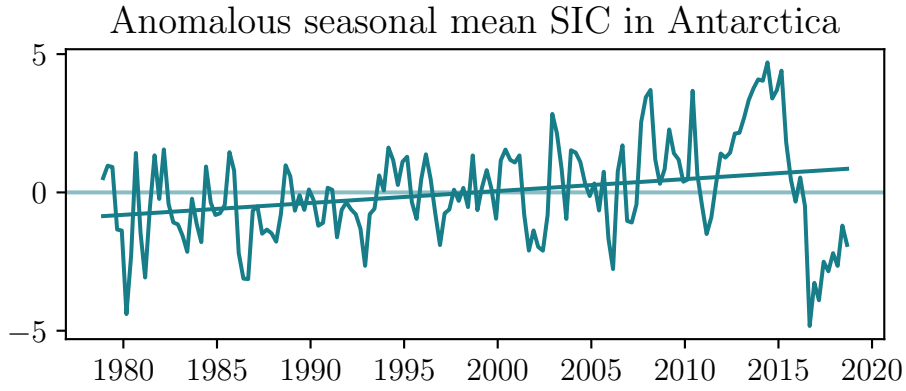


Figure 7: Mean anomalous seasonal raw SIC in Antarctica from the NSIDC dataset.

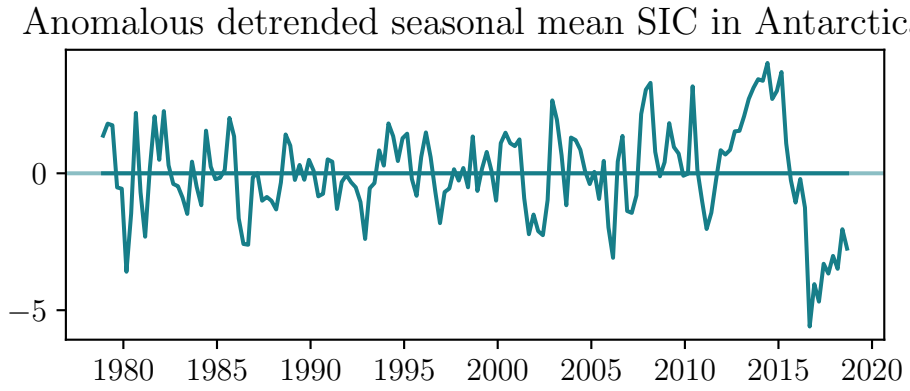


Figure 8: Mean anomalous seasonal detrended SIC in Antarctica from the NSIDC dataset.

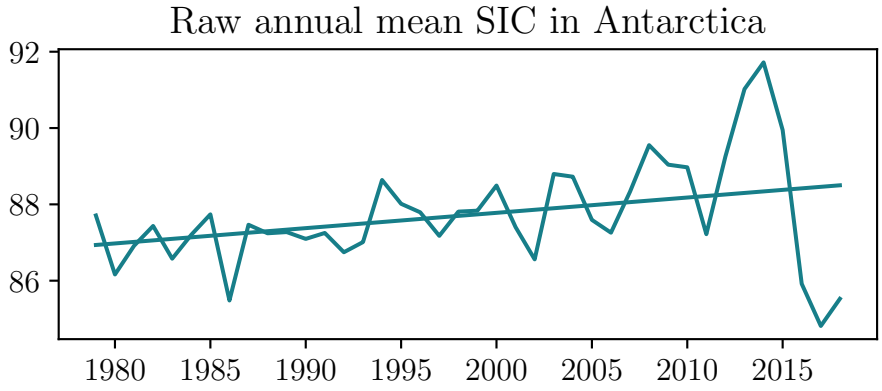


Figure 9: Mean raw annual raw SIC in Antarctica from the NSIDC dataset.

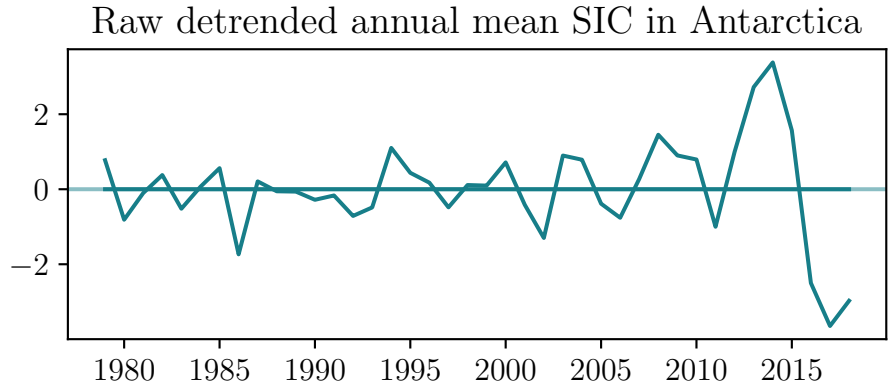


Figure 10: Mean raw annual detrended SIC in Antarctica from the NSIDC dataset.

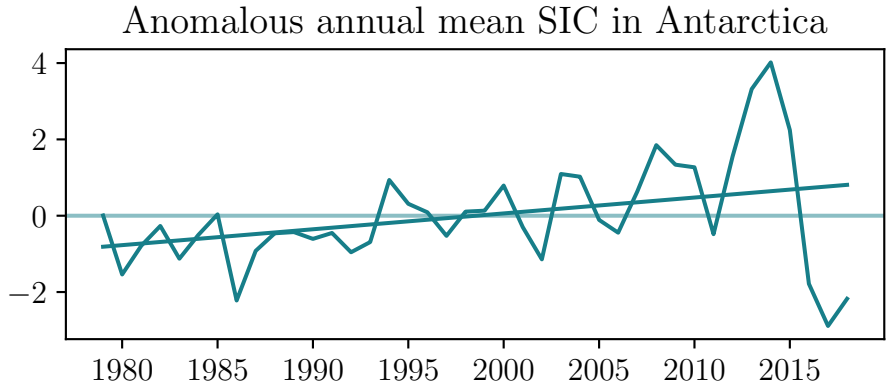


Figure 11: Mean anomalous annual raw SIC in Antarctica from the NSIDC dataset.

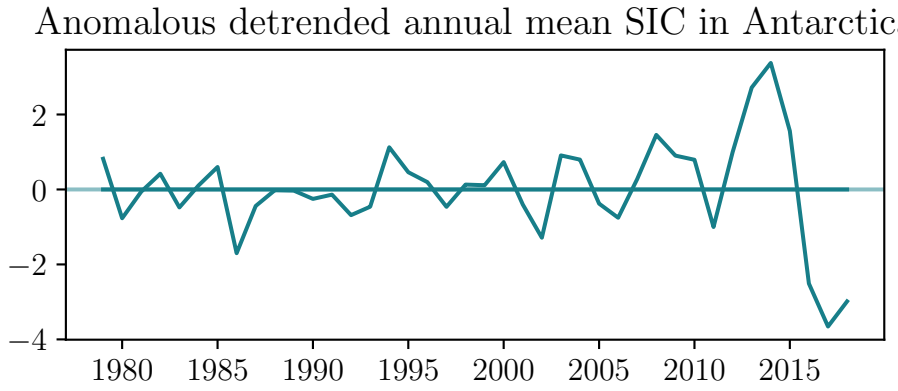


Figure 12: Mean anomalous annual detrended SIC in Antarctica from the NSIDC dataset.

2.2 ERA5 seaice timeseries

Below are the mean SIC time series for seaice in Antarctica. All of these are produced from the ECMWF ERA5 dataset with different variations of post-processing.

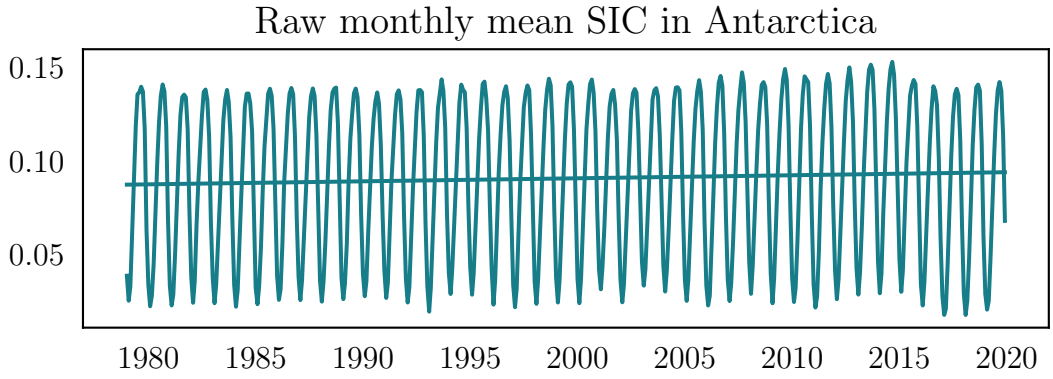


Figure 13: Mean raw monthly raw SIC in Antarctica from the ECMWF ERA5 dataset.

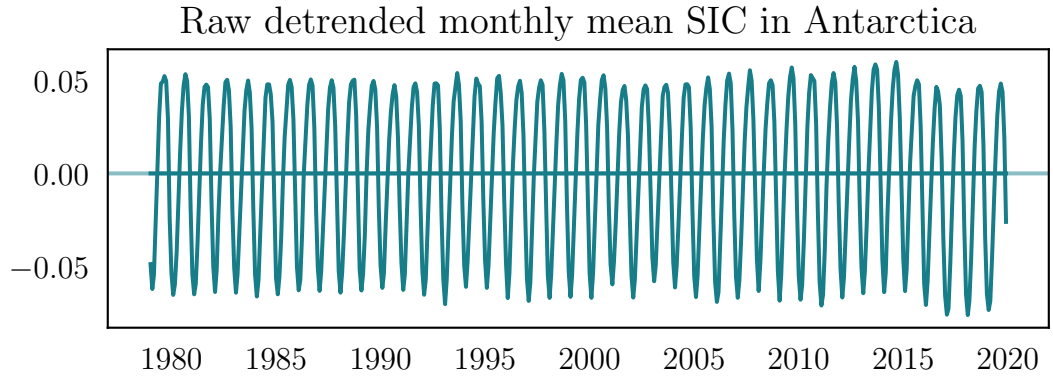


Figure 14: Mean raw monthly detrended SIC in Antarctica from the ECMWF ERA5 dataset.

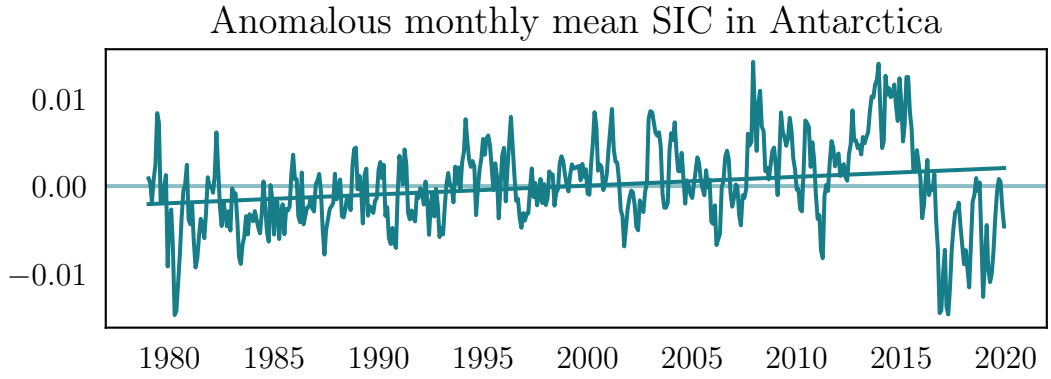


Figure 15: Mean anomalous monthly raw SIC in Antarctica from the ECMWF ERA5 dataset.

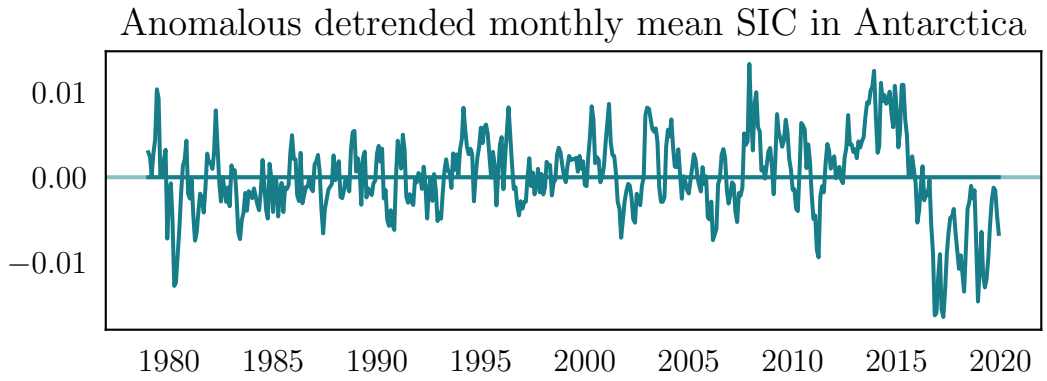


Figure 16: Mean anomalous monthly detrended SIC in Antarctica from the ECMWF ERA5 dataset.

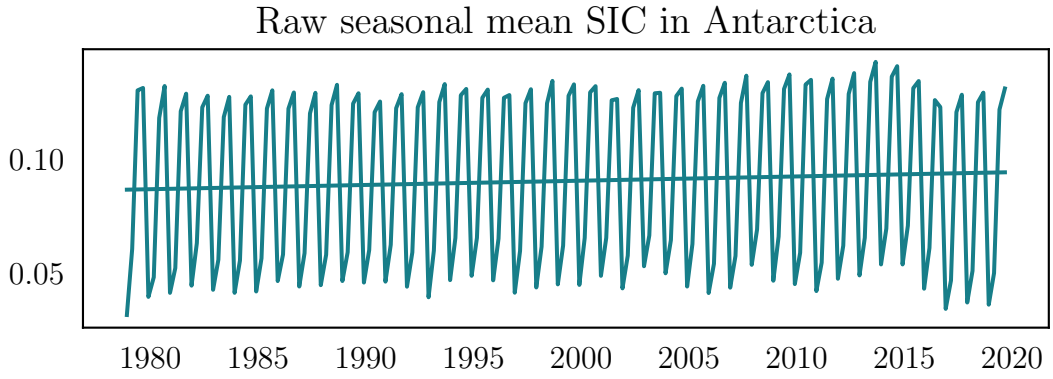


Figure 17: Mean raw seasonal raw SIC in Antarctica from the ECMWF ERA5 dataset.

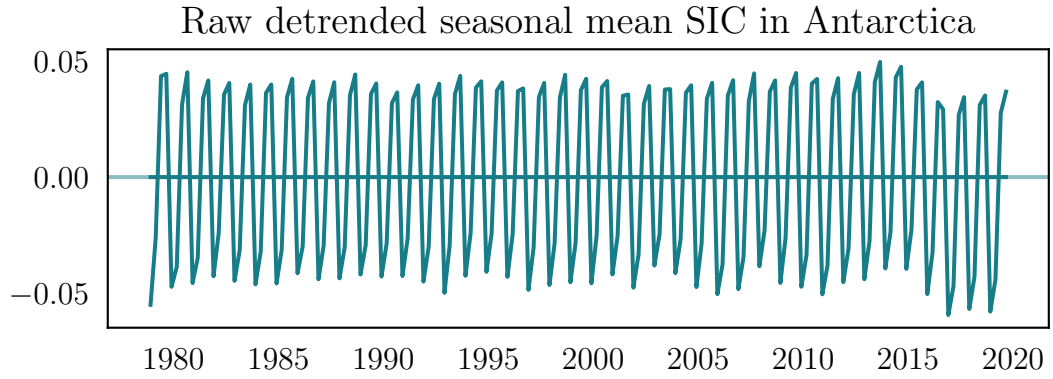


Figure 18: Mean raw seasonal detrended SIC in Antarctica from the ECMWF ERA5 dataset.

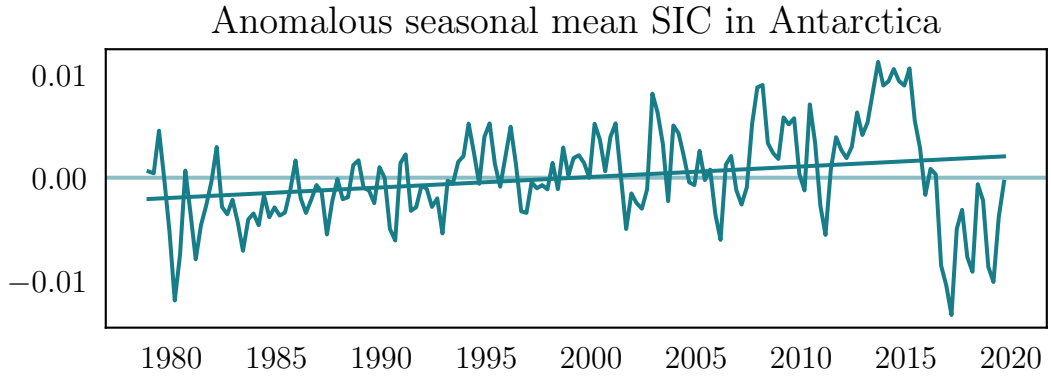


Figure 19: Mean anomalous seasonal raw SIC in Antarctica from the ECMWF ERA5 dataset.

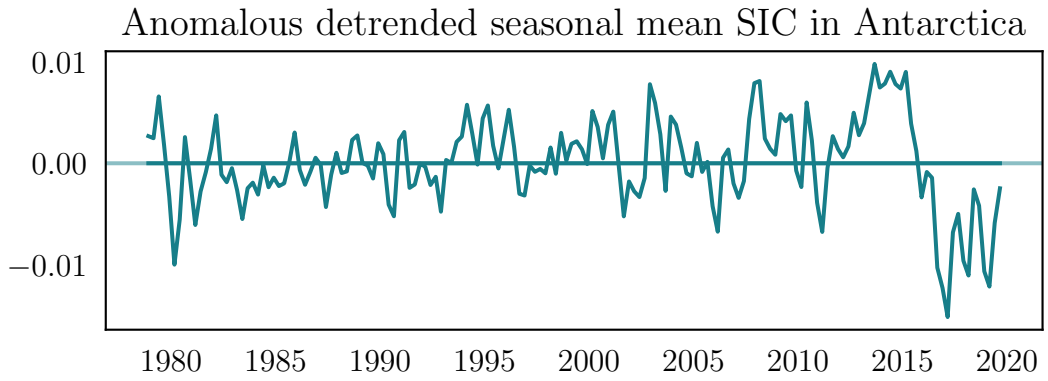


Figure 20: Mean anomalous seasonal detrended SIC in Antarctica from the ECMWF ERA5 dataset.

