National Snow and Ice Data Center
ADVANCING KNOWLEDGE OF EARTH'S FROZEN REGIONS

A Comparison of Trends in Sea Ice Extent from the Sea Ice Concentration CDR V4, CDR V5, and the V5 AMSR2 Prototype

Special Report #27 April 2025

A. Windnagel
F. Fetterer
W. Meier
NSIDC

Contents

Citation

Windnagel, A., Fetterer, F., & Meier, W. (2025). A Comparison of Trends in Sea Ice Extent from the Sea Ice Concentration CDR V4, CDR V5, and the V5 AMSR2 Prototype. NSIDC Special Report 27. Boulder CO, USA: National Snow and Ice Data Center.

List of Tables

List of Figures

1. Summary

The NOAA/NSIDC sea ice concentration (SIC) climate data record (CDR) is a product that provides a long-term record of SIC derived from brightness temperature data from passive microwave sensors. The CDR algorithm is a rule-based combination of ice concentration estimates from two well-established algorithms: the NASA Team (NT) algorithm (Cavalieri et al. 1984) and the NASA Bootstrap (BT) algorithm (Comiso 1986). The sensors used are the Nimbus-7 Scanning Multichannel Microwave Radiometer (SMMR), and the Defense Meteorological Satellite Program (DMSP) Special Sensor Microwave/Imager (SSM/I) and the Special Sensor Microwave Imager and Sounder (SSMIS).

In December 2024, NSIDC released Version 5 of the SIC CDR (Meier et al., 2024). NSIDC made several improvements in this version including an improved land-spillover correction, improved spatial interpolation of the input brightness temperature data, and implementation of dynamic tie-points for the BT algorithm. NSIDC also added a prototype SIC product beginning in 2013 using the Advanced Microwave Scanning Radiometer 2 (AMSR2) sensor onboard the Global Change Observation Mission - W1 (GCOM-W1) satellite. For complete details on all the updates for Version 5, see NSIDC Special Report 26 (Windnagel et al., 2024).

It is important to note that the official NSIDC/NOAA sea ice concentration climate data record consists of the sea ice concentration fields from SMMR, SSM/I, and SSMIS alone. Sea ice concentration fields from AMSR2 are included with the Version 5 SIC CDR data product, but they are referred to as “prototype” in product documentation to distinguish these SIC fields from the true CDR SIC fields.

This document provides an analysis of the differences in sea ice extent trends for ice extent derived from the SIC CDR over the 46-year time series (January 1979 through December 2024) between the Version 4 SIC CDR (Meier et al., 2021) and the Version 5 SIC CDR (Meier et al., 2024).

In addition, we document the differences in sea ice extent trends between extent taken from the Version 5 SIC CDR when SSMIS is used for the period from 2013 through 2024 versus when AMSR2 is used for the same period. We do not recommend using the AMSR2 portion of the V5 CDR product in combination with data from earlier sensors for long-term climate studies, but we present this analysis so that users will understand how sea ice extent trends derived from the longer series will change if AMSR2 is used in lieu of SSMIS.

2. Method

Three data sets were considered in this analysis and are given the following shorthand names to be used in the rest of the document:

- **CDR V4**: The official SIC CDR V4 product. This uses SMMR, SSM/I, and SSMIS data for the entire period from January 1979 through December 2024.
- **CDR V5**: The official SIC CDR V5 product. This uses SMMR, SSM/I, and SSMIS data for the entire period from January 1979 through December 2024.
- **AMSR2 V5**: The prototype SIC CDR V5 product. This uses SMMR, SSM/I, and SSMIS data from January 1979 through December 2012. However, for January 2013 through December 2024, the SSMIS data that are used in the official CDR V5 are replaced by the prototype AMSR2 data.

Note that CDR V5 and AMSR2 V5 are identical from January 1979 through December 2012. They differ only in the January 2013 to December 2024 portion of the time series where CDR V5 uses SSMIS as input and AMSR2 V5 uses AMSR2 as input.

For each of these three data sets, we calculated daily total sea ice extent from sea ice concentration grids for the period January 1979 through December 2024. Although the products begin in October 1978 and continue to the present, we chose to analyze only complete years for consistency across the months. Next, we averaged the daily ice extents into monthly mean extents. Finally, we performed linear regression analysis on each data set for all monthly averages over the 1979-2024 period and calculated a 95% confidence interval. In the sections below, the complete time series as well as March and September are illustrated with plots showing the trend lines. These months were chosen because they are the months when the hemispheric maximum and minimum ice extents occur. CDR V5 and CDR V4 were compared and CDR V5 and AMSR2 V5 were compared to determine how the trends in derived sea ice extent differed. The sections below describe these differences.

3. Comparison of CDR V5 and CDR V4 Trends

This section compares the linear regression analysis of total sea ice extent from the SIC CDR Version 5 (CDR V5) and the SIC CDR Version 4 (CDR V4). The analysis covers both hemispheres for all months from 1979-2024, with detailed examination of March and September alone. For slope and standard deviation values of all other months, see Appendix 1 for the Northern Hemisphere and Appendix 2 for the Southern Hemisphere.

3.1 Northern Hemisphere

Figure 1, Figure 2, and Figure 3 show the trend analysis comparing CDR V5 and CDR V4 for the Northern Hemisphere. Table 1 presents the slopes and their 95% confidence intervals for each trend line shown in the figures.

Table 1. Comparison of Northern Hemisphere sea ice extent regression slopes between CDR V5 and CDR V4 (1979 through 2024), showing all months and highlighting March and September. Values include slopes with ± 95% confidence intervals.

Comparison	Slope (mil sq km per decade)
CDR V5/CDR V4 all months (n = 552)	CDR V5: -0.646 ± 0.205
	CDR V4: -0.622 ± 0.204
CDR V5/CDR V4 March (n = 46)	CDR V5: -0.471 ± 0.057
	CDR V4: -0.453 ± 0.057
CDR V5/CDR V4 September (n = 46)	CDR V5: -0.882 ± 0.118
	CDR V4: -0.861 ± 0.117