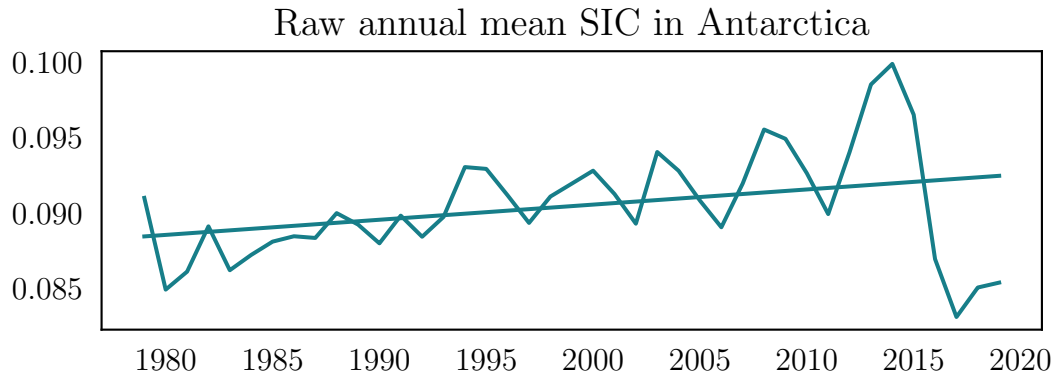


Figure 21: Mean raw annual raw SIC in Antarctica from the ECMWF ERA5 dataset.

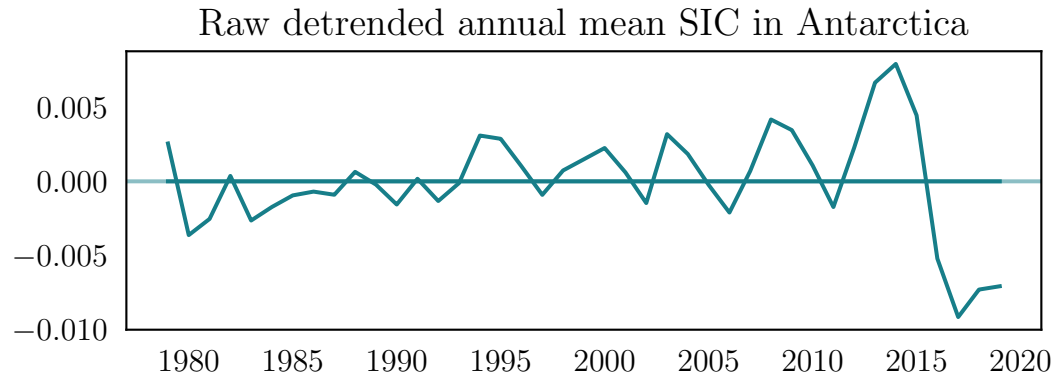


Figure 22: Mean raw annual detrended SIC in Antarctica from the ECMWF ERA5 dataset.

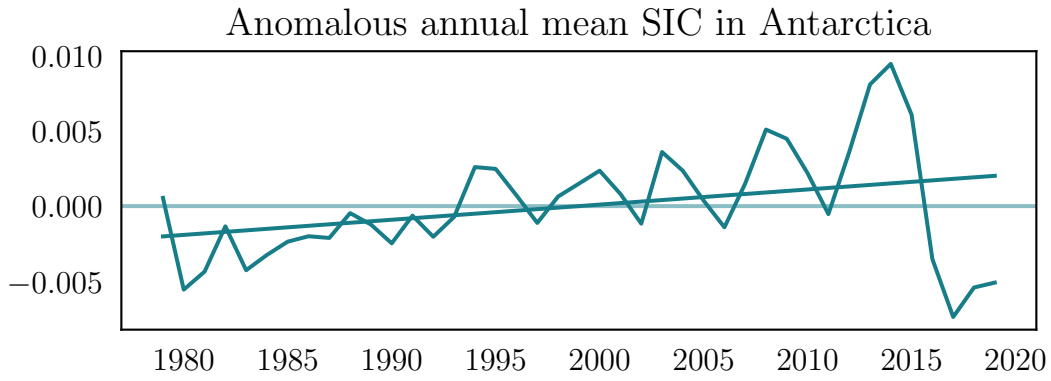


Figure 23: Mean anomalous annual raw SIC in Antarctica from the ECMWF ERA5 dataset.

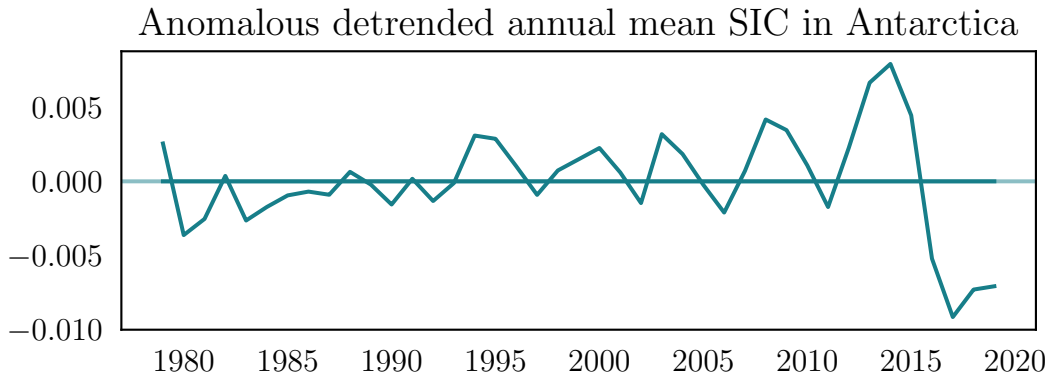


Figure 24: Mean anomalous annual detrended SIC in Antarctica from the ECMWF ERA5 dataset.

2.3 Comparison of datasets

We can plot these time series together to look at how similar they are.

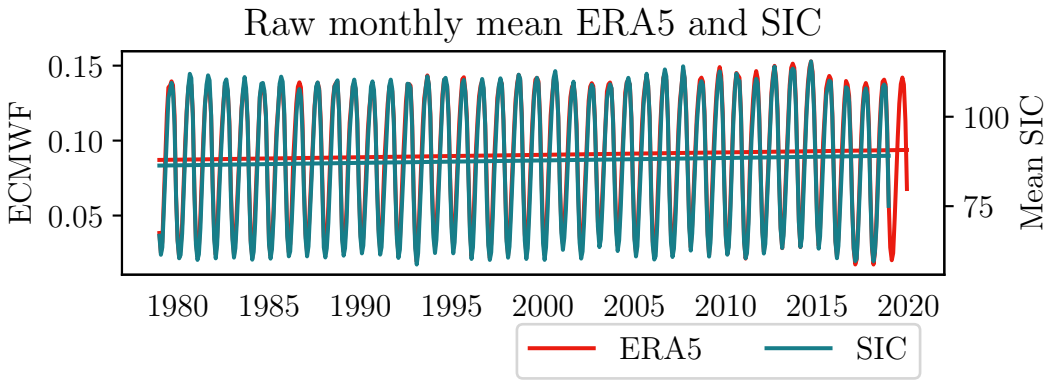


Figure 25: Comparison of mean raw monthly raw SIC in Antarctica datasets.

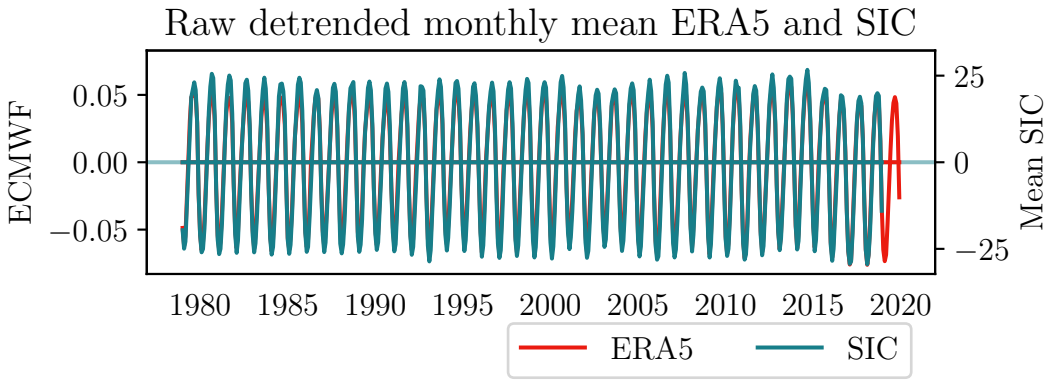


Figure 26: Comparison of mean raw monthly detrended SIC in Antarctica datasets.

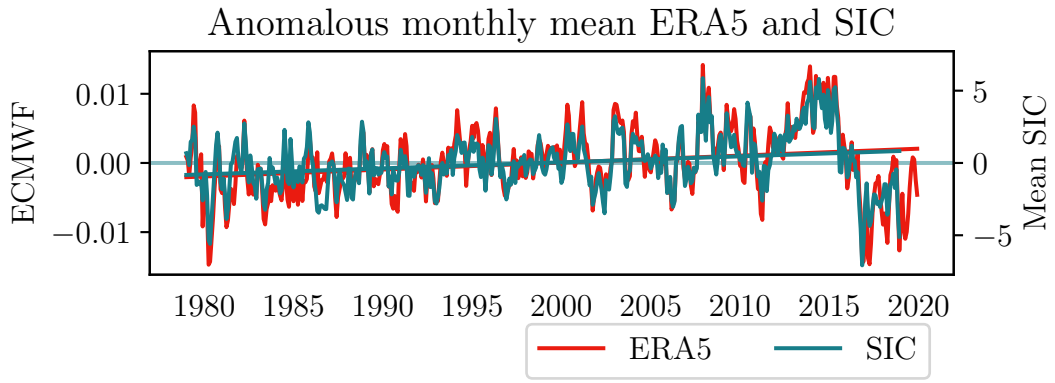


Figure 27: Comparison of mean anomalous monthly raw SIC in Antarctica datasets.

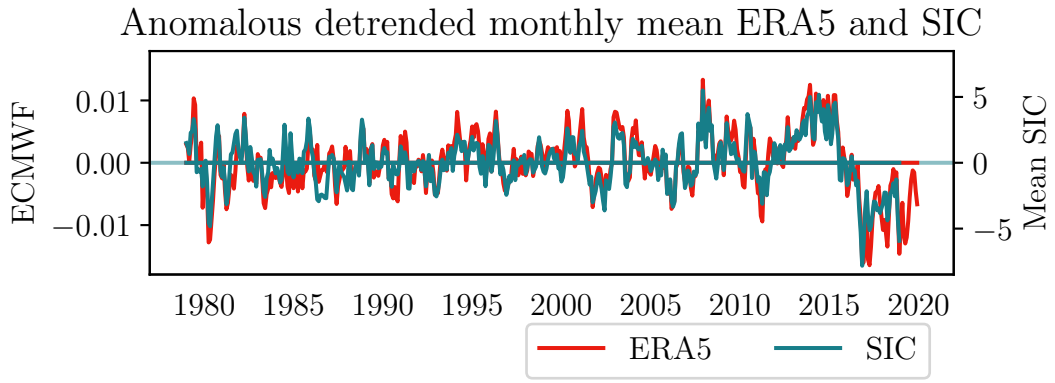


Figure 28: Comparison of mean anomalous monthly detrended SIC in Antarctica datasets.

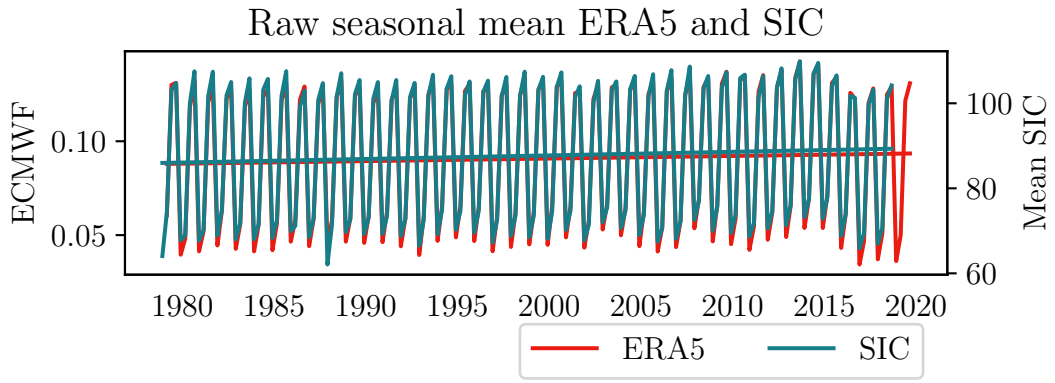


Figure 29: Comparison of mean raw seasonal raw SIC in Antarctica datasets.

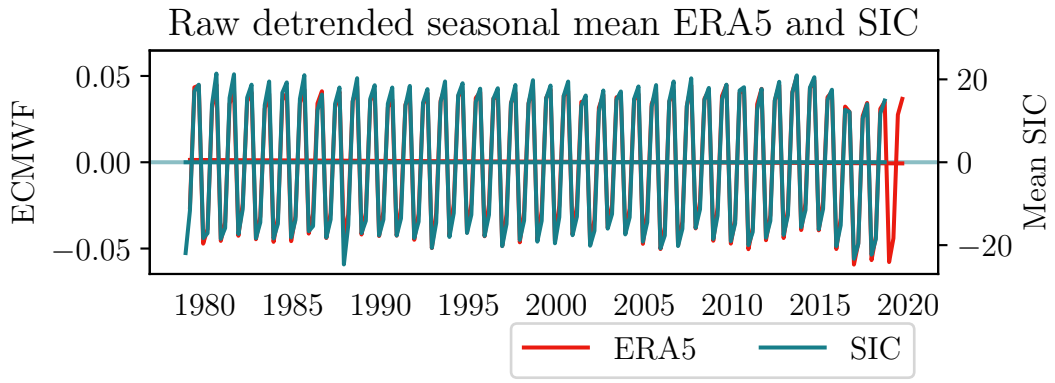


Figure 30: Comparison of mean raw seasonal detrended SIC in Antarctica datasets.

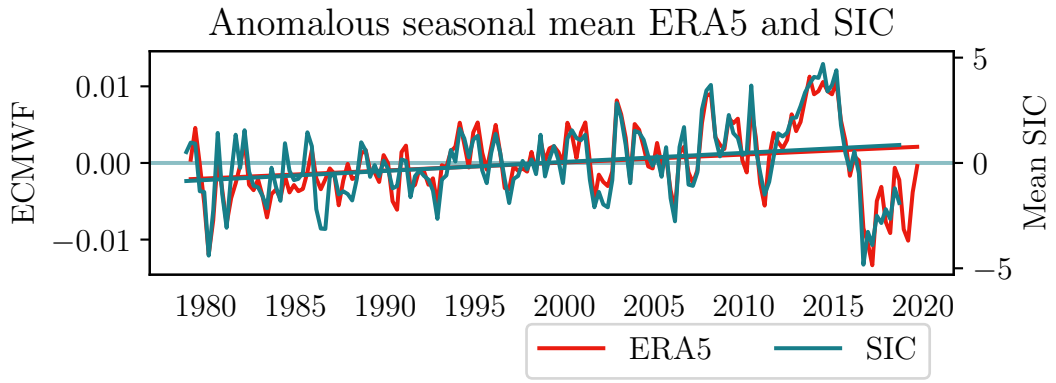


Figure 31: Comparison of mean anomalous seasonal raw SIC in Antarctica datasets.

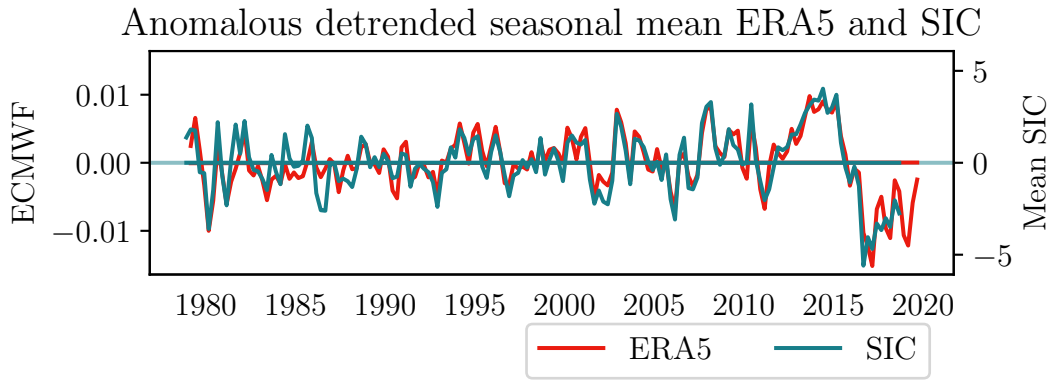


Figure 32: Comparison of mean anomalous seasonal detrended SIC in Antarctica datasets.

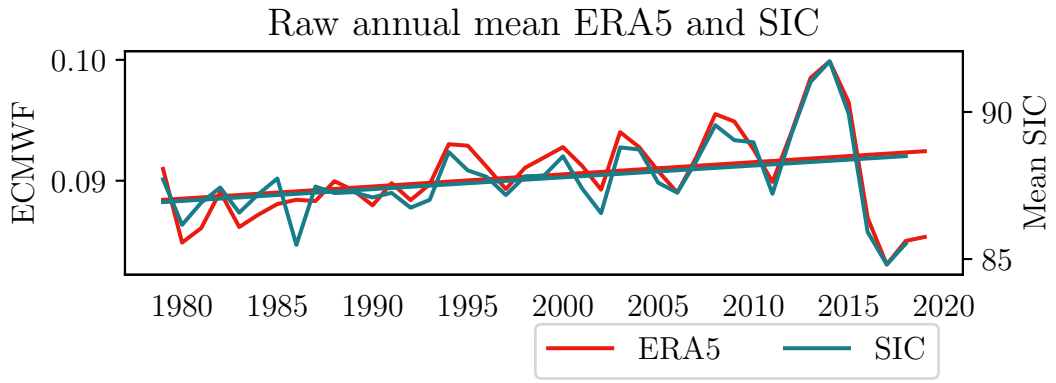


Figure 33: Comparison of mean raw annual raw SIC in Antarctica datasets.

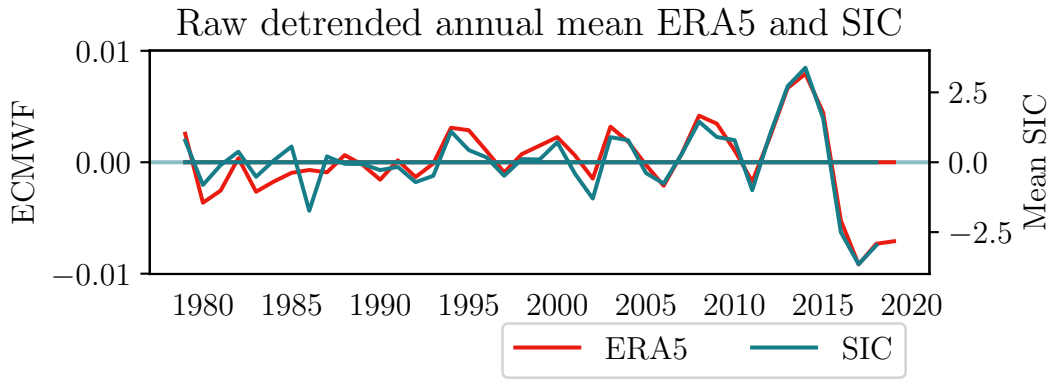


Figure 34: Comparison of mean raw annual detrended SIC in Antarctica datasets.

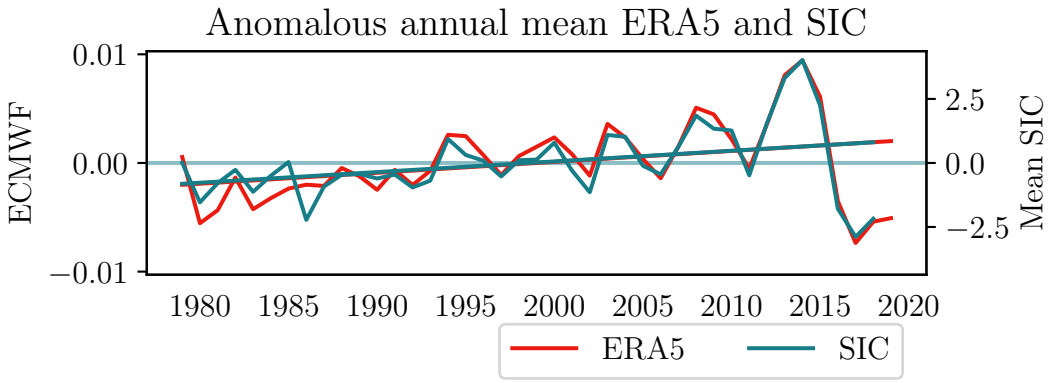


Figure 35: Comparison of mean anomalous annual raw SIC in Antarctica datasets.

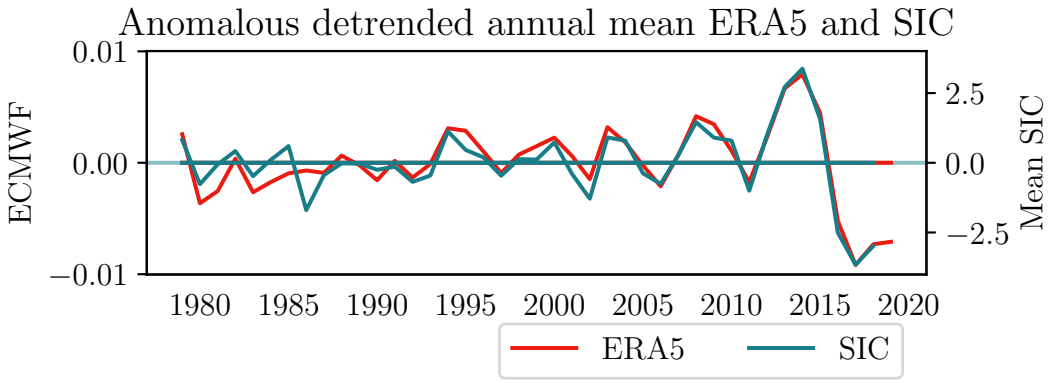
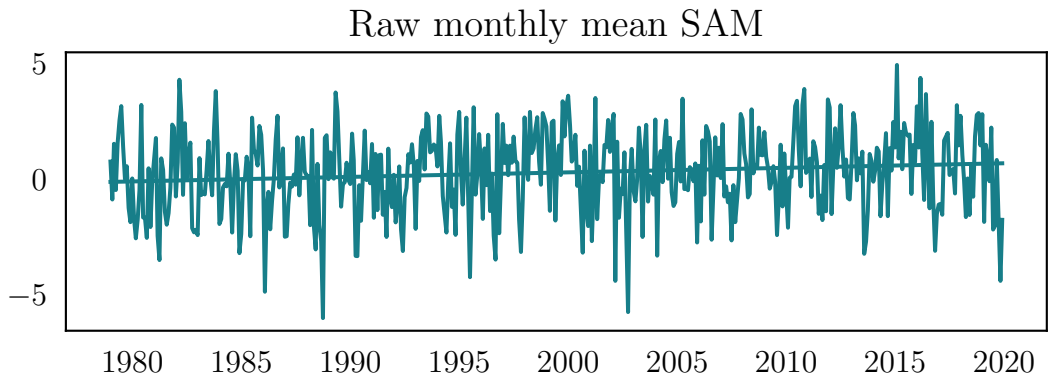
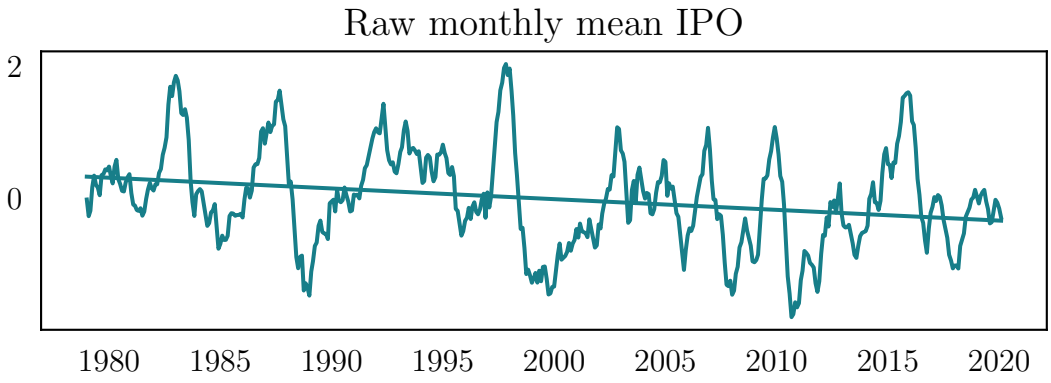


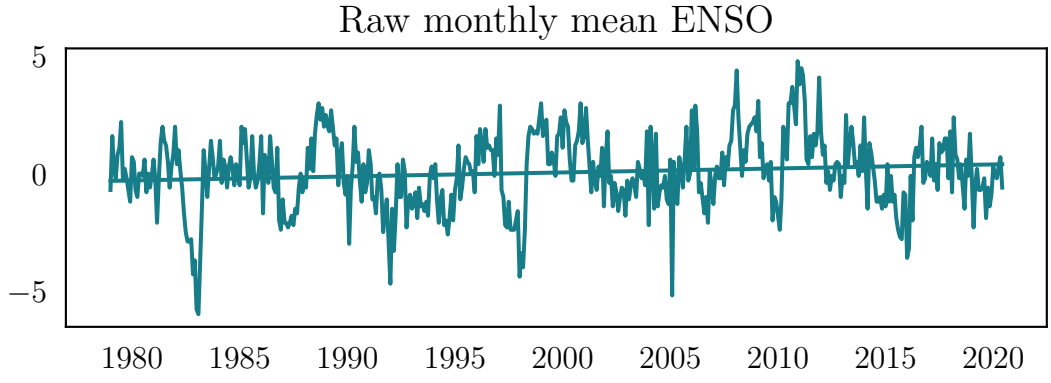
Figure 36: Comparison of mean anomalous annual detrended SIC in Antarctica datasets.