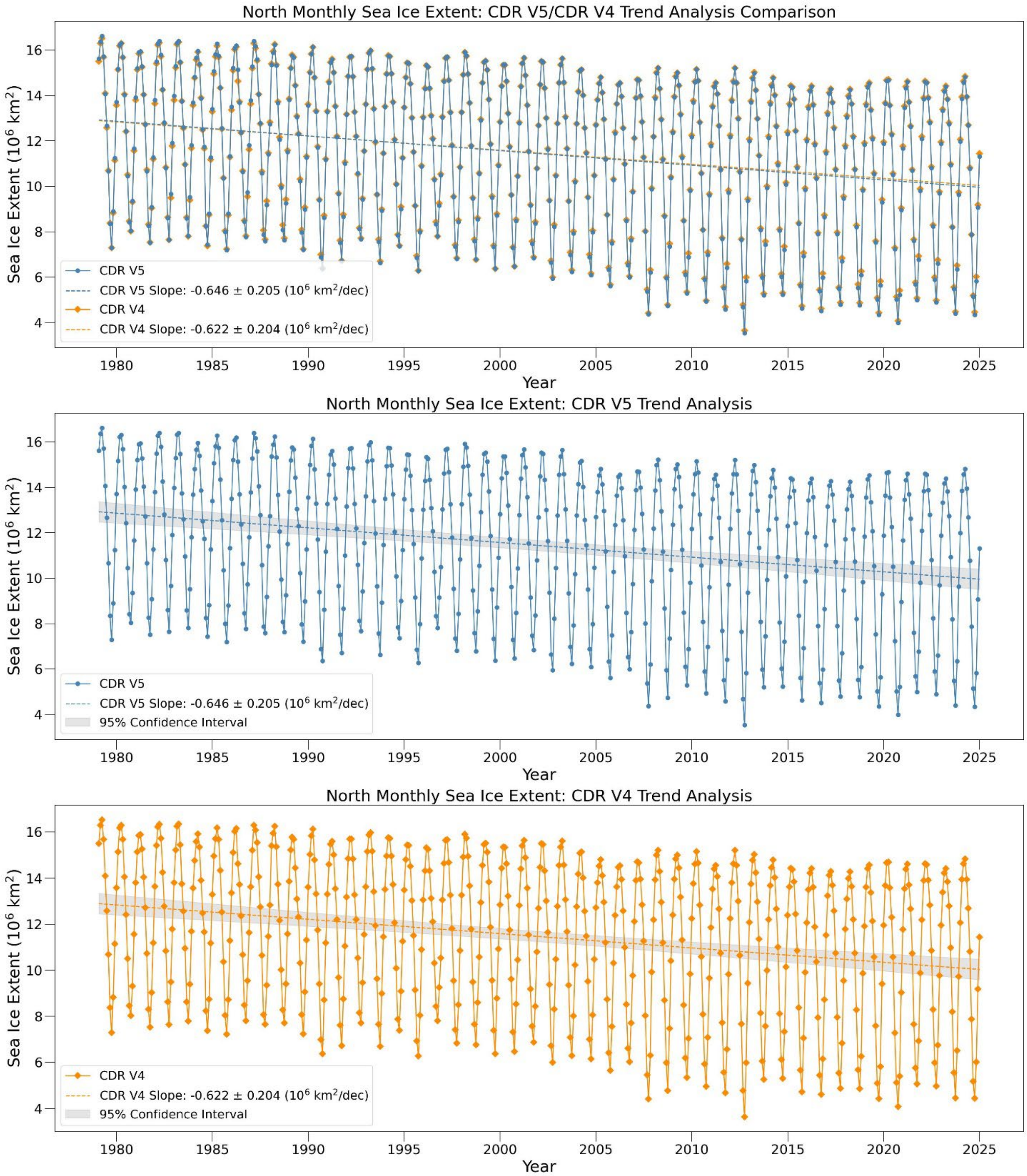

Figure 1. Northern Hemisphere trend analysis comparing CDR V5 and CDR V4 sea ice extent for all months from January 1979 – December 2024, in three panels: CDR V5 and CDR V4 trend lines plotted together (top), CDR V5 trend line with confidence interval (middle), and CDR V4 trend line with confidence interval (bottom). All slopes are expressed in millions of square kilometers per decade.

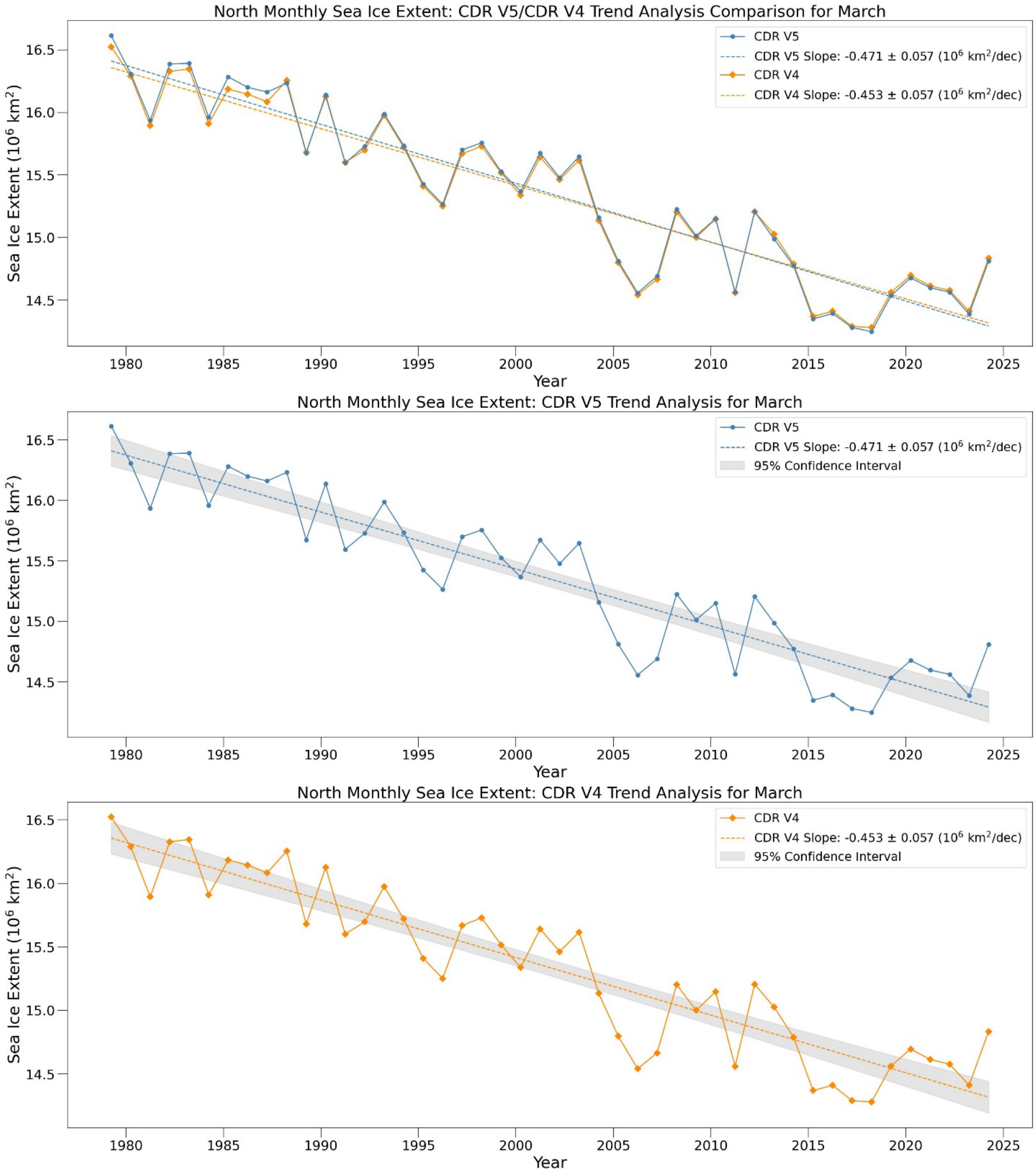

Figure 2. Northern Hemisphere trend analysis comparing March sea ice extent from 1979 – 2024 for CDR V5 and CDR V4, in three panels: CDR V5 and CDR V4 trend lines plotted together (top), CDR V5 trend line with confidence interval (middle), and CDR V4 trend line with confidence interval (bottom). All slopes are expressed in millions of square kilometers per decade.

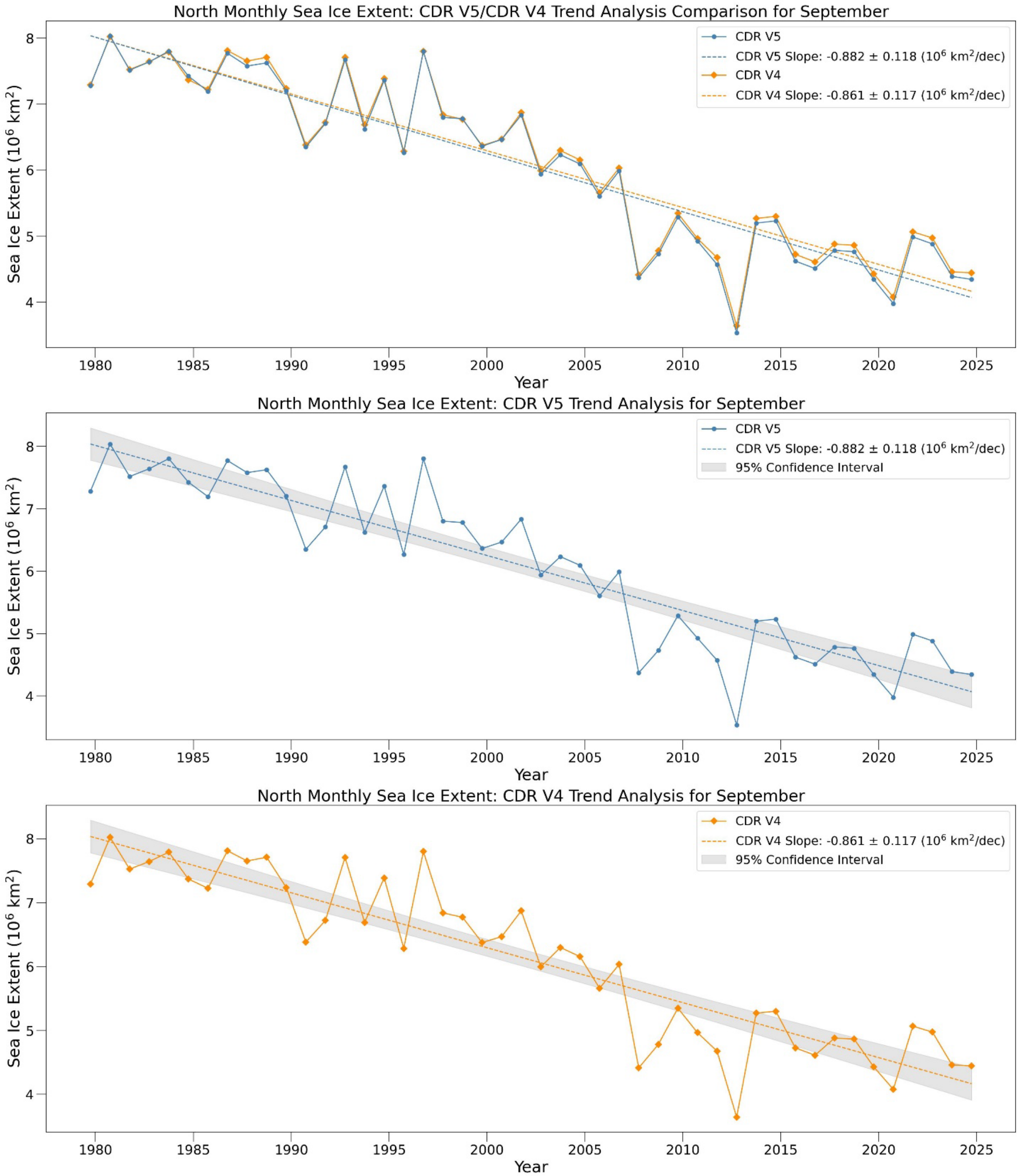

Figure 3. Northern Hemisphere trend analysis comparing September sea ice extent from 1979 – 2024 for CDR V5 and CDR V4, in three panels: CDR V5 and CDR V4 trend lines plotted together (top), CDR V5 trend line with confidence interval (middle), and CDR V4 trend line with confidence interval (bottom). All slopes are expressed in millions of square kilometers per decade.

3.2 Southern Hemisphere

Figure 4, Figure 5, and Figure 6 show the trend analysis comparing CDR V5 and CDR V4 for the Southern Hemisphere. Table 2 presents the slopes and their 95% confidence intervals for each trend line shown in the figures.

Table 2. Comparison of Southern Hemisphere sea ice extent regression slopes between CDR V5 and CDR V4 (1979 through 2024), showing all months and highlighting March and September. Values include slopes with ± 95% confidence intervals.

Comparison	Slope (mil sq km per decade)
CDR V5/CDR V4 all months (n = 552)	CDR V5: -0.024 ± 0.360
	CDR V4: 0.005 ± 0.362
CDR V5/CDR V4 March (n = 46)	CDR V5: -0.048 ± 0.132
	CDR V4: -0.020 ± 0.135
CDR V5/CDR V4 September (n = 46)	CDR V5: -0.062 ± 0.115
	CDR V4: -0.036 ± 0.118

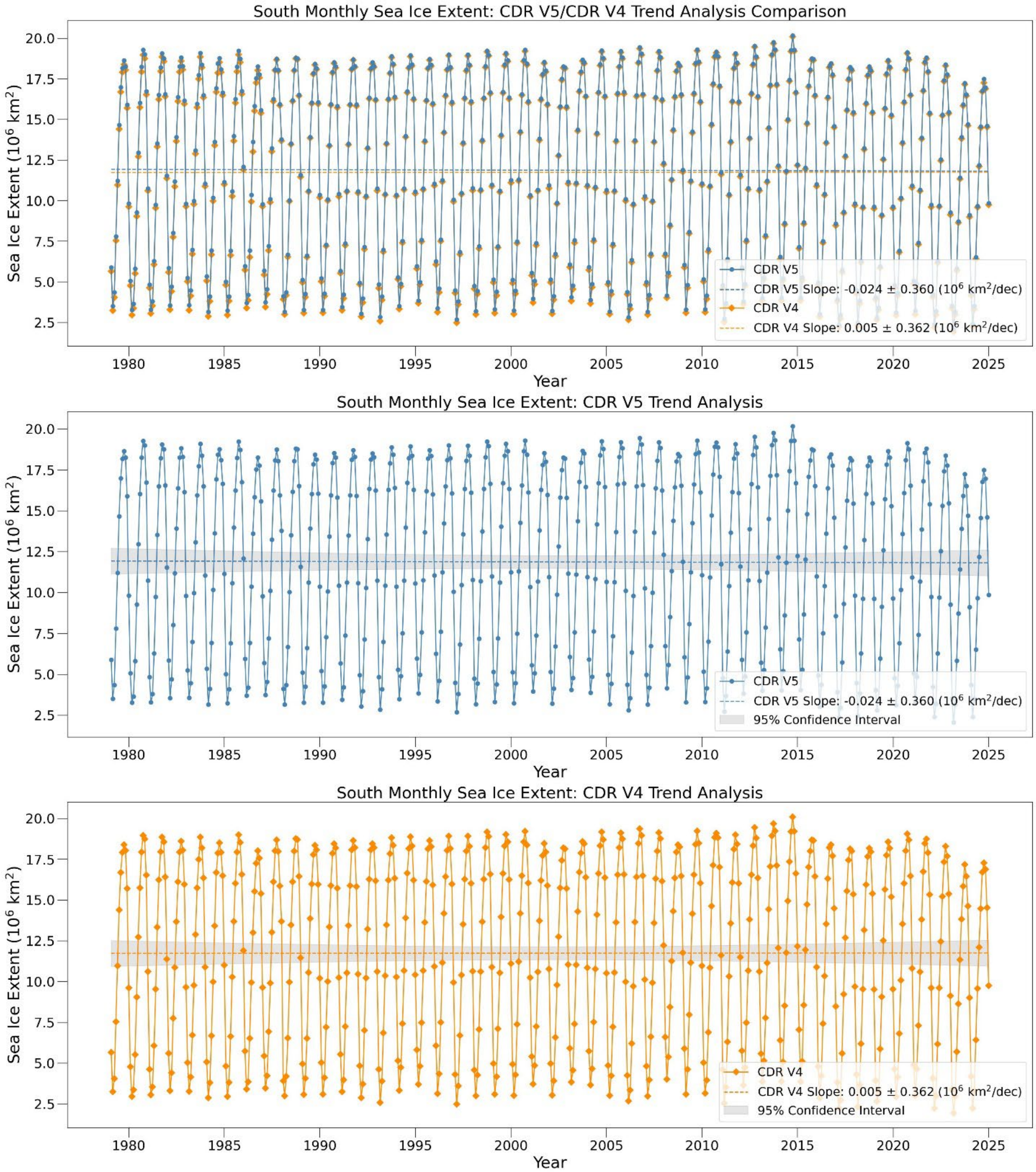

Figure 4. Southern Hemisphere trend analysis comparing CDR V5 and CDR V4 sea ice extent for all months from January 1979 – December 2024, in three panels: CDR V5 and CDR V4 trend lines plotted together (top), CDR V5 trend line with confidence interval (middle), and CDR V4 trend line with confidence interval (bottom). All slopes are expressed in millions of square kilometers per decade.