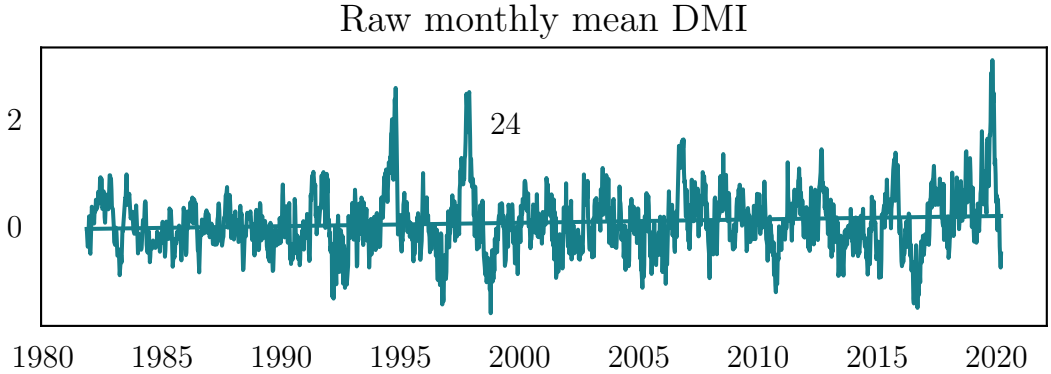
3 Indicies and SIC

3.1 Index time series









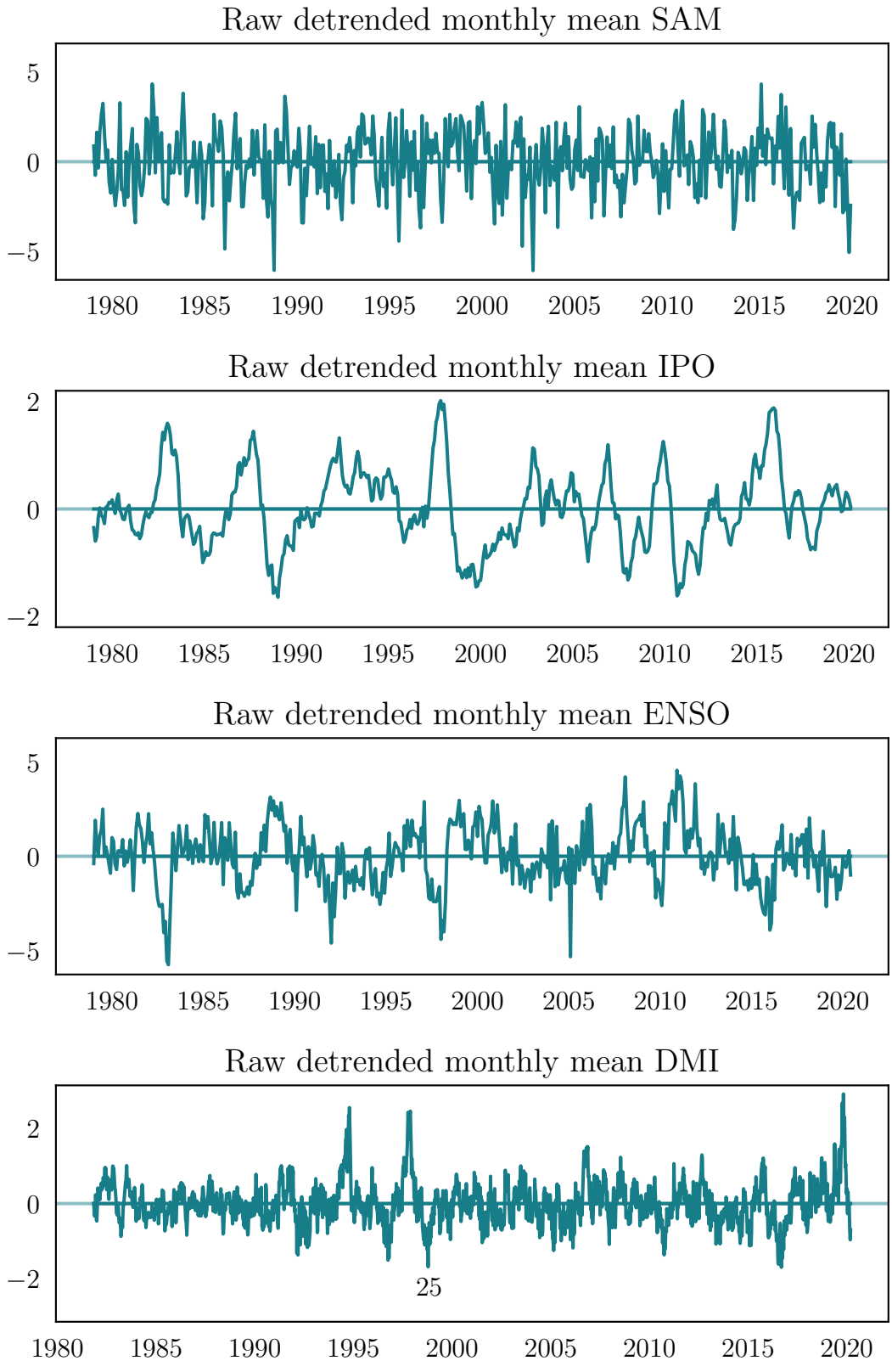


Figure 38: raw monthly detrended index values

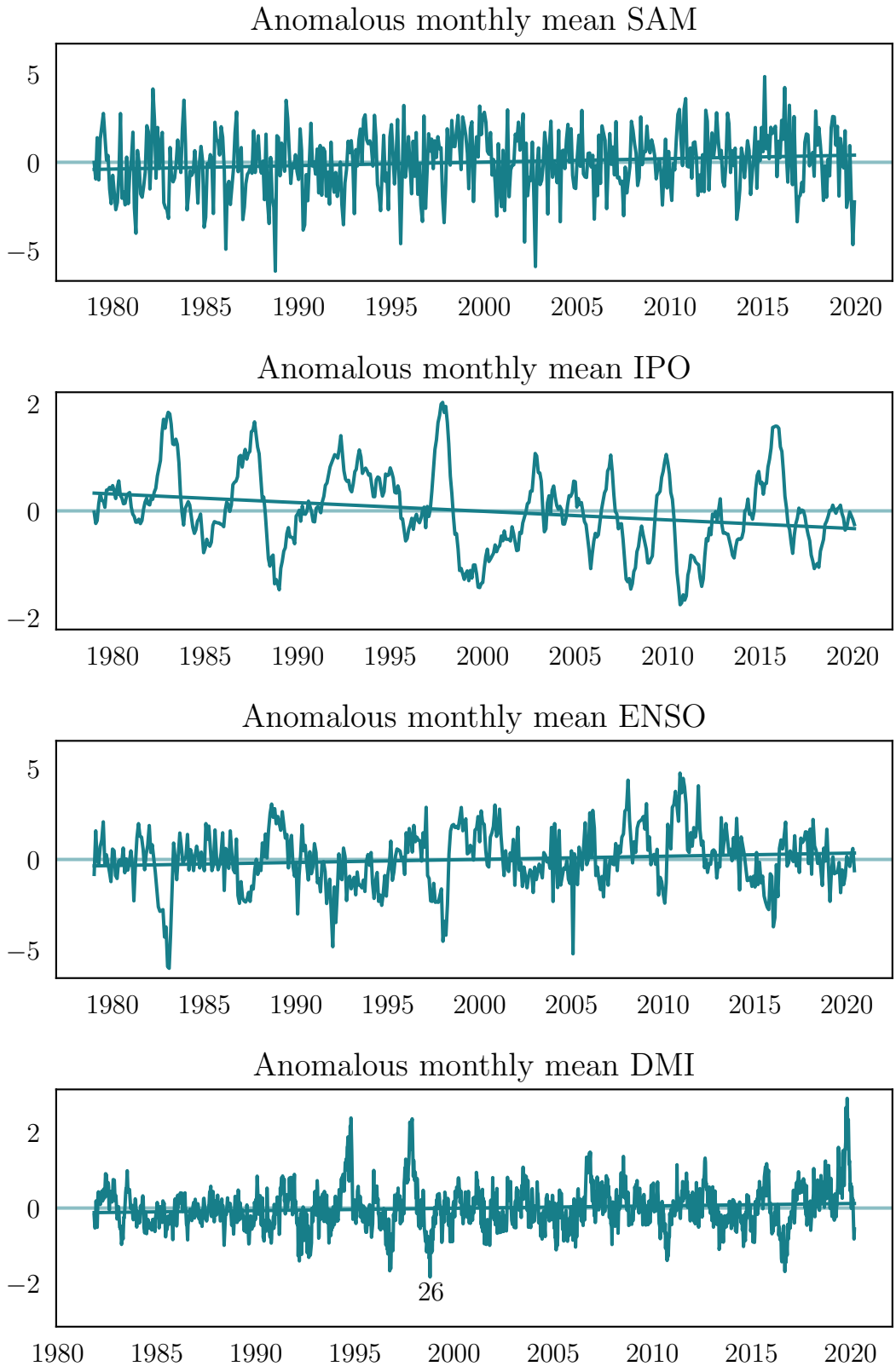


Figure 39: anomalous monthly raw index values

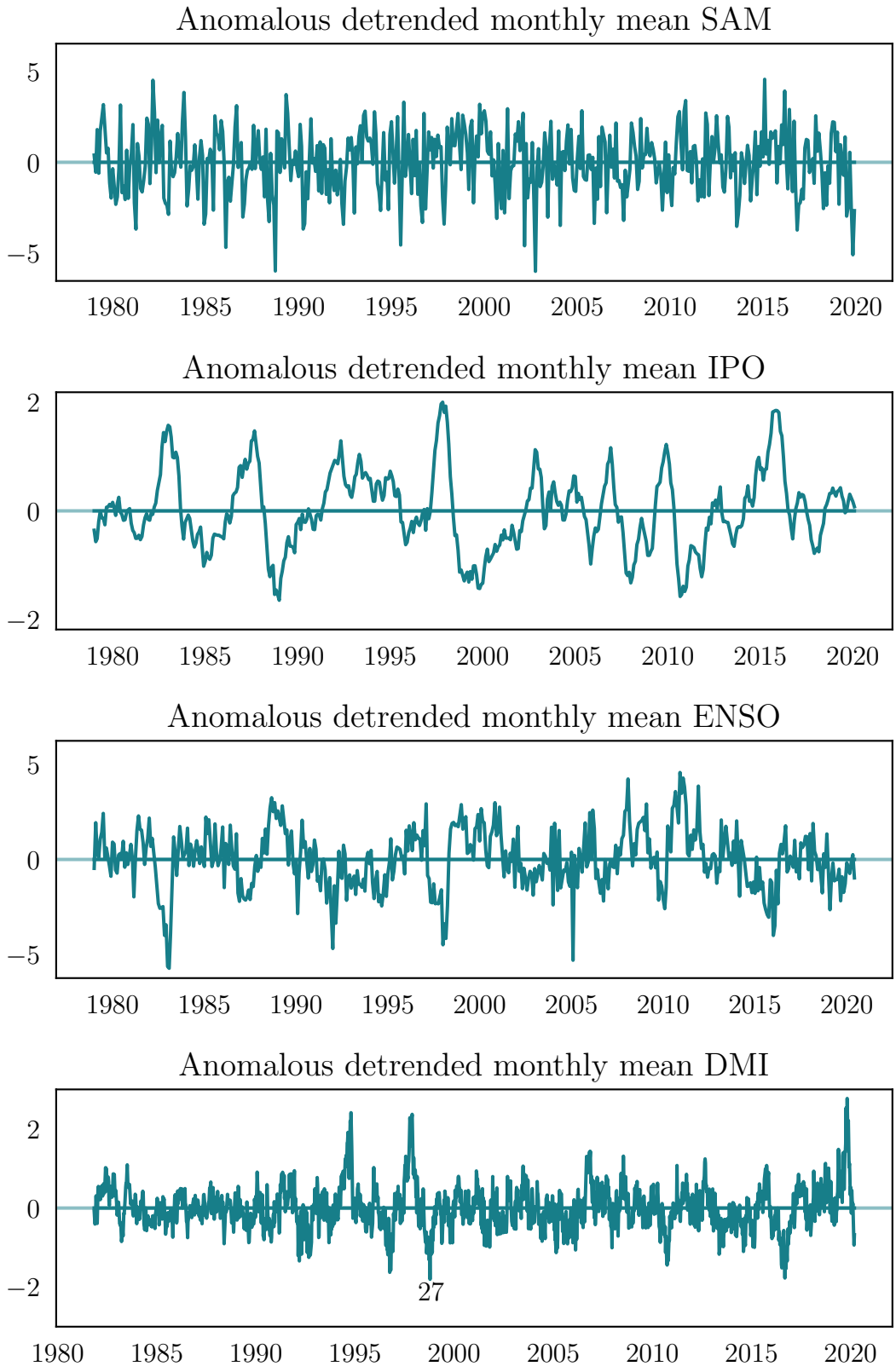


Figure 40: anomalous monthly detrended index values

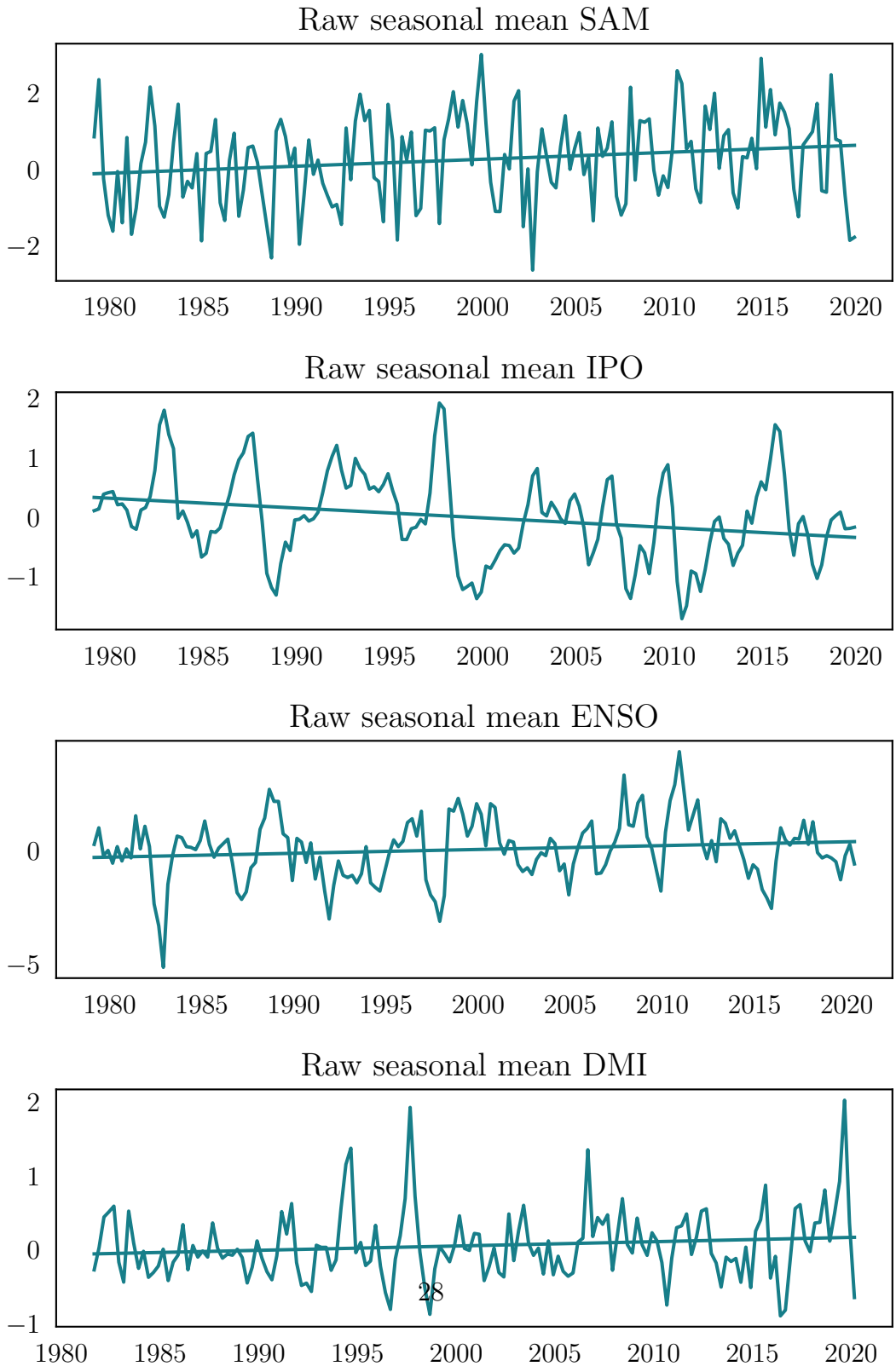


Figure 41: raw seasonal raw index values

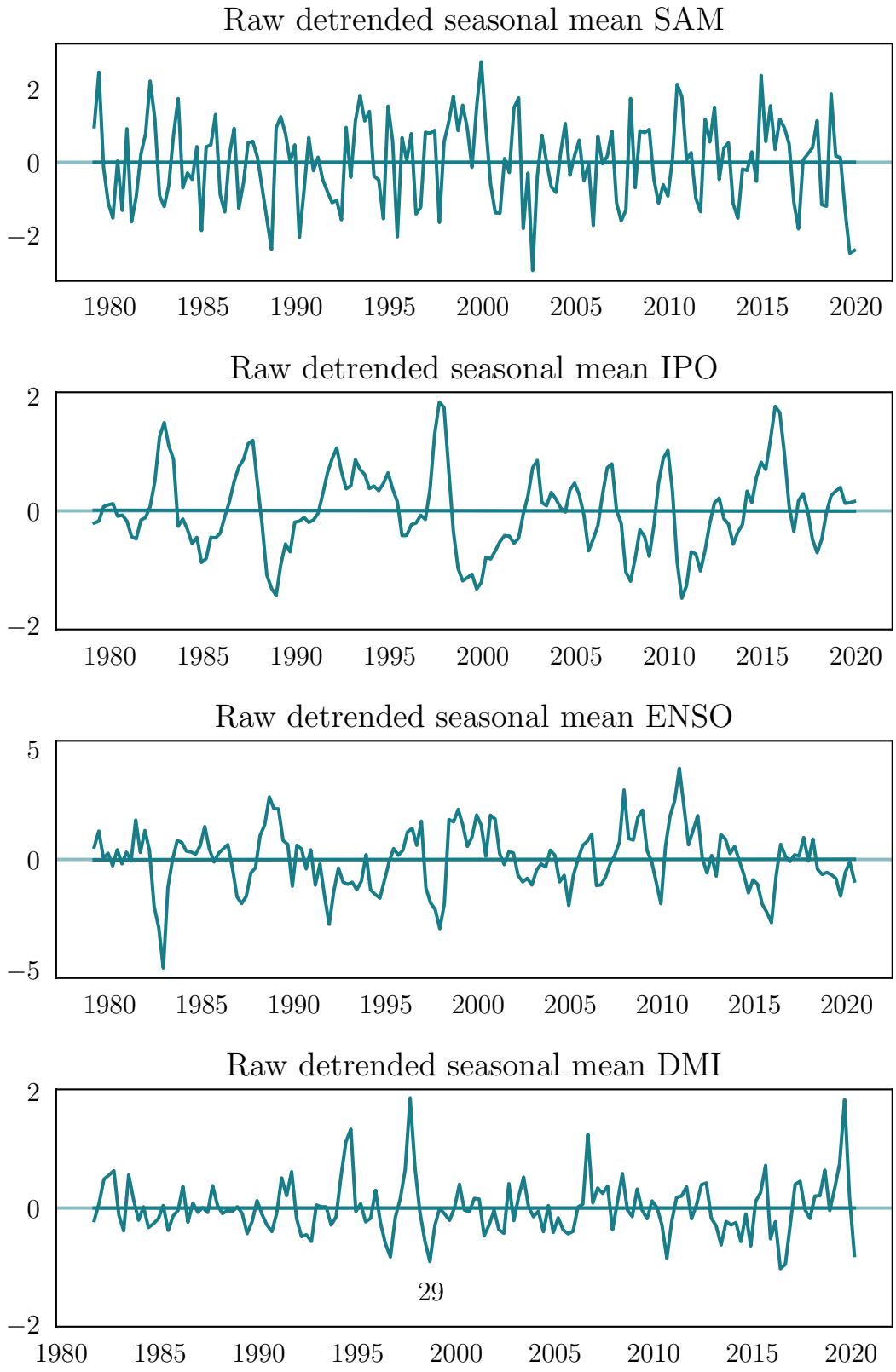


Figure 42: raw seasonal detrended index values

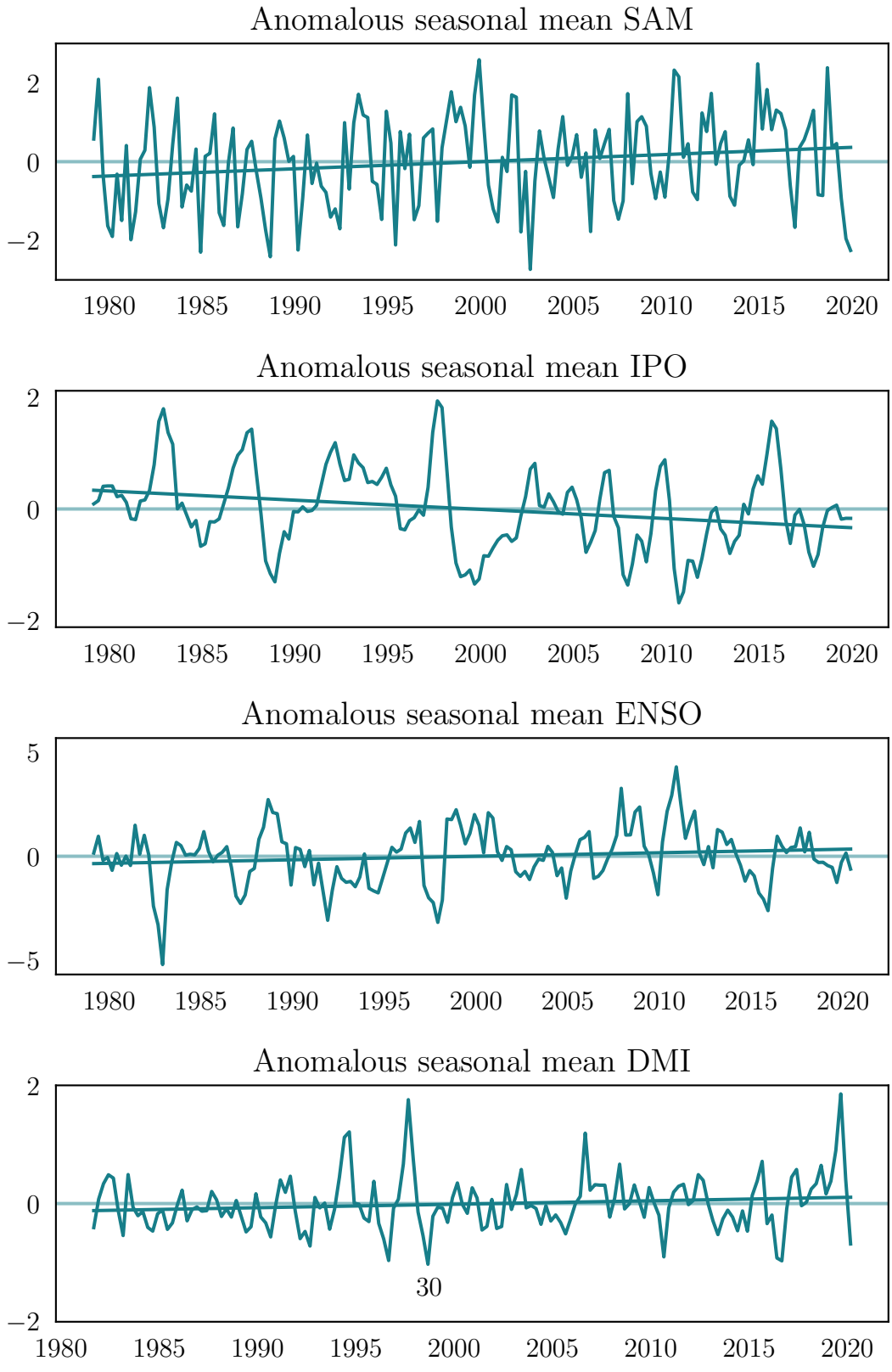


Figure 43: anomalous seasonal raw index values

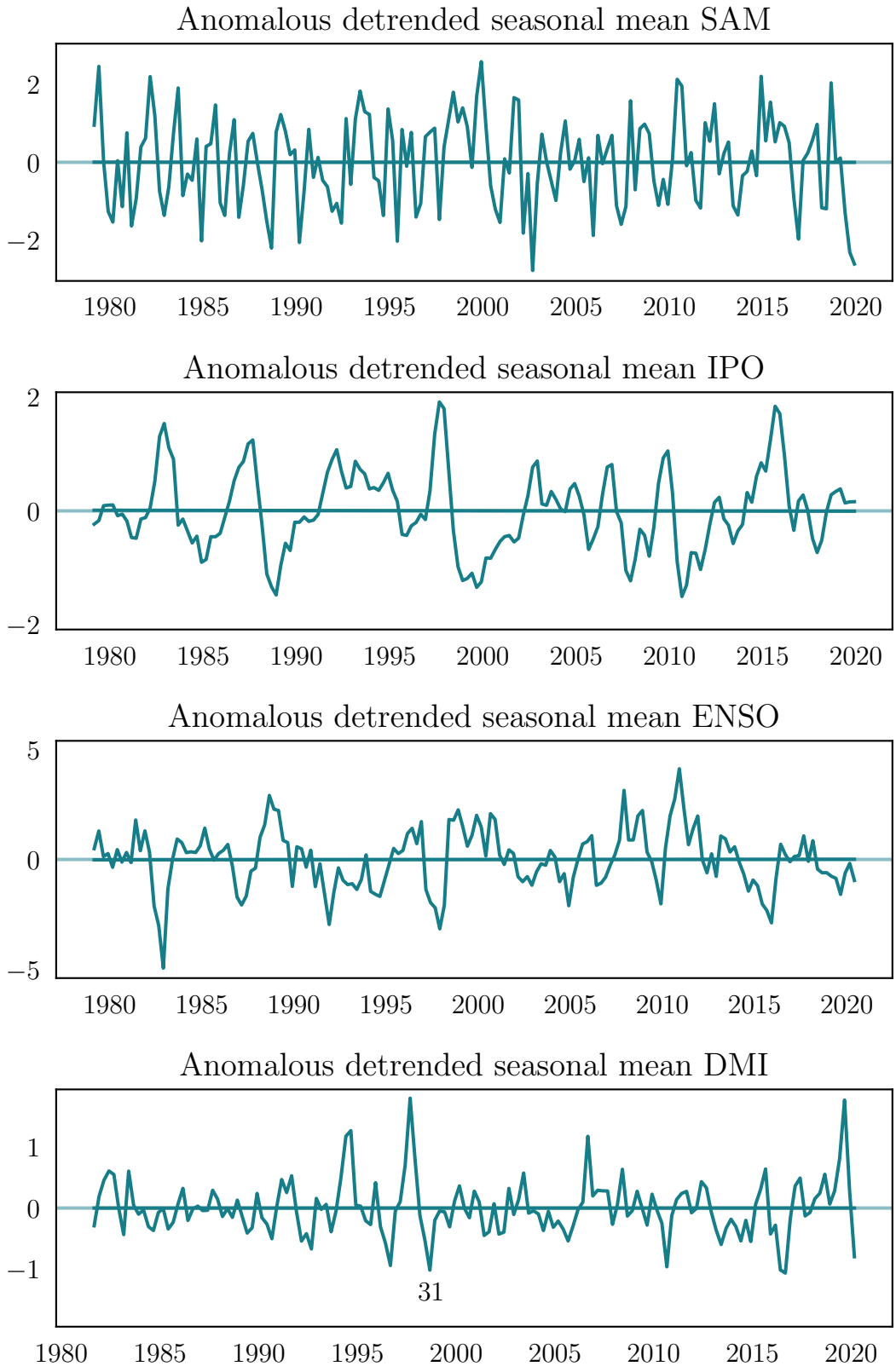


Figure 44: anomalous seasonal detrended index values

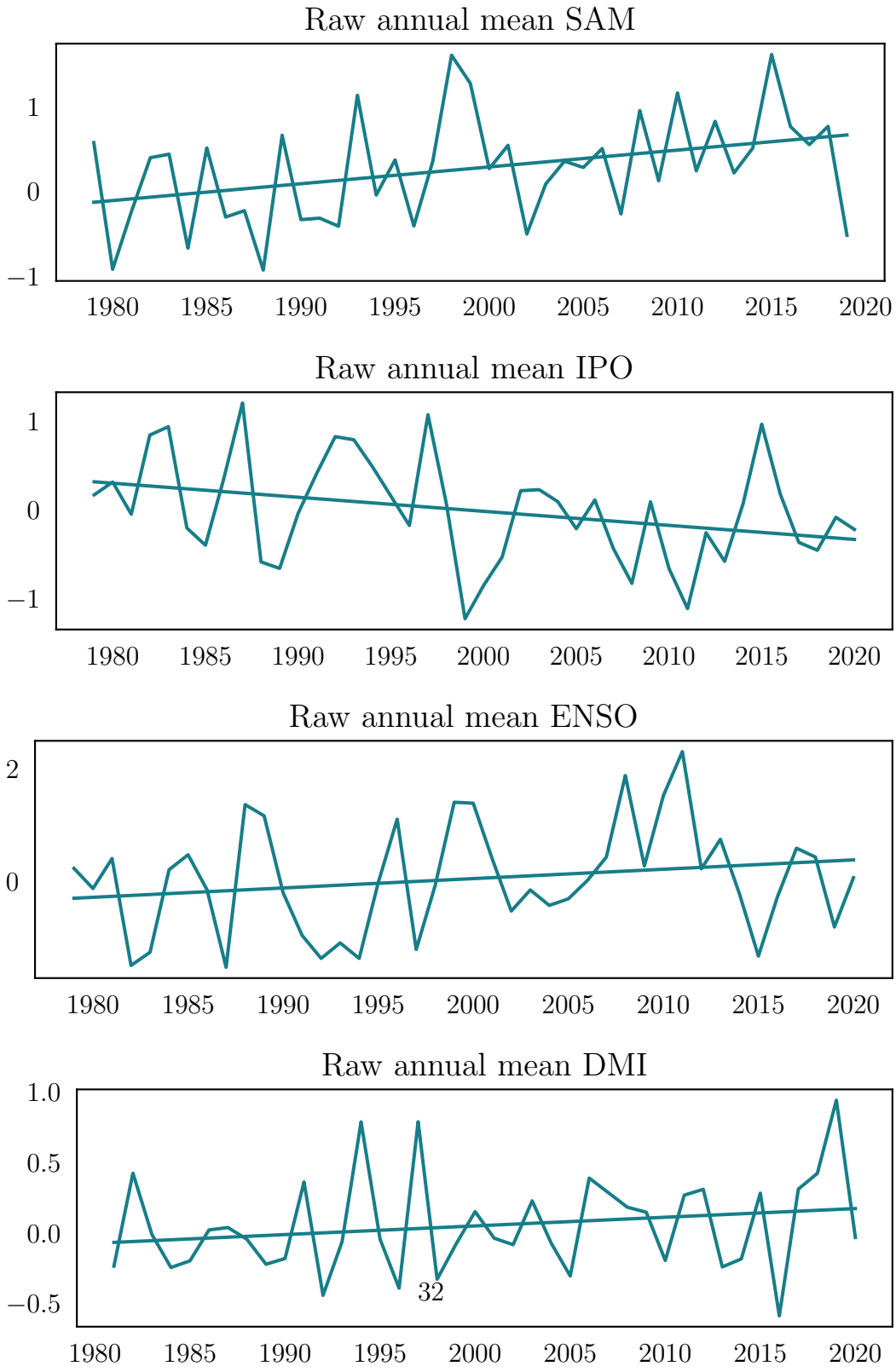


Figure 45: raw annual raw index values

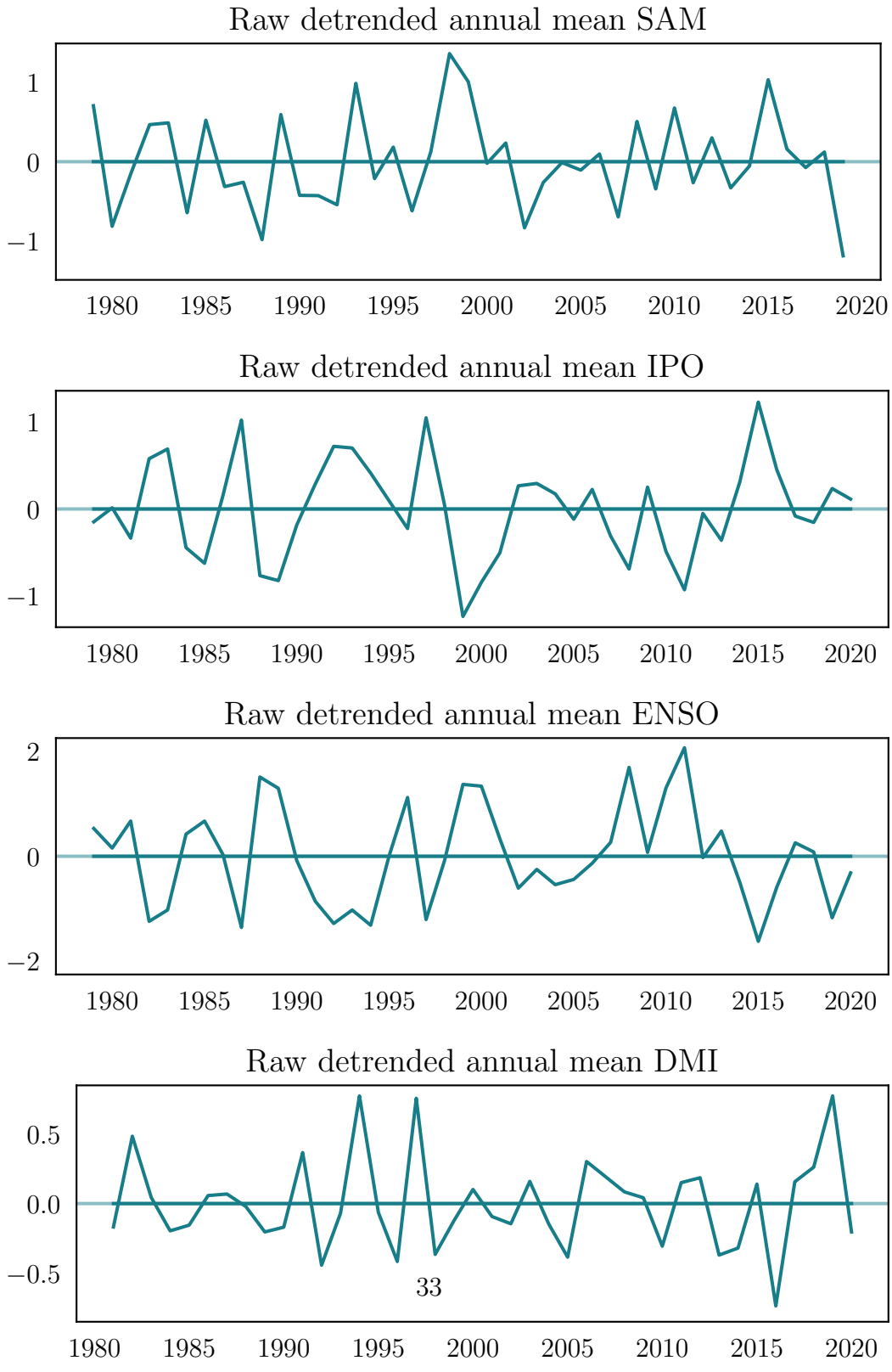


Figure 46: raw annual detrended index values