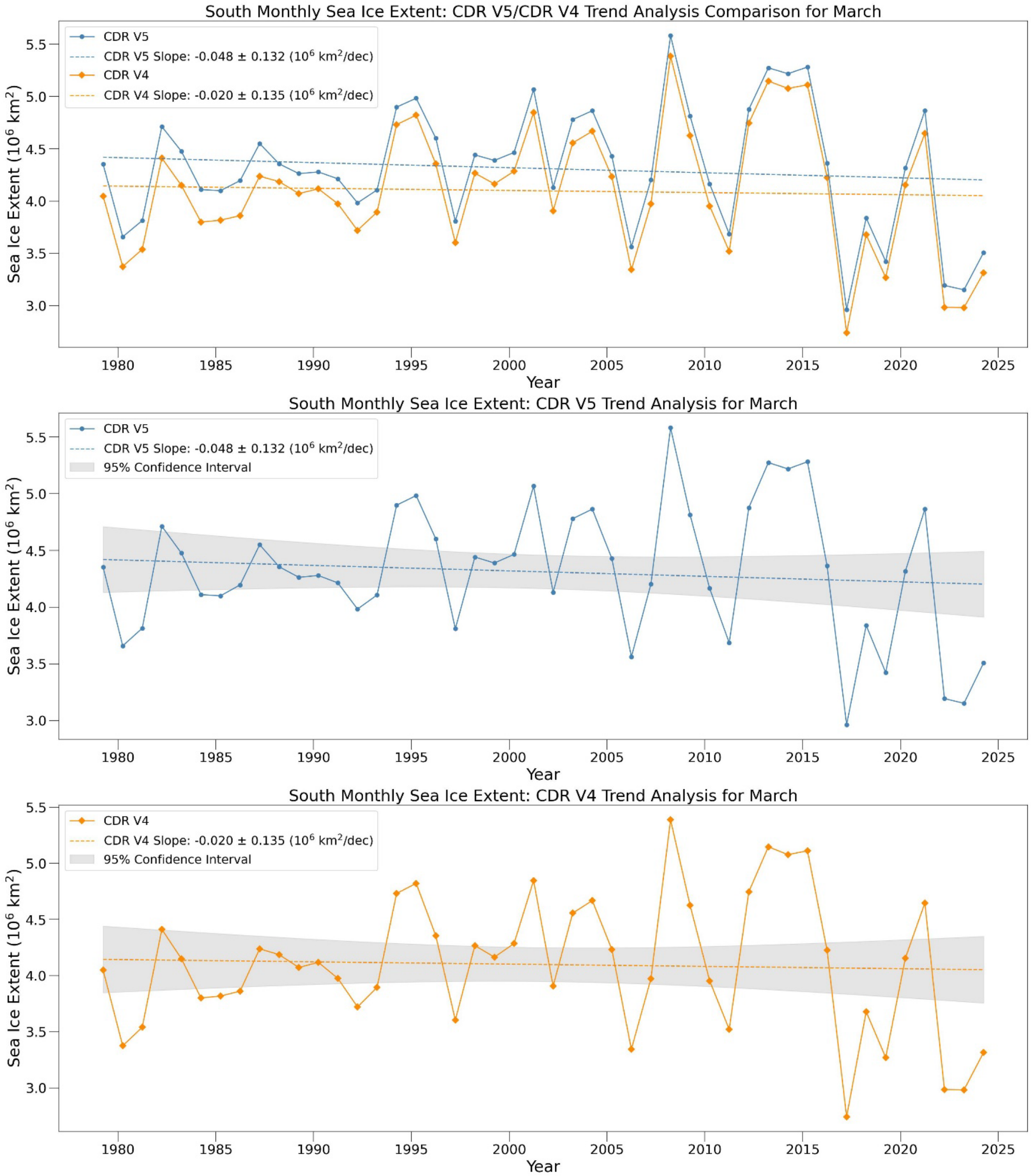

Figure 5. Southern Hemisphere trend analysis comparing March sea ice extent from 1979 – 2024 for CDR V5 and CDR V4, in three panels: CDR V5 and CDR V4 trend lines plotted together (top), CDR V5 trend line with confidence interval (middle), and CDR V4 trend line with confidence interval (bottom). All slopes are expressed in millions of square kilometers per decade.

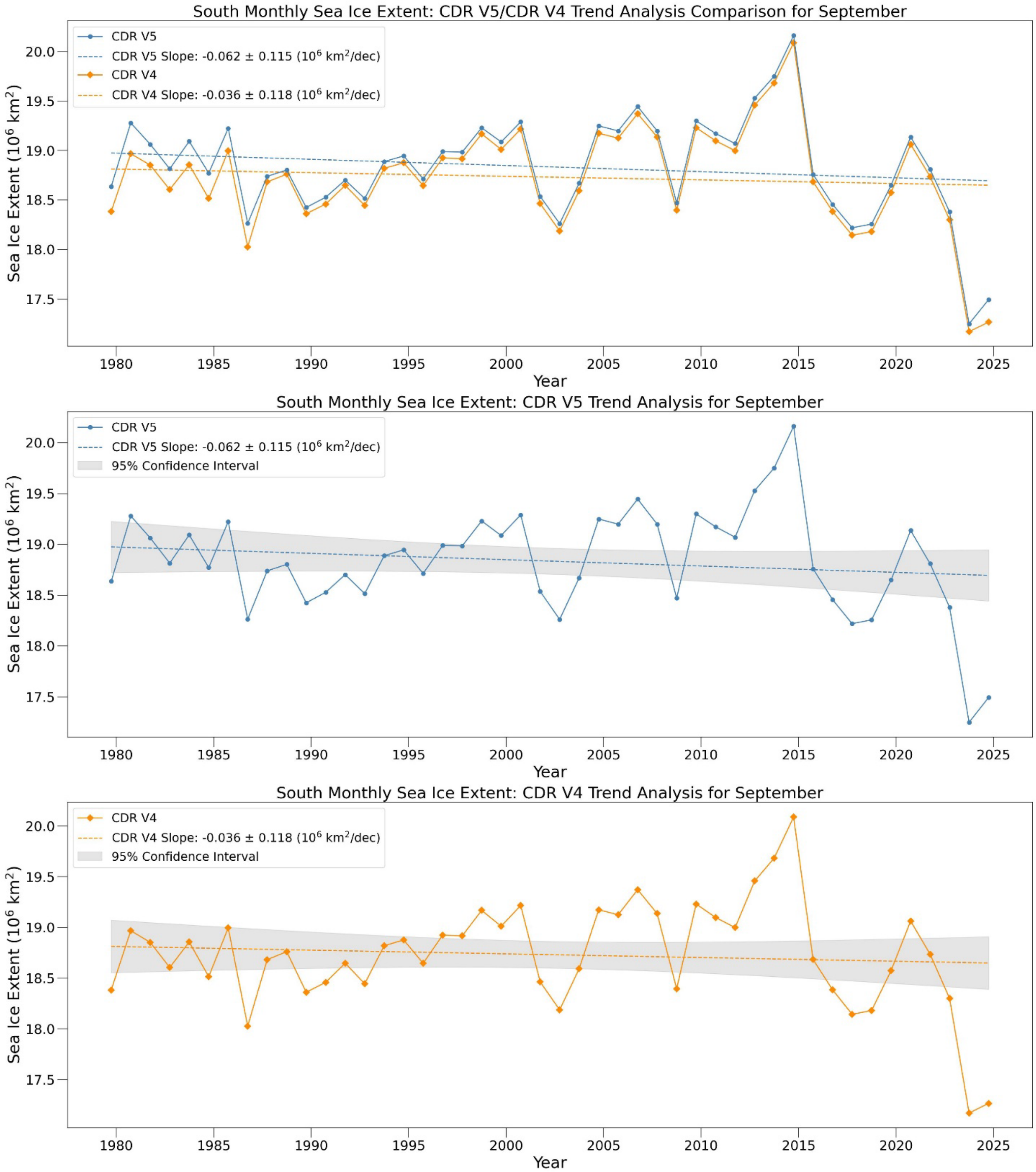

Figure 6. Southern Hemisphere trend analysis comparing September sea ice extent from 1979 – 2024 for CDR V5 and CDR V4, in three panels: CDR V5 and CDR V4 trend lines plotted together (top), CDR V5 trend line with confidence interval (middle), and CDR V4 trend line with confidence interval (bottom). All slopes are expressed in millions of square kilometers per decade.

4. Comparison of CDR V5 and AMSR2 V5 Trends

This section compares the linear regression analysis of total sea ice extent from the SIC CDR Version 5 (CDR V5) and the Version 5 AMSR2 prototype SIC (AMSR2 V5). The analysis covers both hemispheres for all months from 1979-2024, with detailed examination of March and September alone. For slope and standard deviation values of all other months, see Appendix 1 for the Northern Hemisphere and Appendix 2 for the Southern Hemisphere.

4.1 Northern Hemisphere

Figure 7, Figure 8, and Figure 9 show the trend analysis comparing CDR V5 and AMSR2 V5 for the Northern Hemisphere. Table 3 presents the slopes and their 95% confidence intervals for each trend line shown in the figures.

Table 3. Comparison of Northern Hemisphere sea ice extent regression slopes between CDR V5 and AMSR2 V5 (1979 through 2024), showing all months and highlighting March and September. Values include slopes with ± 95% confidence intervals.

Comparison	Slope (mil sq km per decade)
CDR V5/AMSR2 V5 all months (n = 552)	CDR V5: -0.646 ± 0.205
	AMSR2 V5: -0.699 ± 0.204
CDR V5/AMSR2 V5 March (n = 46)	CDR V5: -0.471 ± 0.057
	AMSR2 V5: -0.529 ± 0.060
CDR V5/AMSR2 V5 September (n = 46)	CDR V5: -0.882 ± 0.118
	AMSR2 V5: -0.910 ± 0.117

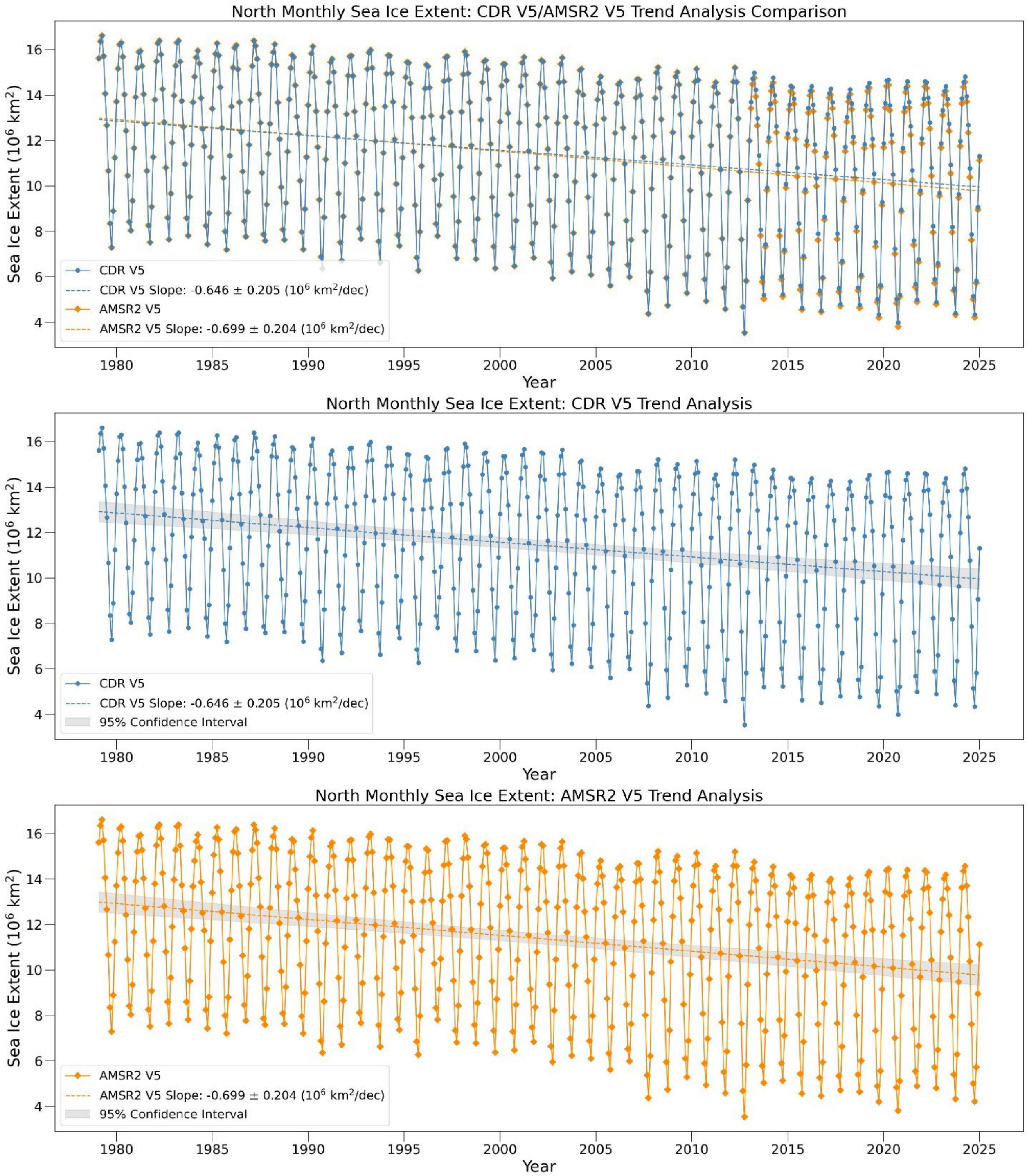

Figure 7. Northern Hemisphere trend analysis comparing CDR V5 and AMSR2 V5 sea ice extent for all months from January 1979 – December 2024, in three panels: CDR V5 and AMSR2 V5 trend lines plotted together (top), CDR V5 trend line with confidence interval (middle), and AMSR2 V5 trend line with confidence interval (bottom). All slopes are expressed in millions of square kilometers per decade.

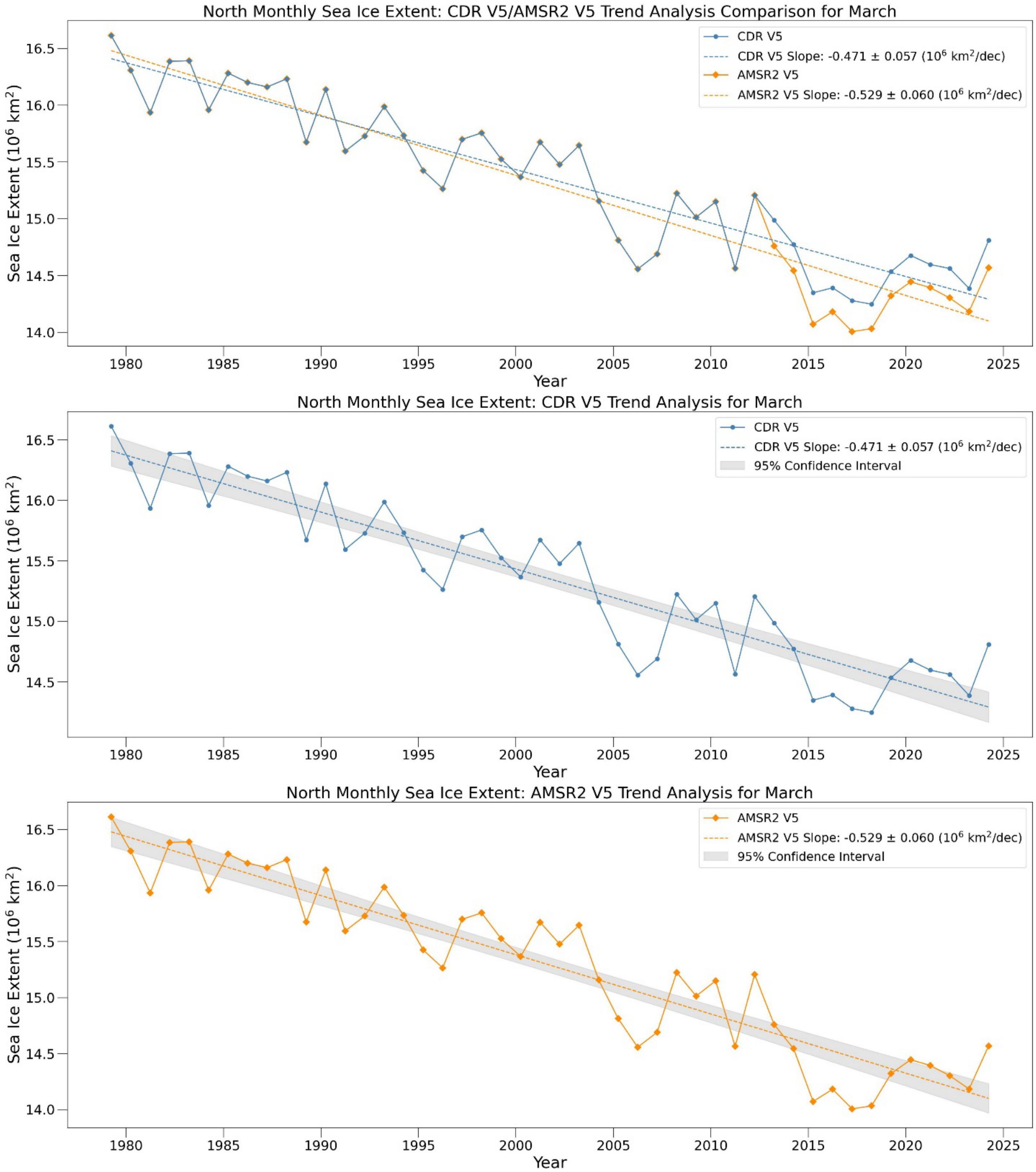

Figure 8. Northern Hemisphere trend analysis comparing March sea ice extent from 1979 – 2024 for CDR V5 and AMSR2 V5, in three panels: CDR V5 and AMSR2 V5 trend lines plotted together (top), CDR V5 trend line with confidence interval (middle), and AMSR2 V5 trend line with confidence interval (bottom). All slopes are expressed in millions of square kilometers per decade.