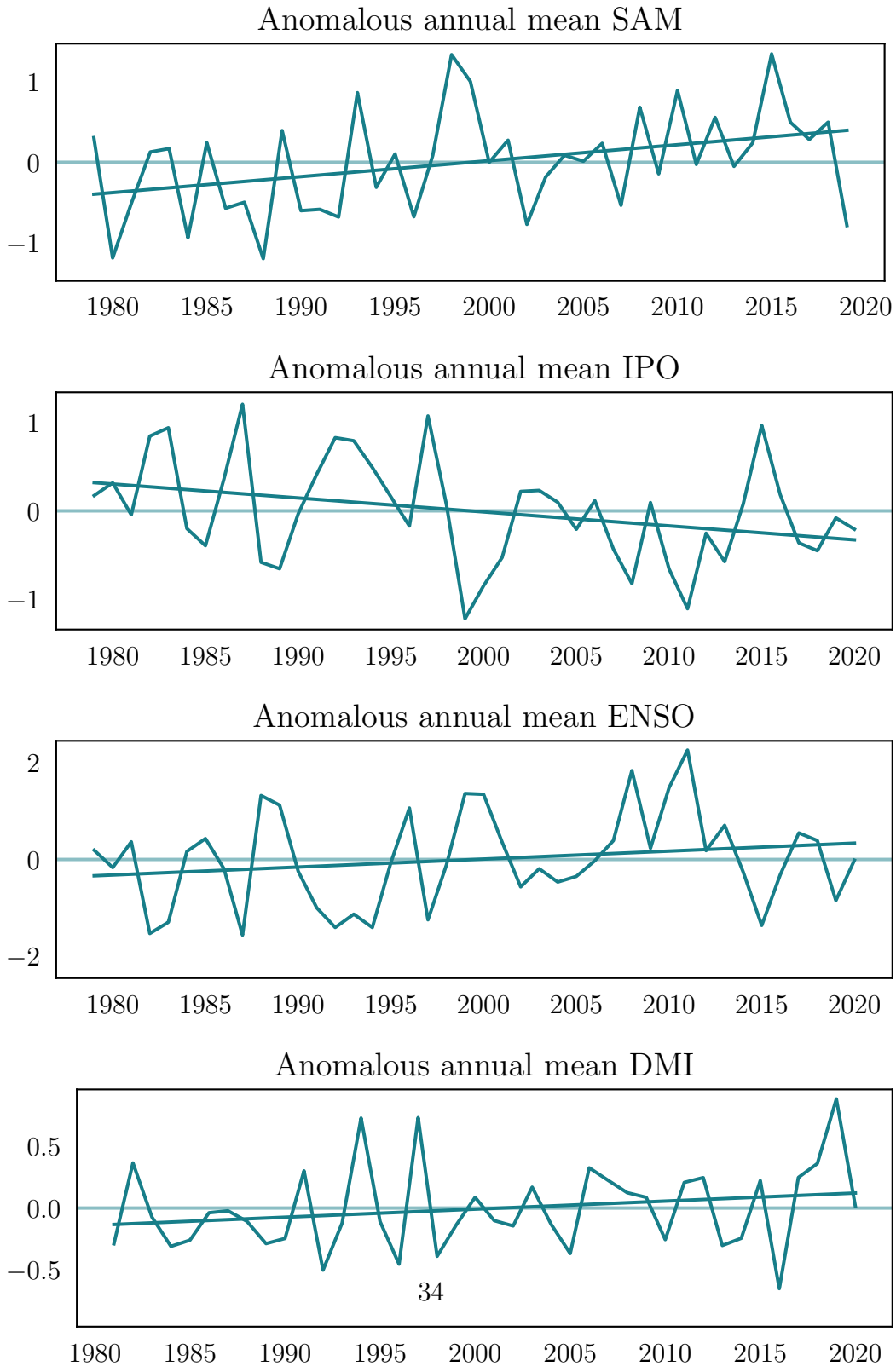


Figure 47: anomalous annual raw index values

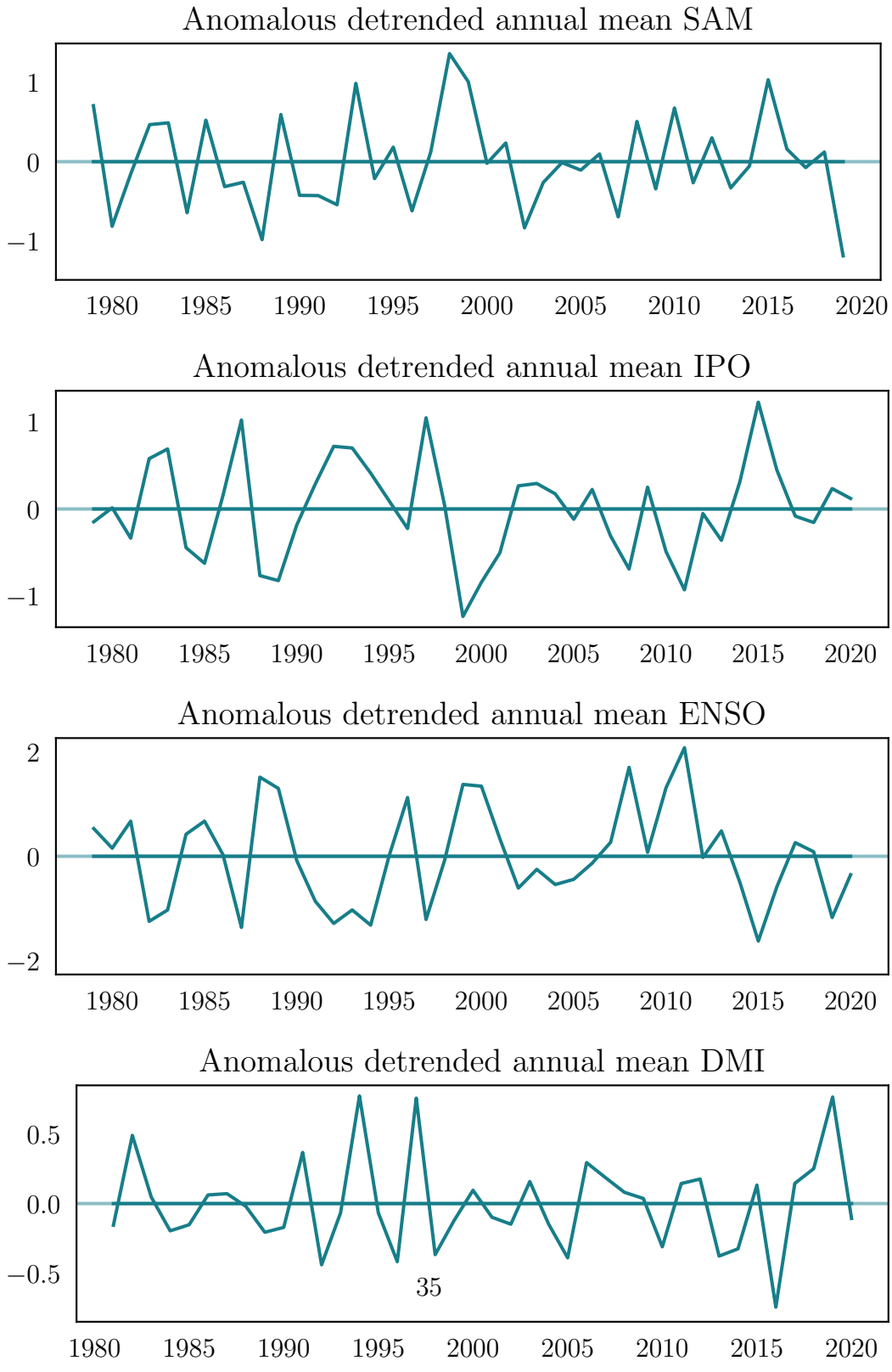


Figure 48: anomalous annual detrended index values

3.2 Comparing with SIC

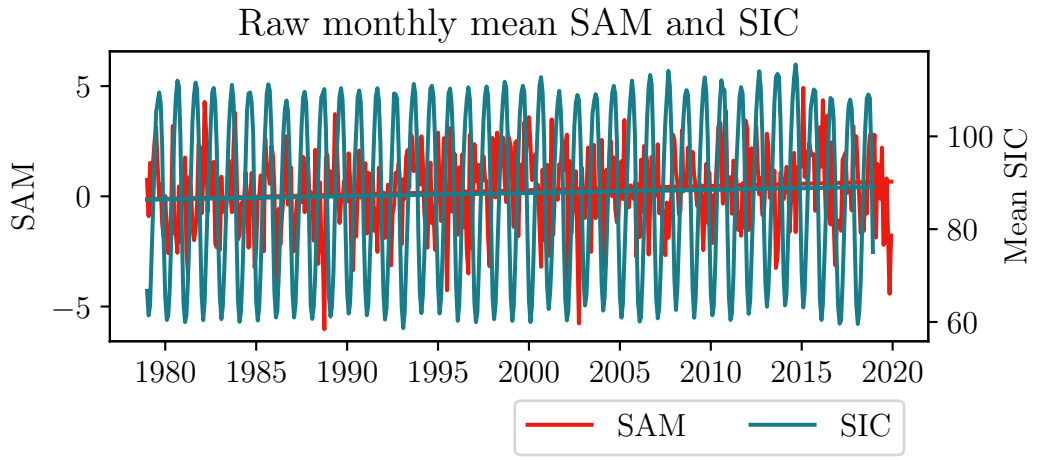


Figure 49: raw monthly raw SAMcompared with SIC

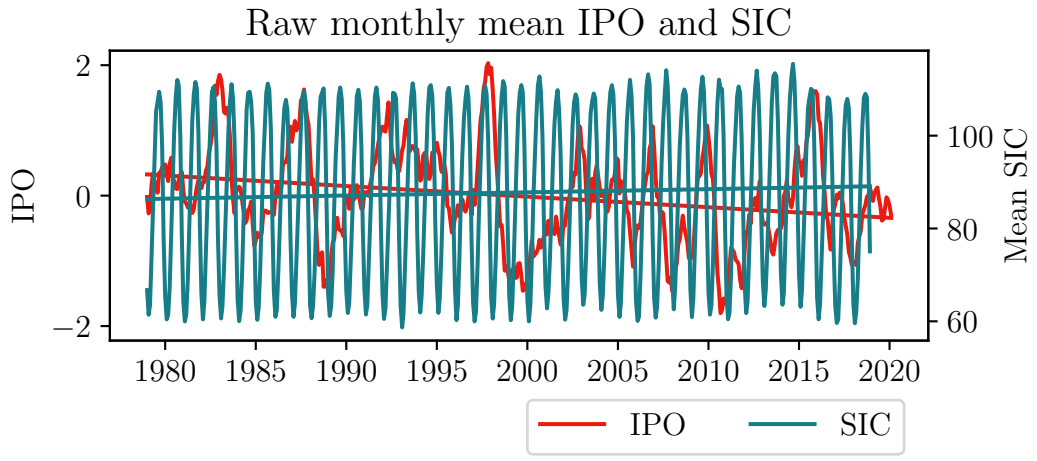


Figure 50: raw monthly raw IPOcompared with SIC

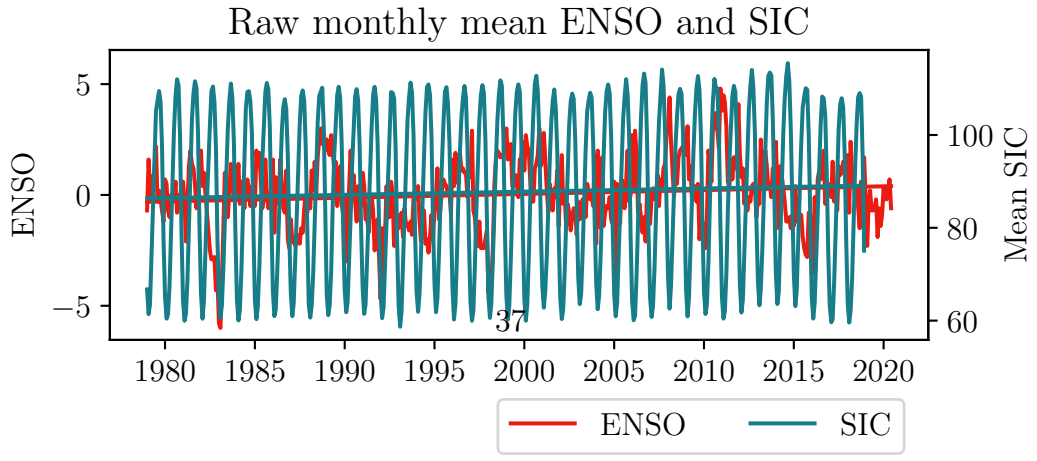


Figure 51: raw monthly raw ENSOcompared with SIC

Raw monthly mean DMI and SIC

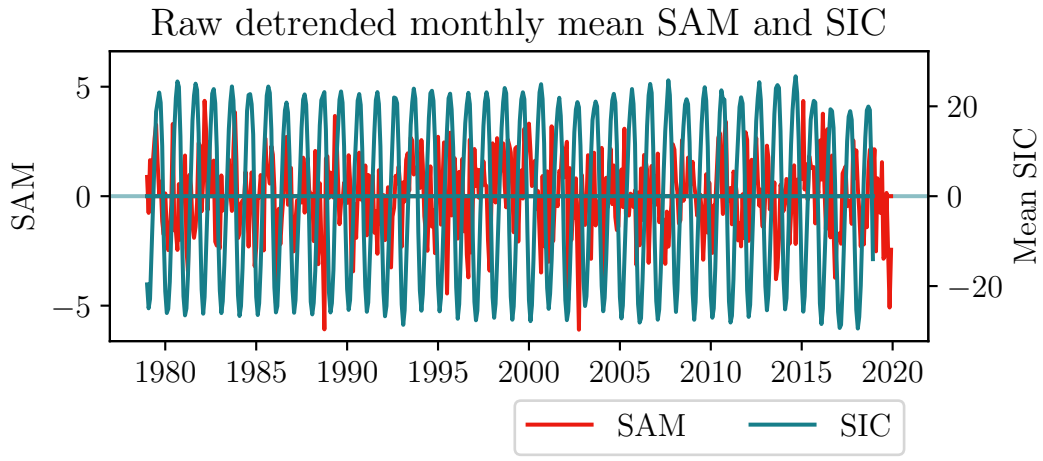


Figure 53: raw monthly detrended SAMcompared with SIC

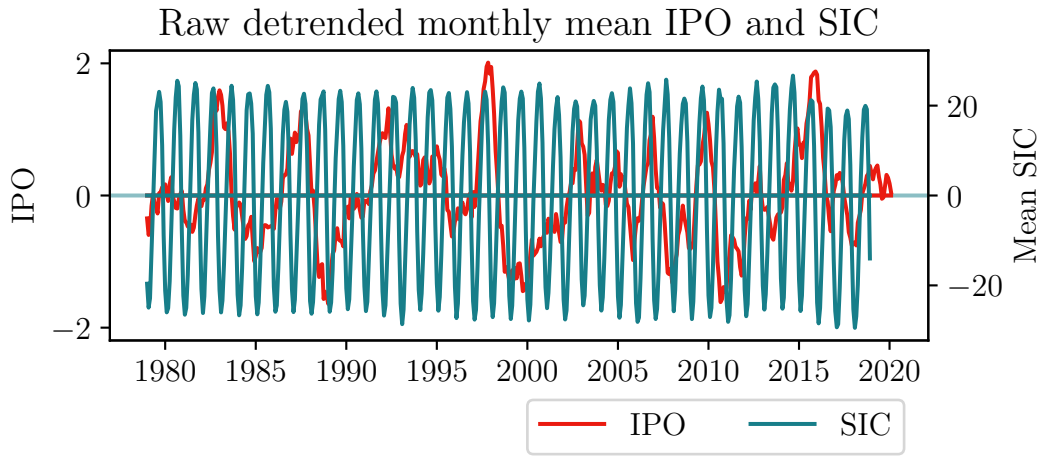


Figure 54: raw monthly detrended IPOcompared with SIC

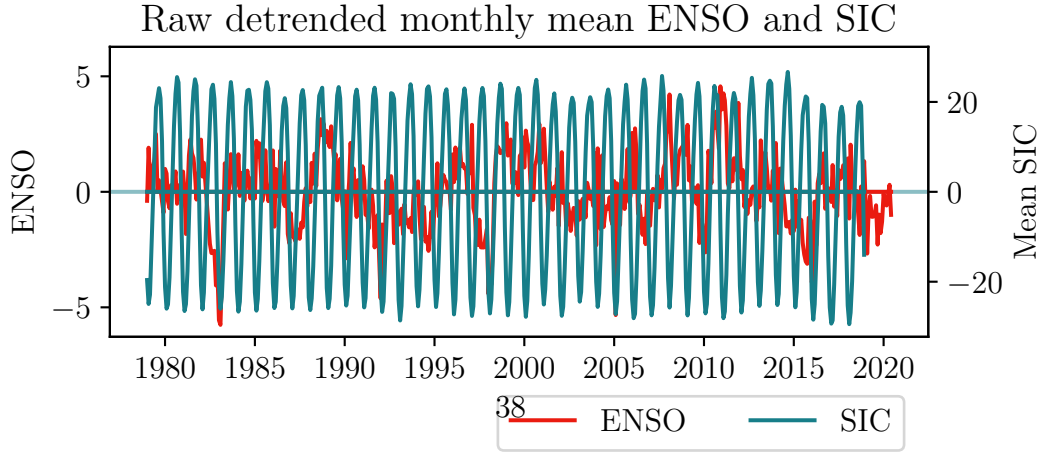
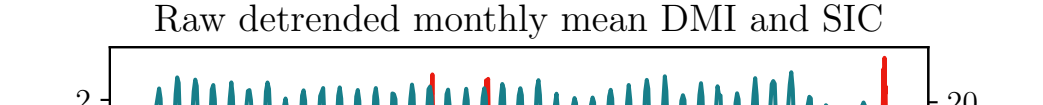


Figure 55: raw monthly detrended ENSOcompared with SIC



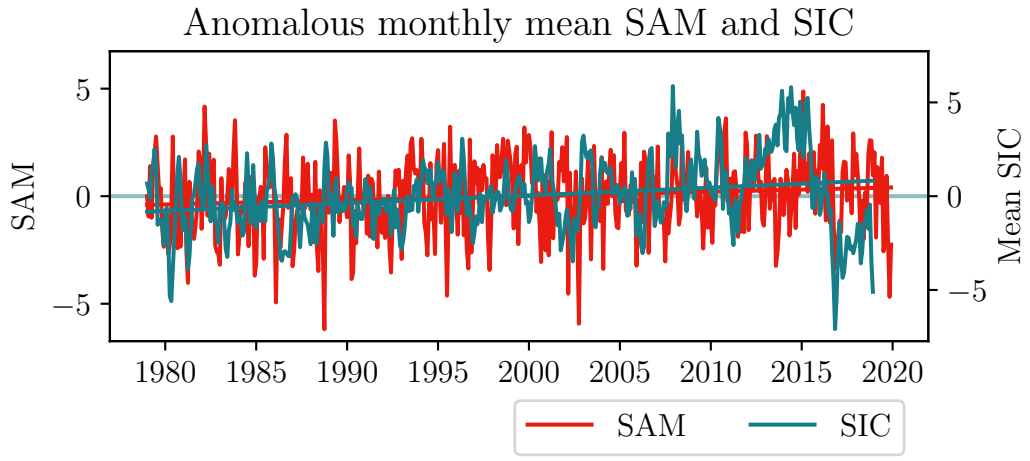