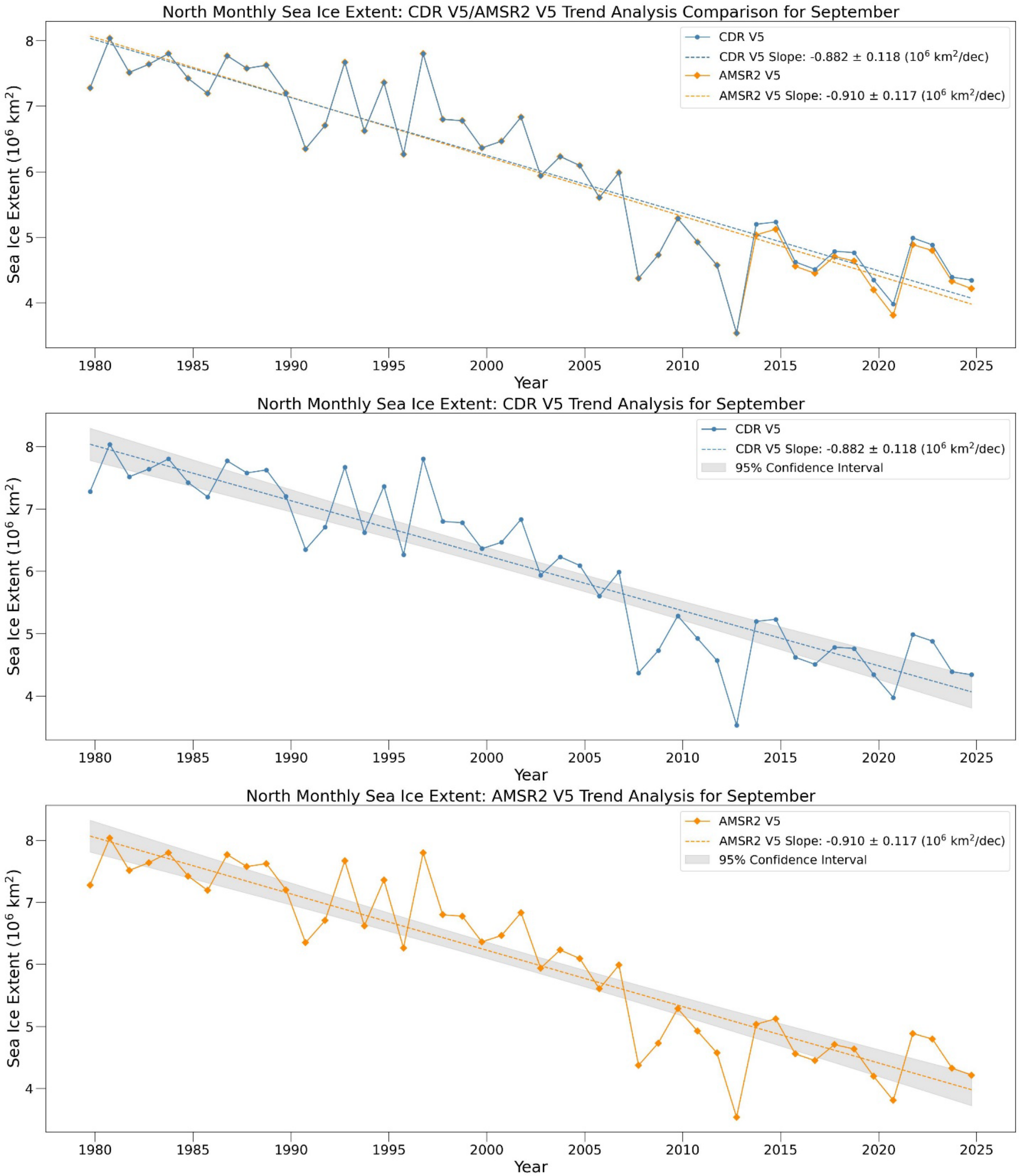

Figure 9. Northern Hemisphere trend analysis comparing September sea ice extent from 1979 – 2024 for CDR V5 and AMSR2 V5, in three panels: CDR V5 and AMSR2 V5 trend lines plotted together (top), CDR V5 trend line with confidence interval (middle), and AMSR2 V5 trend line with confidence interval (bottom). All slopes are expressed in millions of square kilometers per decade.

4.2 Southern Hemisphere

Figure 10, Figure 11, and Figure 12 show the trend analysis comparing CDR V5 and AMSR2 V5 for the Southern Hemisphere. Table 4 presents the slopes and their 95% confidence intervals for each trend line shown in the figures.

Table 4. Comparison of Southern Hemisphere sea ice extent regression slopes between CDR V5 and AMSR2 V5 (1979 through 2024), showing all months and highlighting March and September. Values include slopes with ± 95% confidence intervals.

Comparison	Slope (mil sq km per decade)
CDR V5/AMSR2 V5 all months (n = 552)	CDR V5: -0.024 ± 0.360
	AMSR2 V5: -0.048 ± 0.360
CDR V5/AMSR2 V5 March (n = 46)	CDR V5: -0.048 ± 0.132
	AMSR2 V5: -0.064 ± 0.131
CDR V5/AMSR2 V5 September (n = 46)	CDR V5: -0.062 ± 0.115
	AMSR2 V5: -0.090 ± 0.117