Figure 57: anomalous monthly raw SAMcompared with SIC

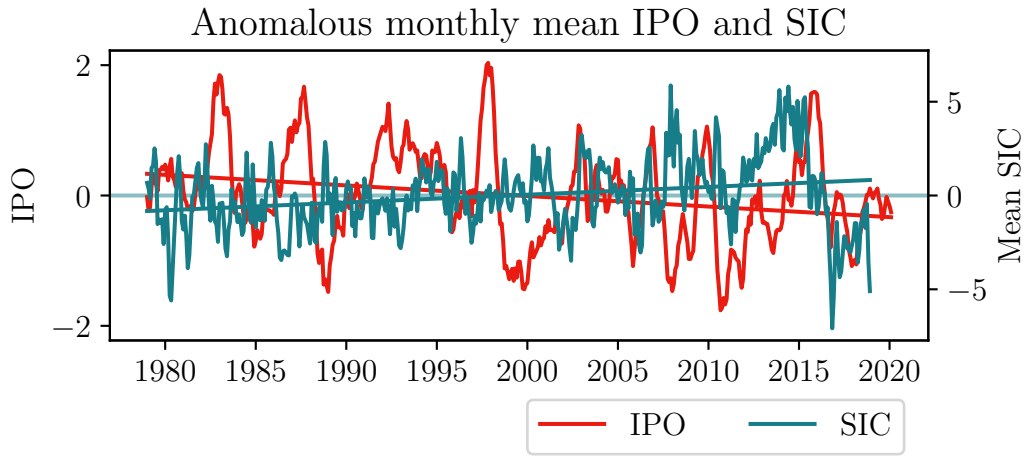


Figure 58: anomalous monthly raw IPOcompared with SIC

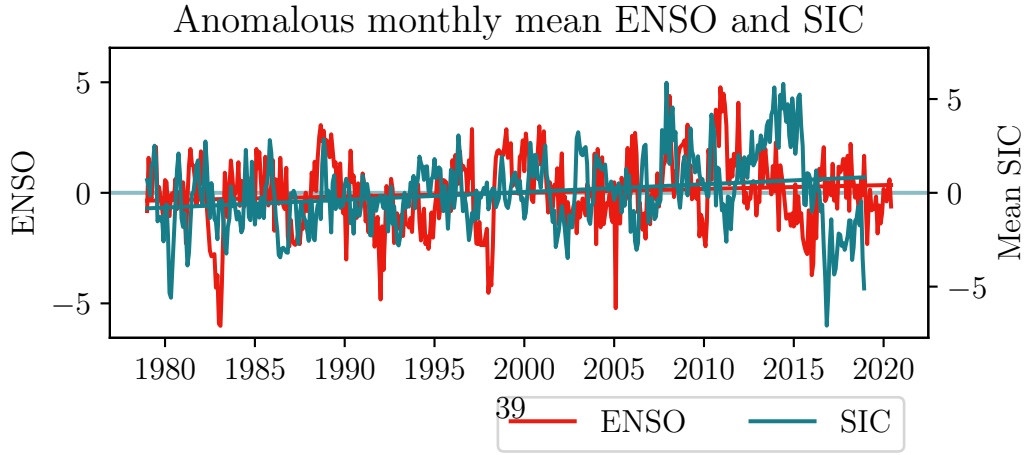
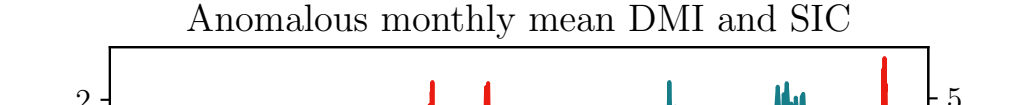


Figure 59: anomalous monthly raw ENSOcompared with SIC



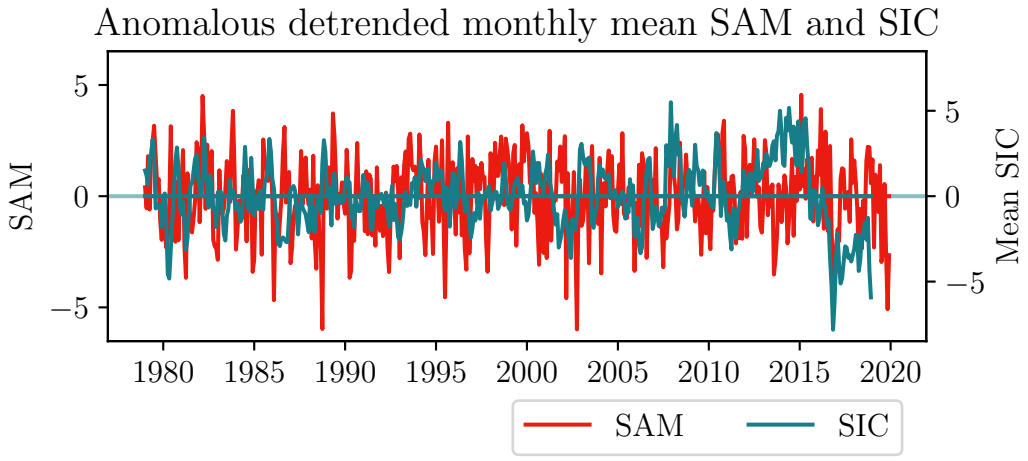


Figure 61: anomalous monthly detrended SAMcompared with SIC

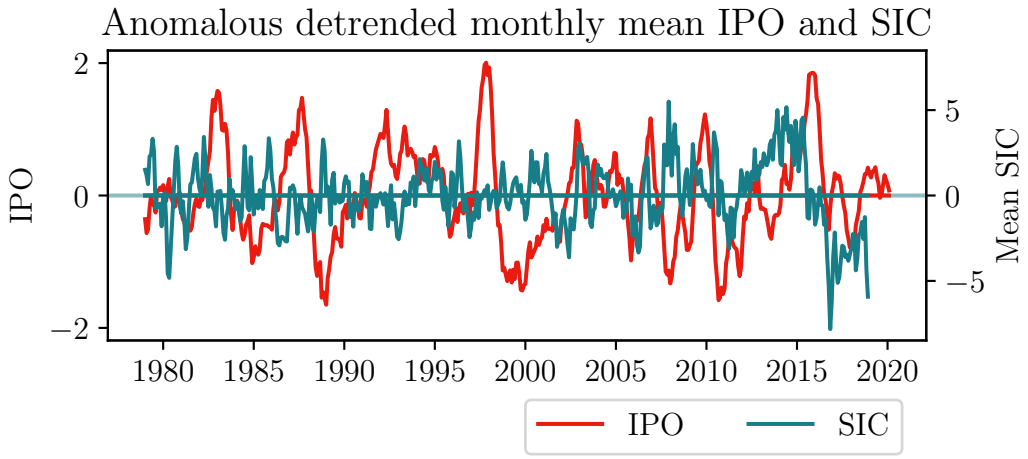


Figure 62: anomalous monthly detrended IPOcompared with SIC

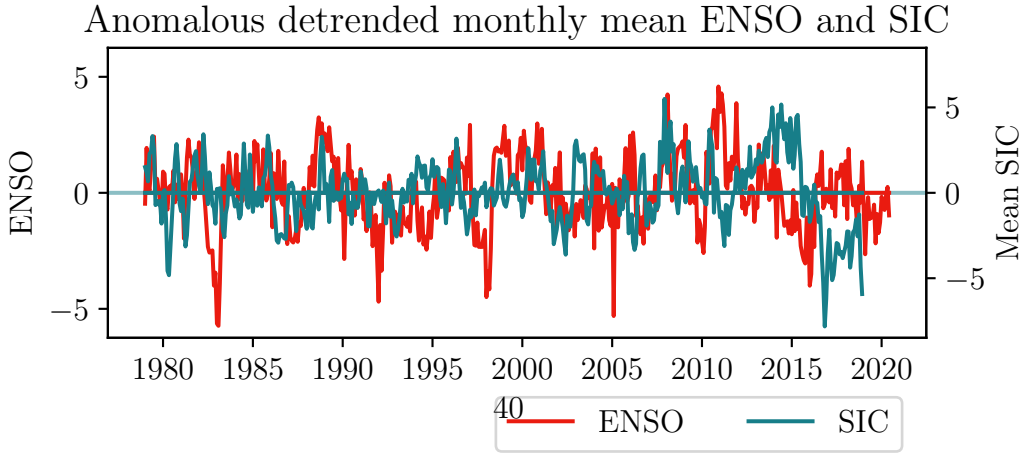
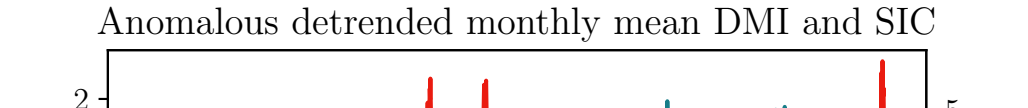


Figure 63: anomalous monthly detrended ENSOcompared with SIC



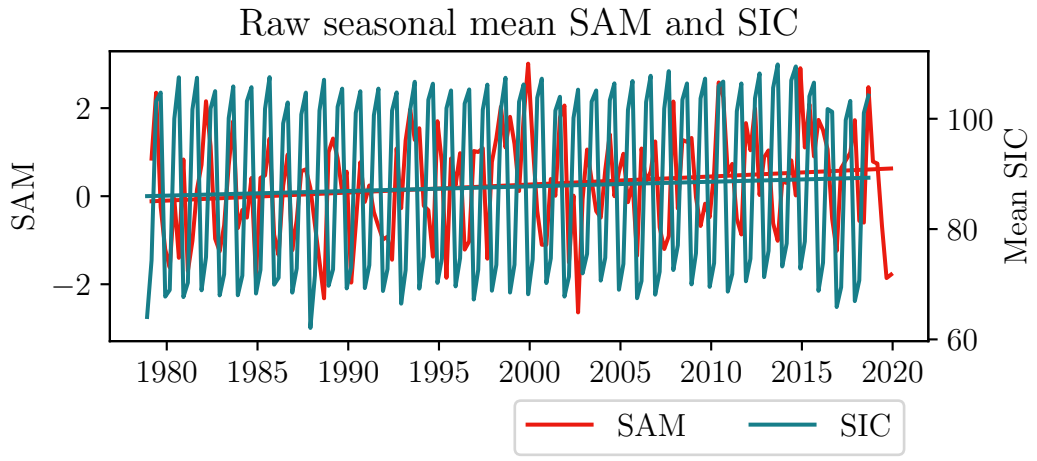


Figure 65: raw seasonal raw SAMcompared with SIC

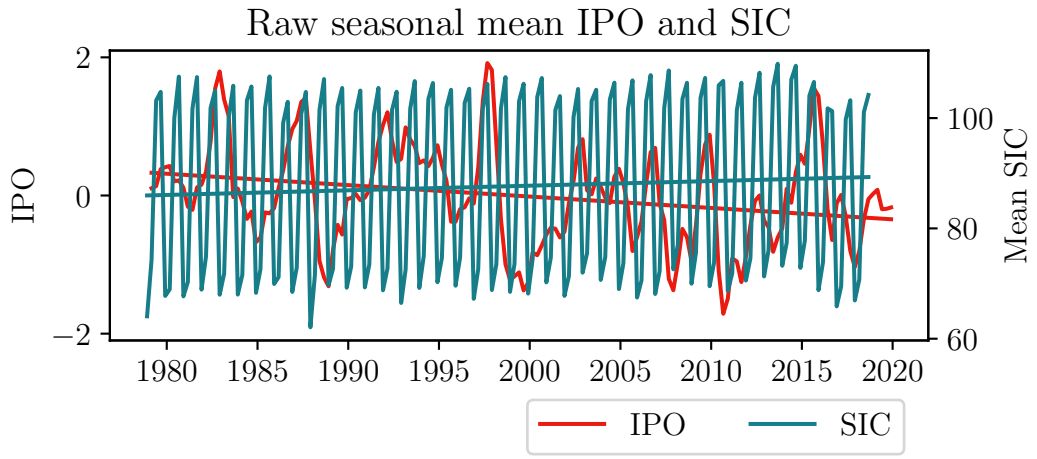


Figure 66: raw seasonal raw IPOcompared with SIC

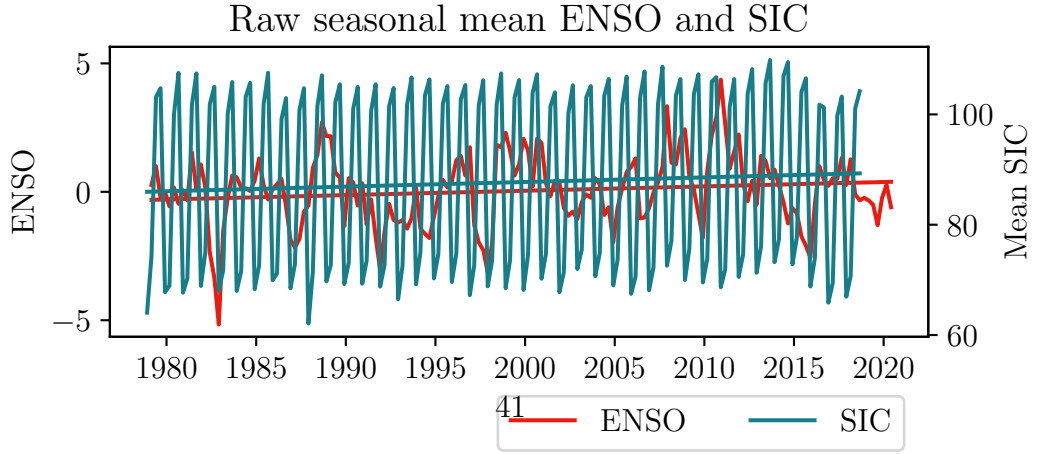
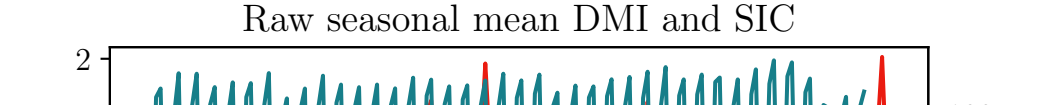