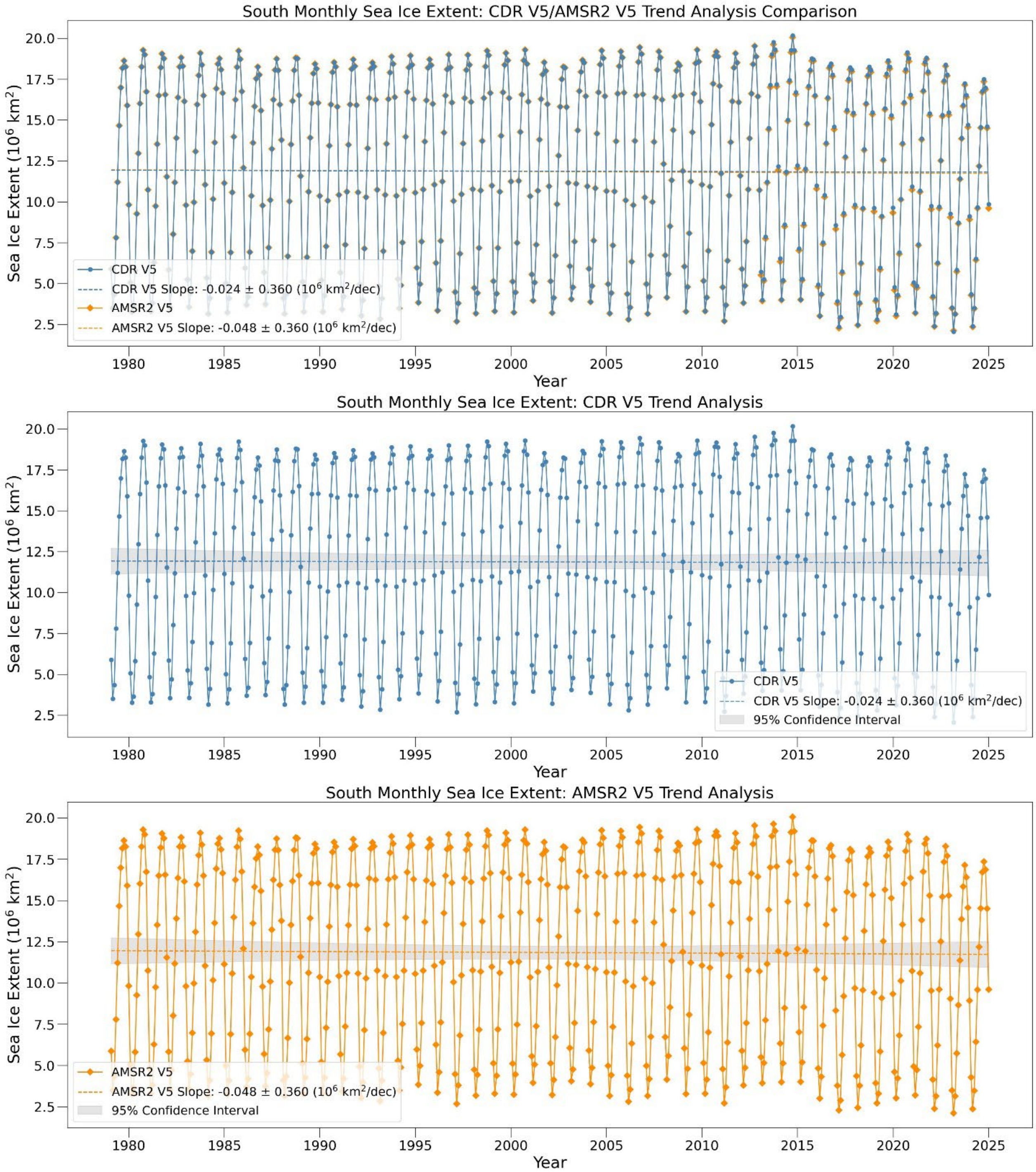

Figure 10. Southern Hemisphere trend analysis comparing CDR V5 and AMSR2 V5 sea ice extent for all months from January 1979 – December 2024, in three panels: CDR V5 and AMSR2 V5 trend lines plotted together (top), CDR V5 trend line with confidence interval (middle), and AMSR2 V5 trend line with confidence interval (bottom). All slopes are expressed in millions of square kilometers per decade.

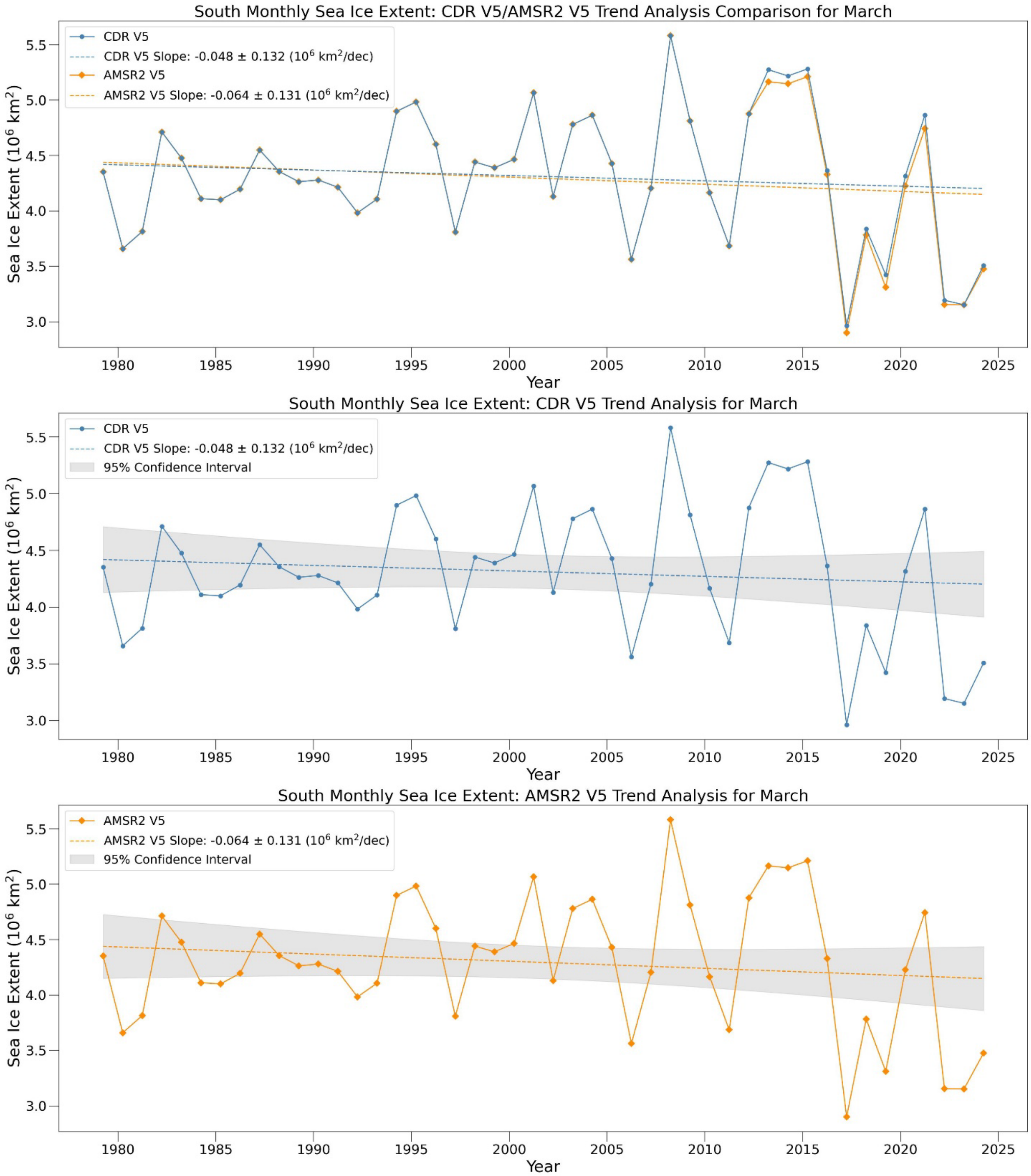

Figure 11. Southern Hemisphere trend analysis comparing March sea ice extent from 1979 – 2024 for CDR V5 and AMSR2 V5, in three panels: CDR V5 and AMSR2 V5 trend lines plotted together (top), CDR V5 trend line with confidence interval (middle), and AMSR2 V5 trend line with confidence interval (bottom). All slopes are expressed in millions of square kilometers per decade.