Figure 67: raw seasonal raw ENSOcompared with SIC



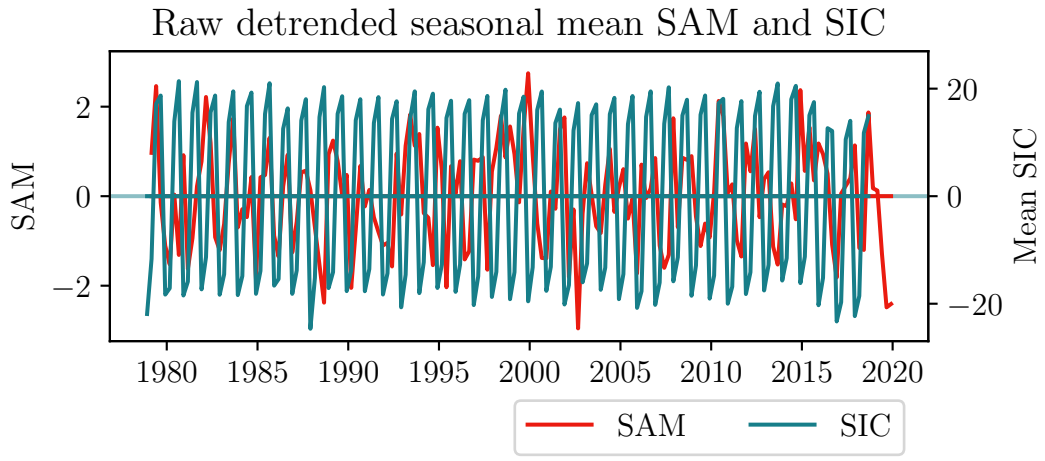


Figure 69: raw seasonal detrended SAMcompared with SIC

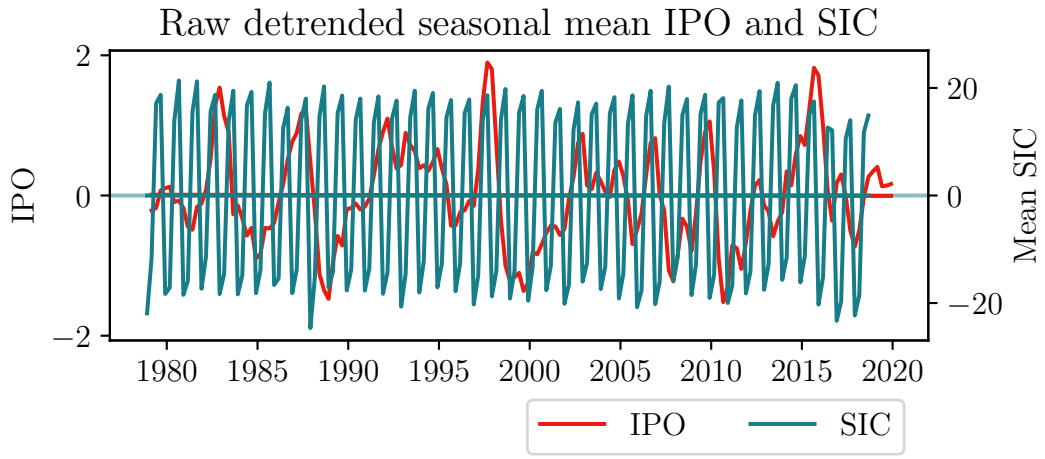


Figure 70: raw seasonal detrended IPOcompared with SIC

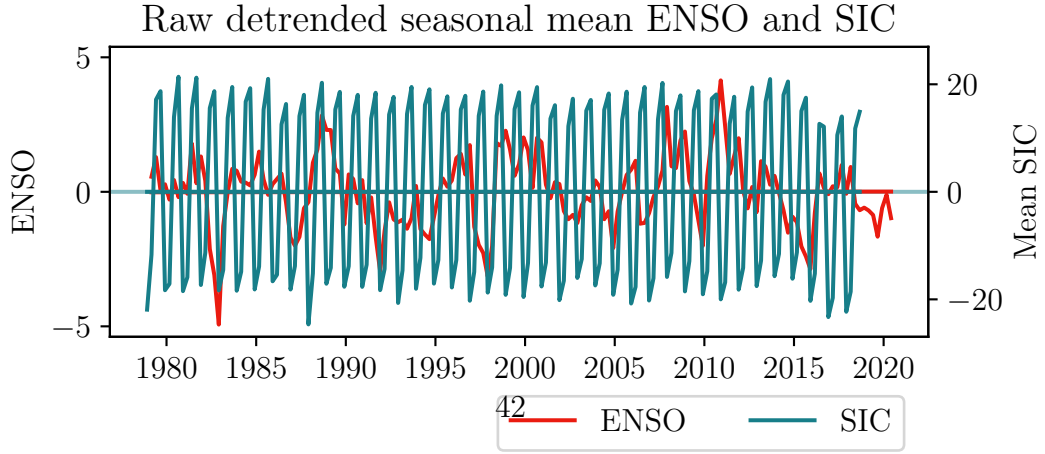
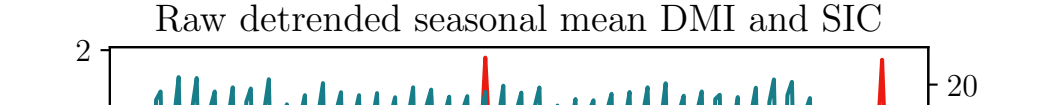


Figure 71: raw seasonal detrended ENSOcompared with SIC



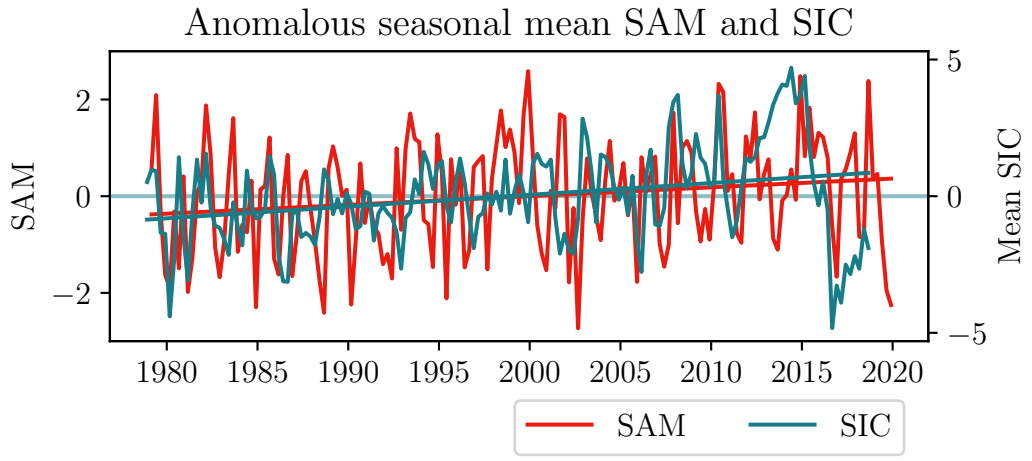


Figure 73: anomalous seasonal raw SAMcompared with SIC

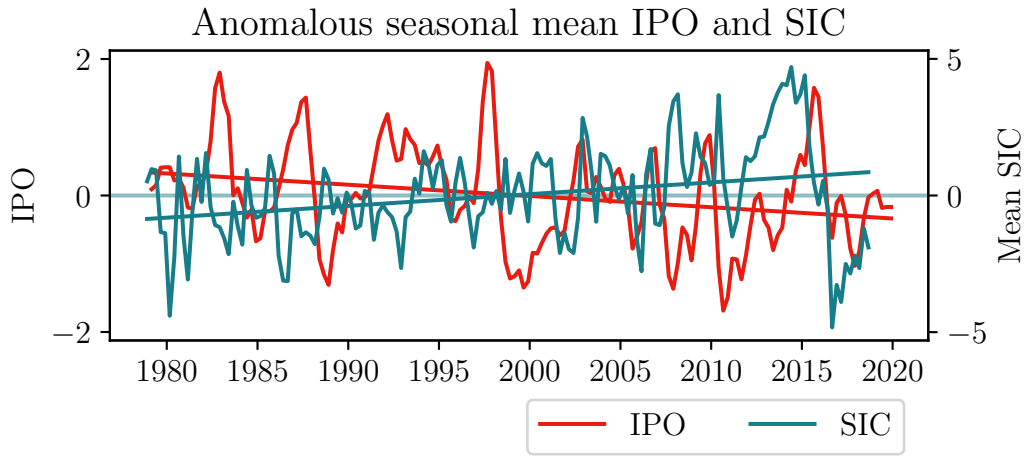


Figure 74: anomalous seasonal raw IPOcompared with SIC

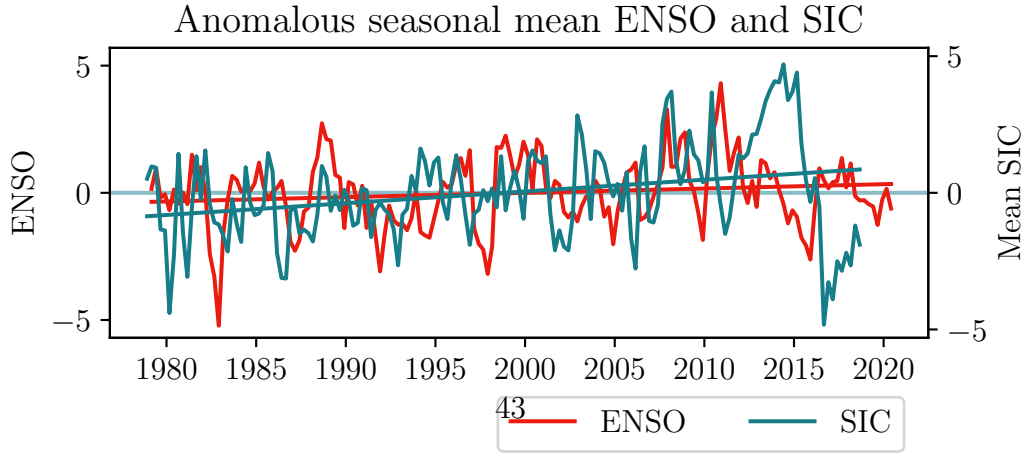
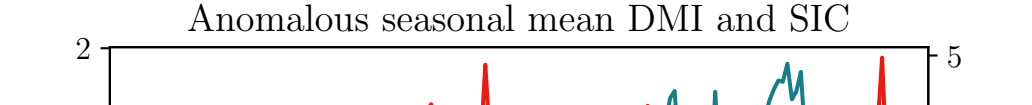


Figure 75: anomalous seasonal raw ENSOcompared with SIC



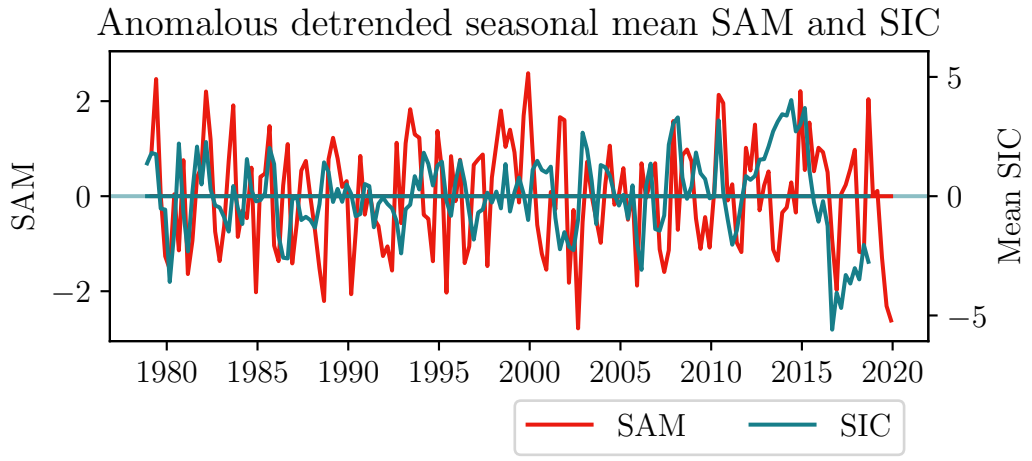


Figure 77: anomalous seasonal detrended SAMcompared with SIC

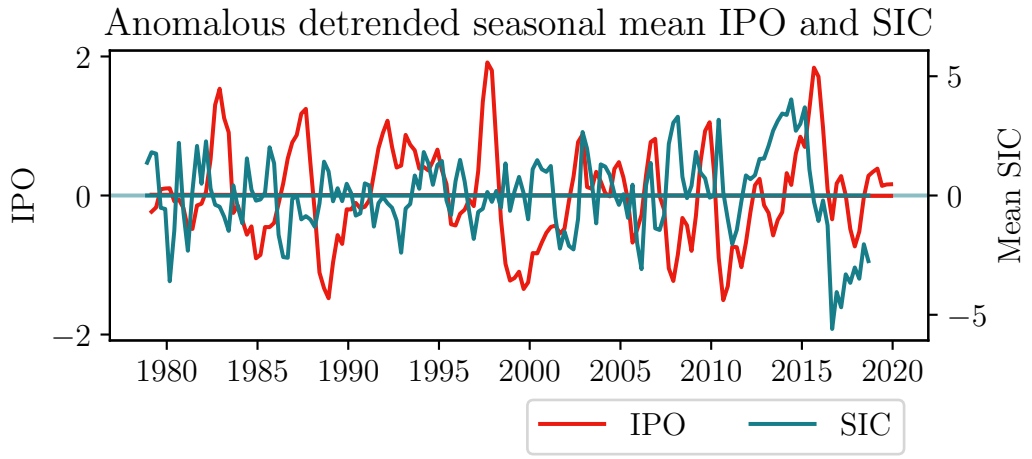


Figure 78: anomalous seasonal detrended IPOcompared with SIC

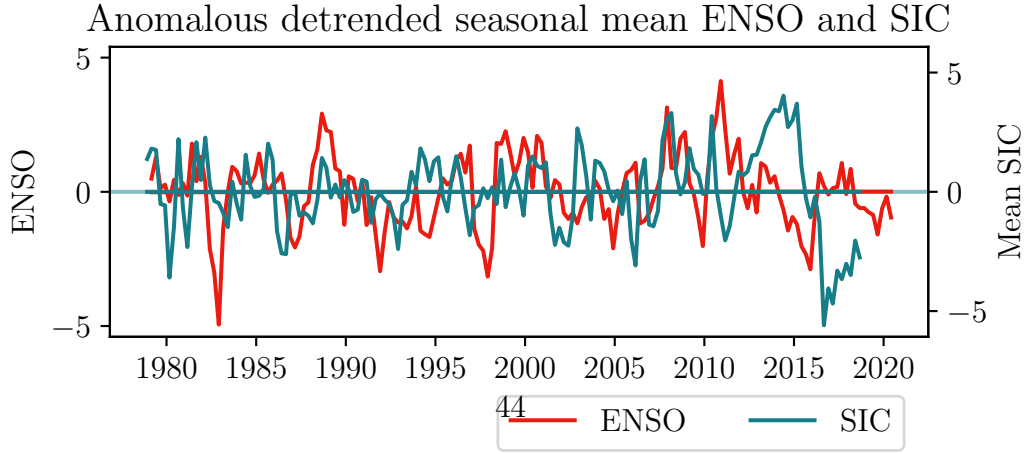


Figure 79: anomalous seasonal detrended ENSOcompared with SIC

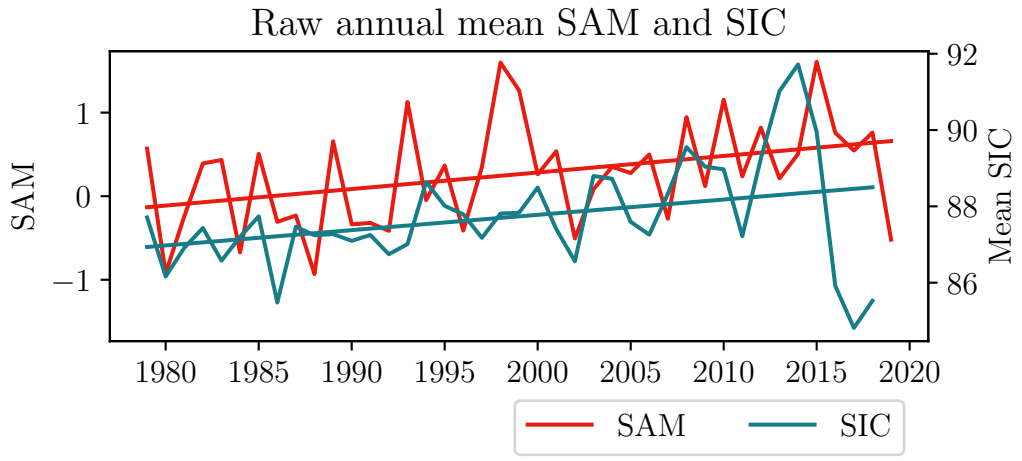


Figure 81: raw annual raw SAMcompared with SIC

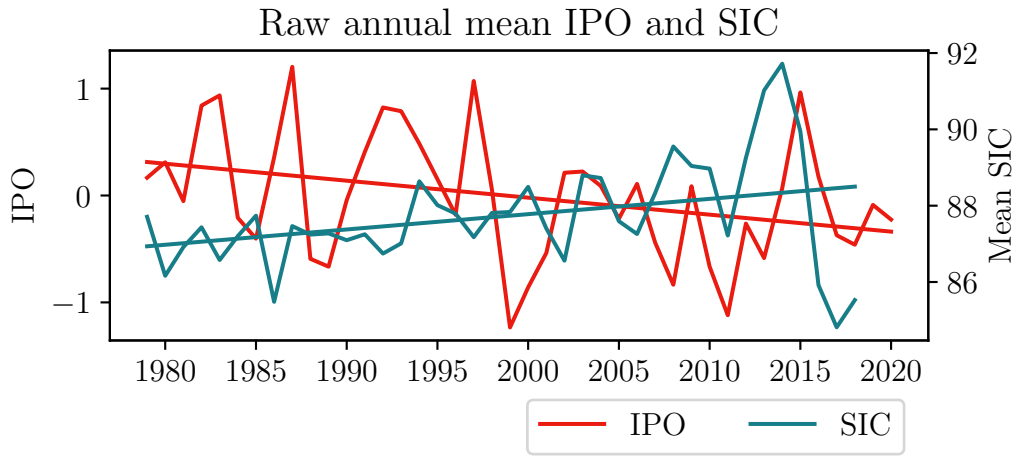


Figure 82: raw annual raw IPOcompared with SIC

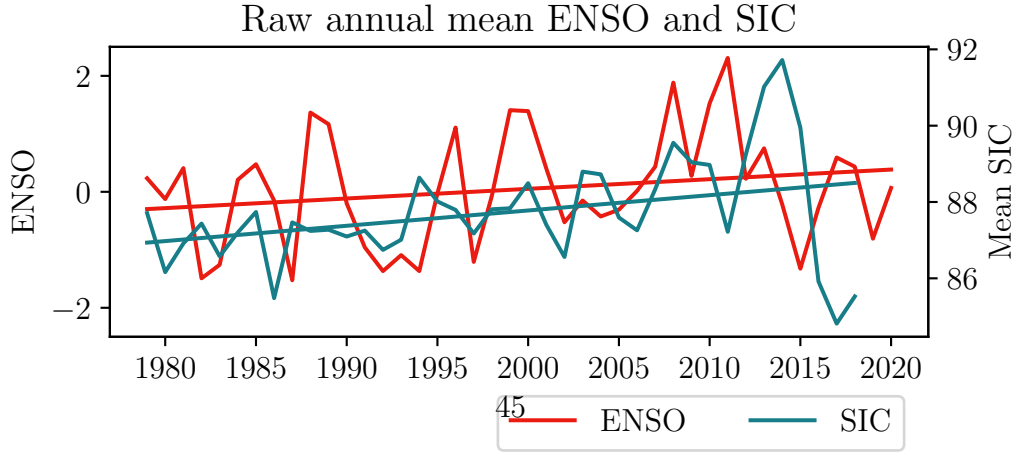
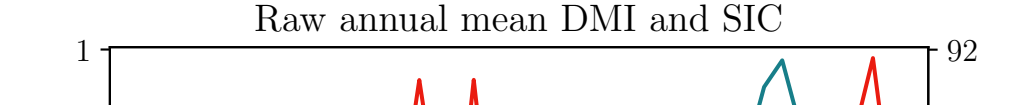


Figure 83: raw annual raw ENSOcompared with SIC



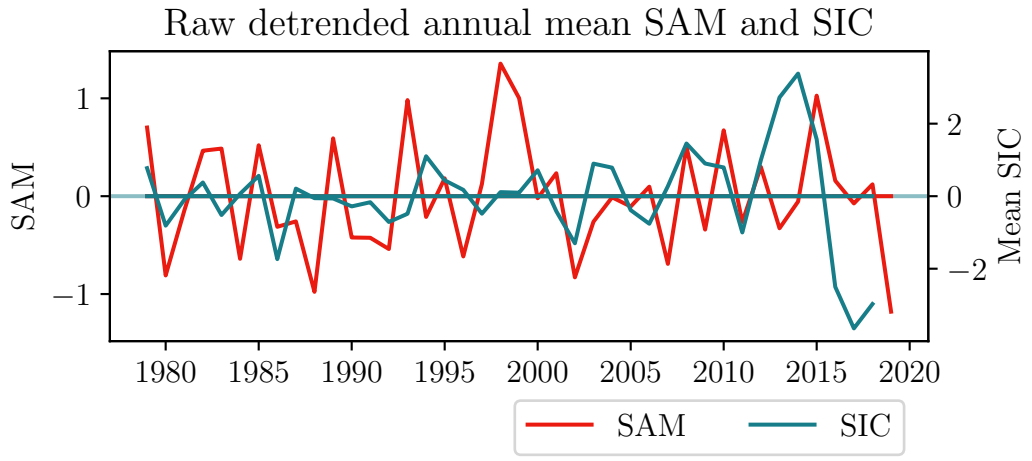


Figure 85: raw annual detrended SAMcompared with SIC

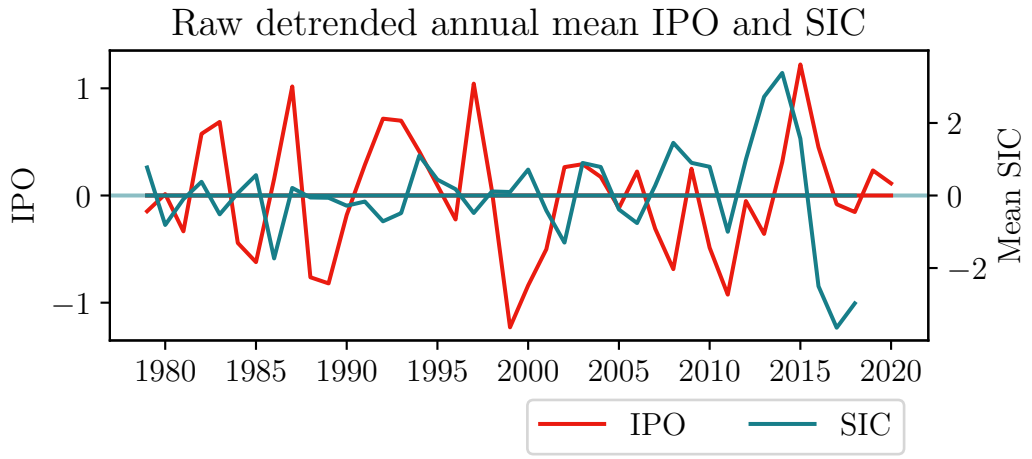


Figure 86: raw annual detrended IPOcompared with SIC

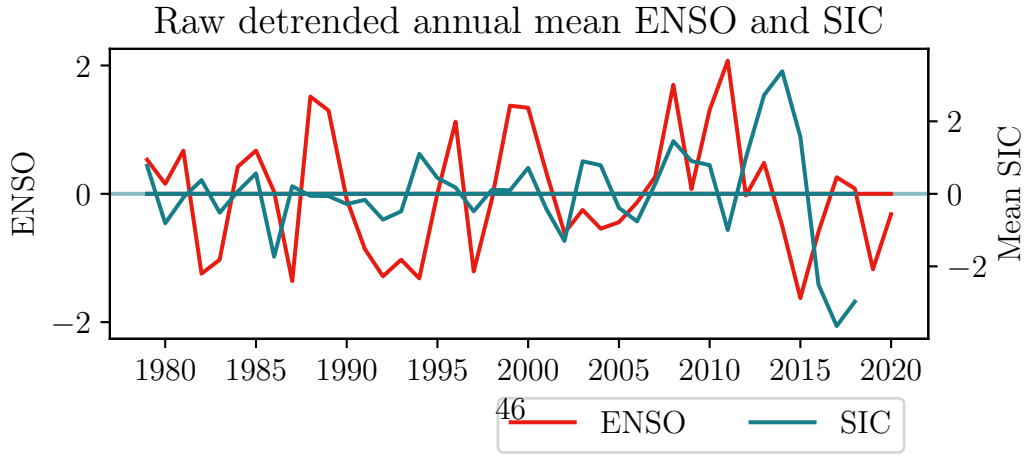
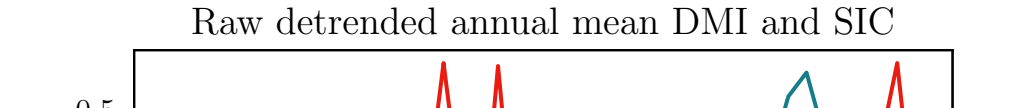


Figure 87: raw annual detrended ENSOcompared with SIC



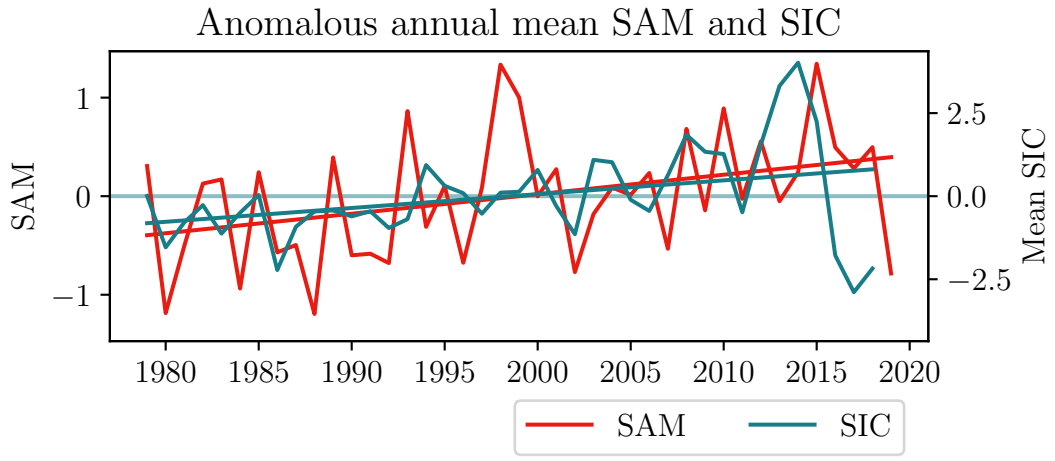


Figure 89: anomalous annual raw SAMcompared with SIC

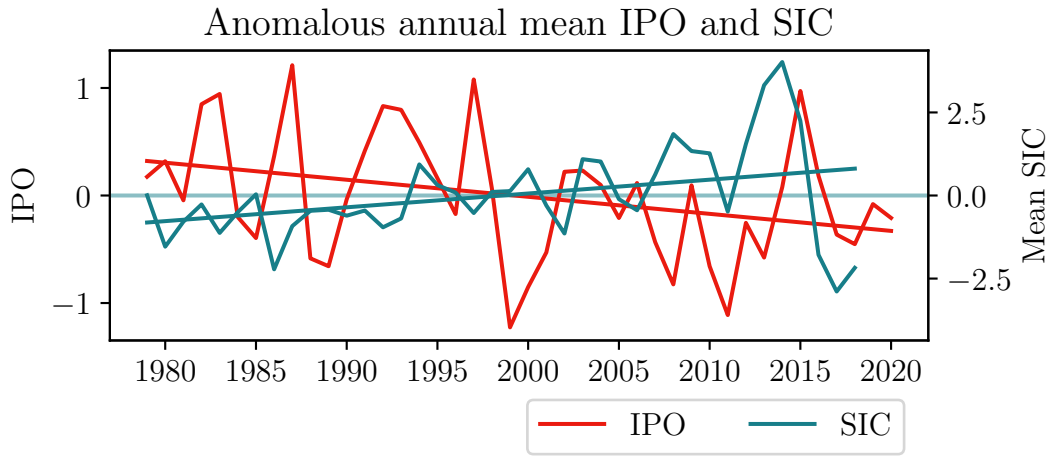


Figure 90: anomalous annual raw IPOcompared with SIC

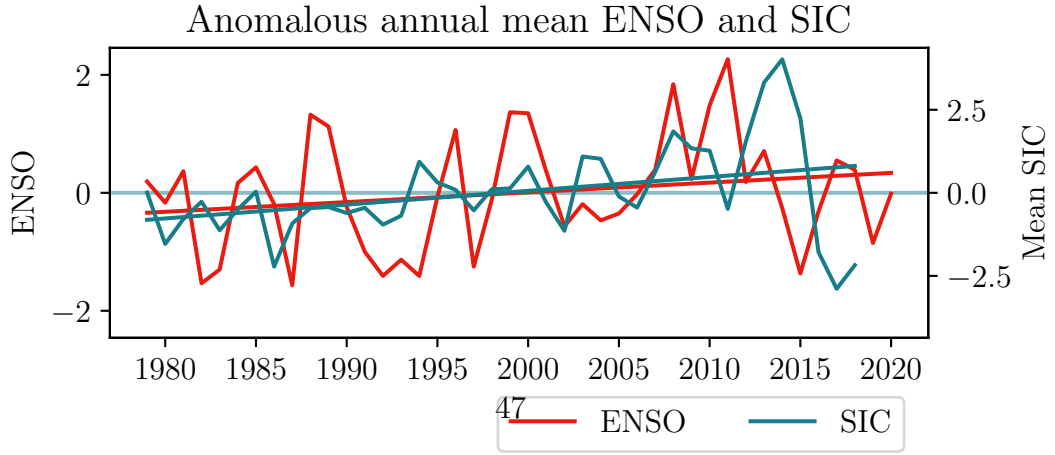
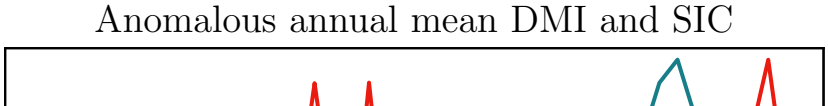


Figure 91: anomalous annual raw ENSOcompared with SIC



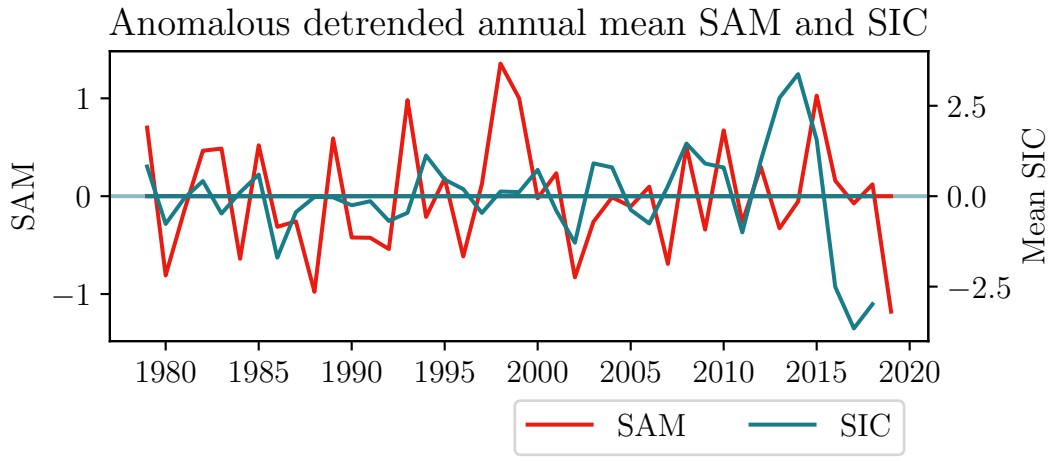


Figure 93: anomalous annual detrended SAMcompared with SIC

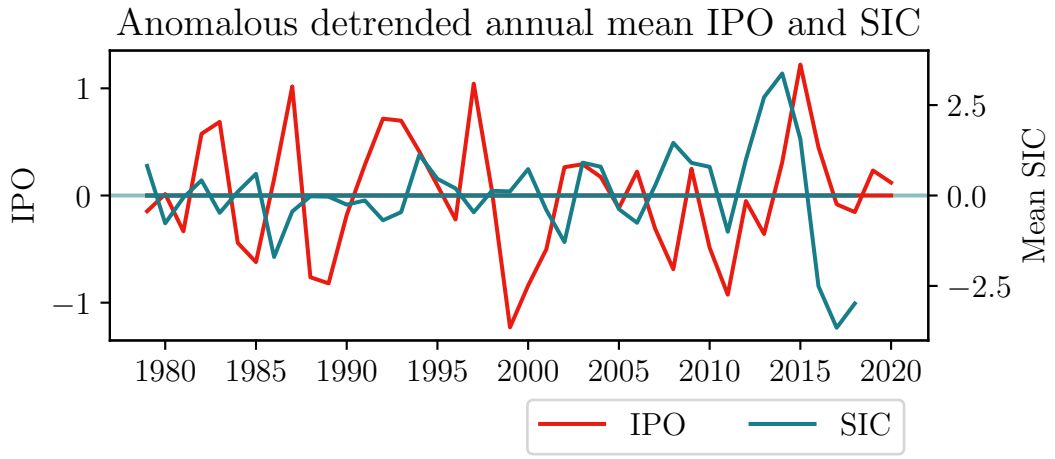


Figure 94: anomalous annual detrended IPOcompared with SIC

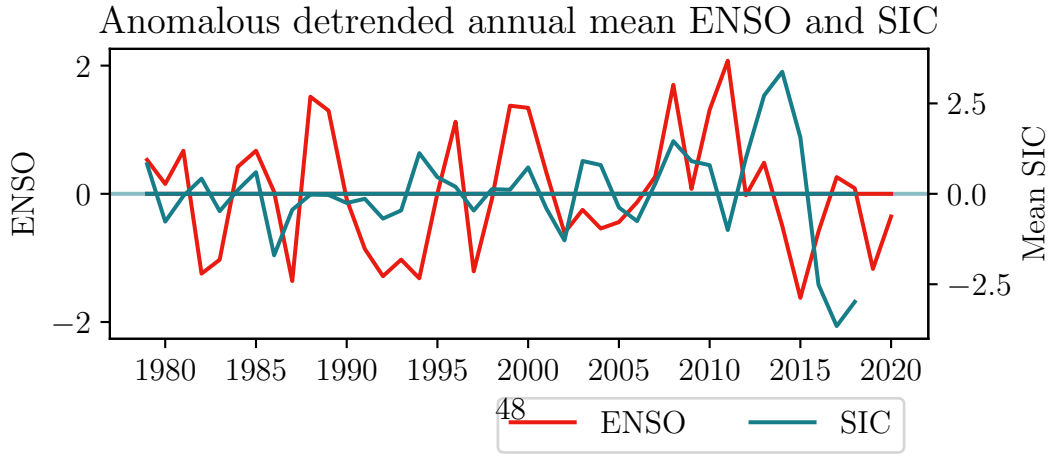
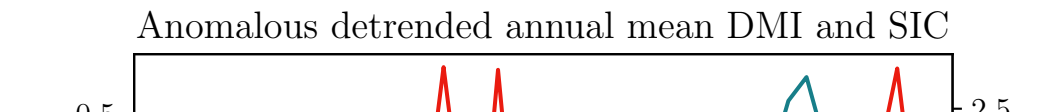



Figure 95: anomalous annual detrended ENSOcompared with SIC