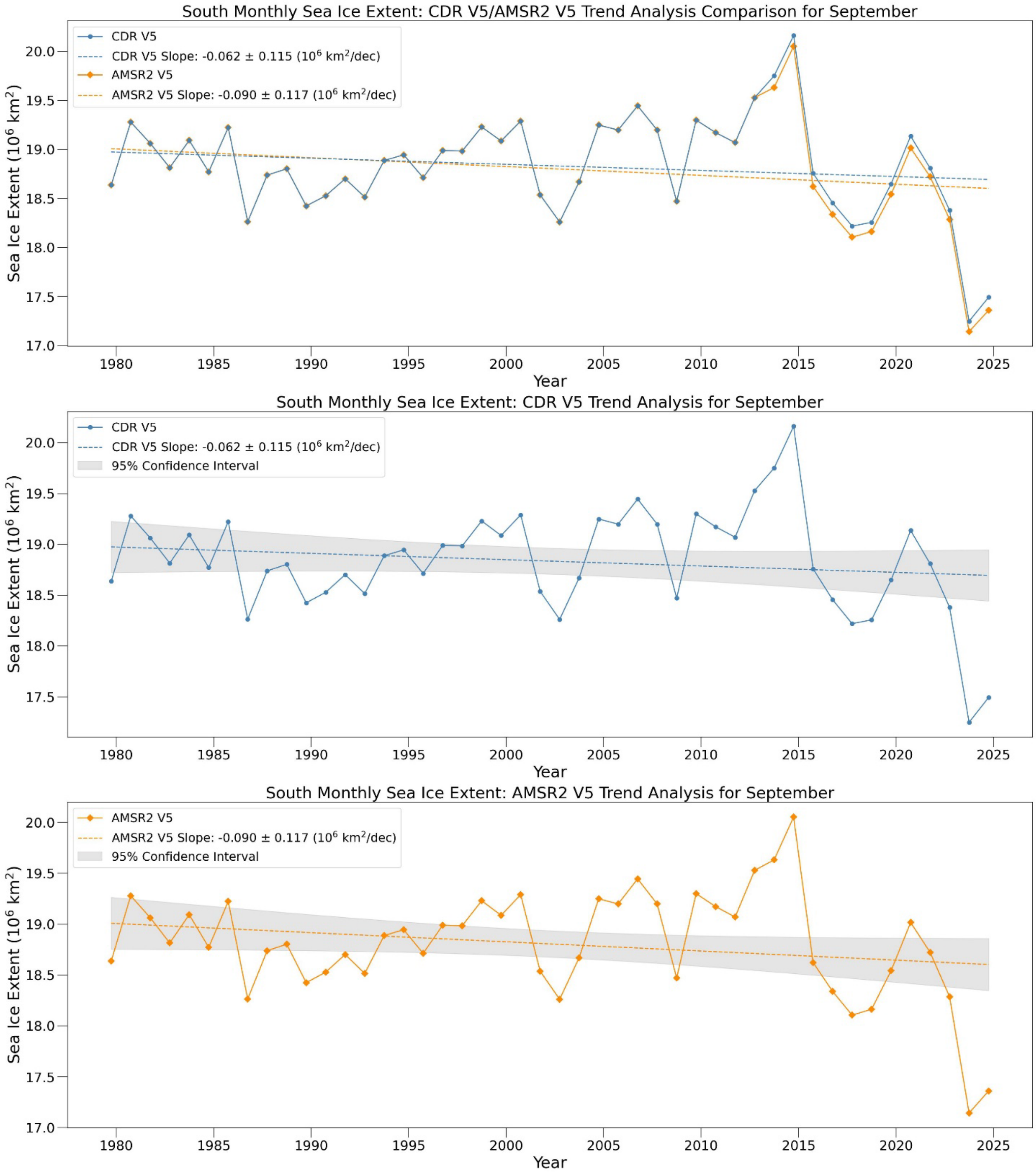

Figure 12. Southern Hemisphere trend analysis comparing September sea ice extent from 1979 – 2024 for CDR V5 and AMSR2 V5, in three panels: CDR V5 and AMSR2 V5 trend lines plotted together (top), CDR V5 trend line with confidence interval (middle), and AMSR2 V5 trend line with confidence interval (bottom). All slopes are expressed in millions of square kilometers per decade.

5. Discussion

5.1 CDR V5 and CDR V4

In comparing CDR V5 and CDR V4, we found that CDR V5 trend lines show more negative slopes than CDR V4 for both hemispheres (Appendix 1 and Appendix 2). This difference stems from higher extent values in CDR V5 during the SMMR era (1979 to mid-1987). The CDR V5 algorithm improvements appear to have affected retrievals of sea ice more significantly during the SMMR period than in later periods, resulting in higher extent values. These elevated values in the SMMR years created steeper negative slopes in the trend lines. As shown in Figure 13, adapted from NSIDC Special Report 26 (Windnagel et al., 2024), the difference plots between CDR V5 and CDR V4 for both hemispheres reveals larger extent differences during the SMMR period (left side of plots) compared to the subsequent SSM/I and SSMIS periods.

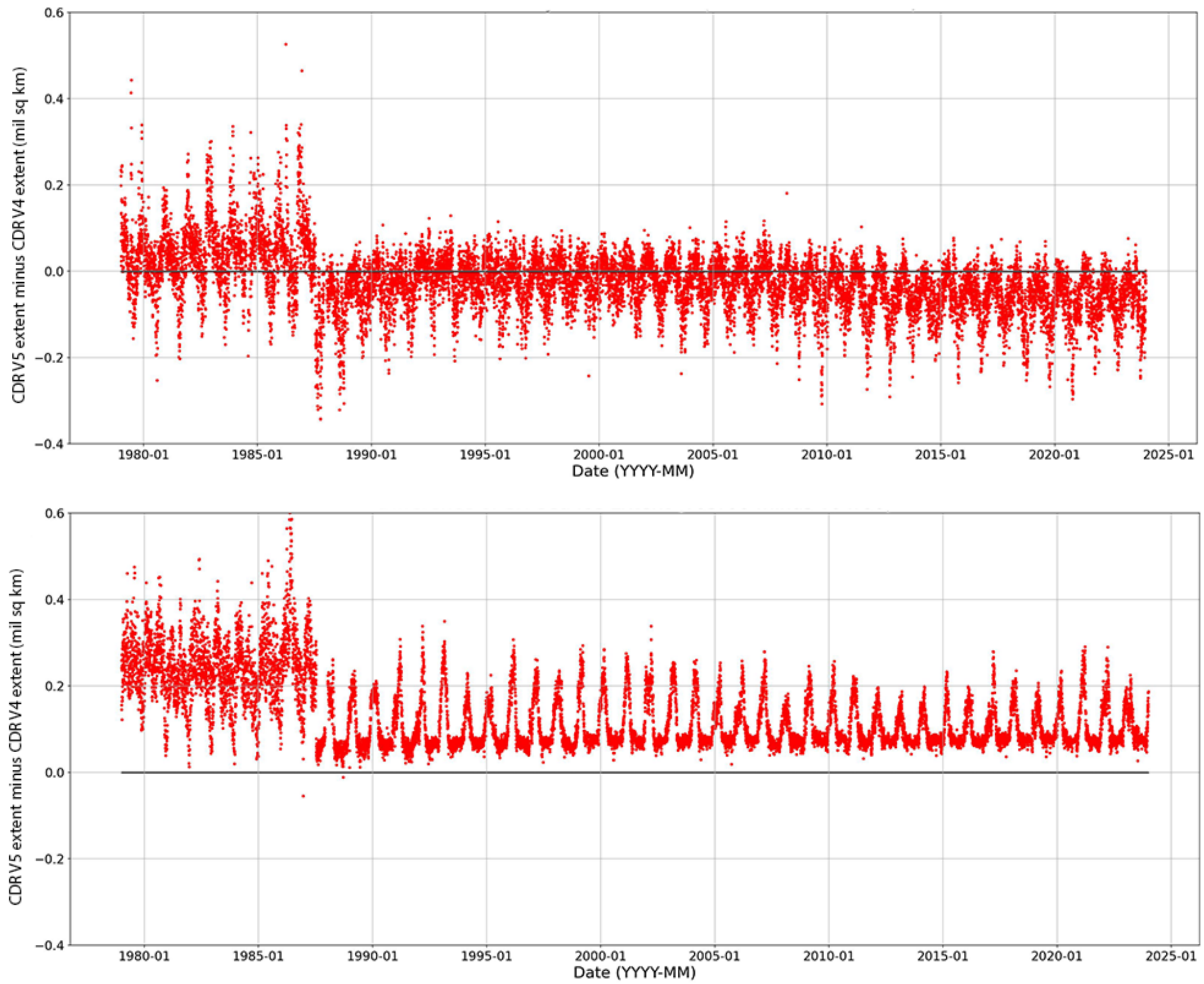

Figure 13. Difference in sea ice extent between CDR V5 and CDR V4 (V5 minus V4) for the Northern Hemisphere (top) and the Southern Hemisphere (bottom) from 1979 – 2023.

5.2 CDR V5 and AMSR2 V5

In comparing CDR V5 and AMSR2 V5, we found that the AMSR2 V5 trend lines show more negative slopes than CDR V5 (Appendix 1 and Appendix 2). This occurs because, on average, the CDR algorithm calculates lower ice extent values for the AMSR2 portion (2013-2024) compared to the rest of the series, resulting in steeper AMSR2 V5 trend lines. Figure 14, adapted from NSIDC Special Report 26 (Windnagel et al., 2024), illustrates this through a plot of daily differences between CDR V5 and AMSR2 V5 extents from 2013-2023, where differences are predominantly positive. Note that the plot only shows this part of the time series because, as mentioned Section 2, CDR V5 and AMSR2 V5 only differ during that period when CDR V5 uses SSMIS as input and AMSR2 V5 uses AMSR2 as input. These lower AMSR2 extents are also visible in the monthly averages plotted in the top panels of Figure 8, Figure 9, Figure 11, and Figure 12 where the orange AMSR2 V5 line runs below the blue CDR V5 line from 2013-2024.

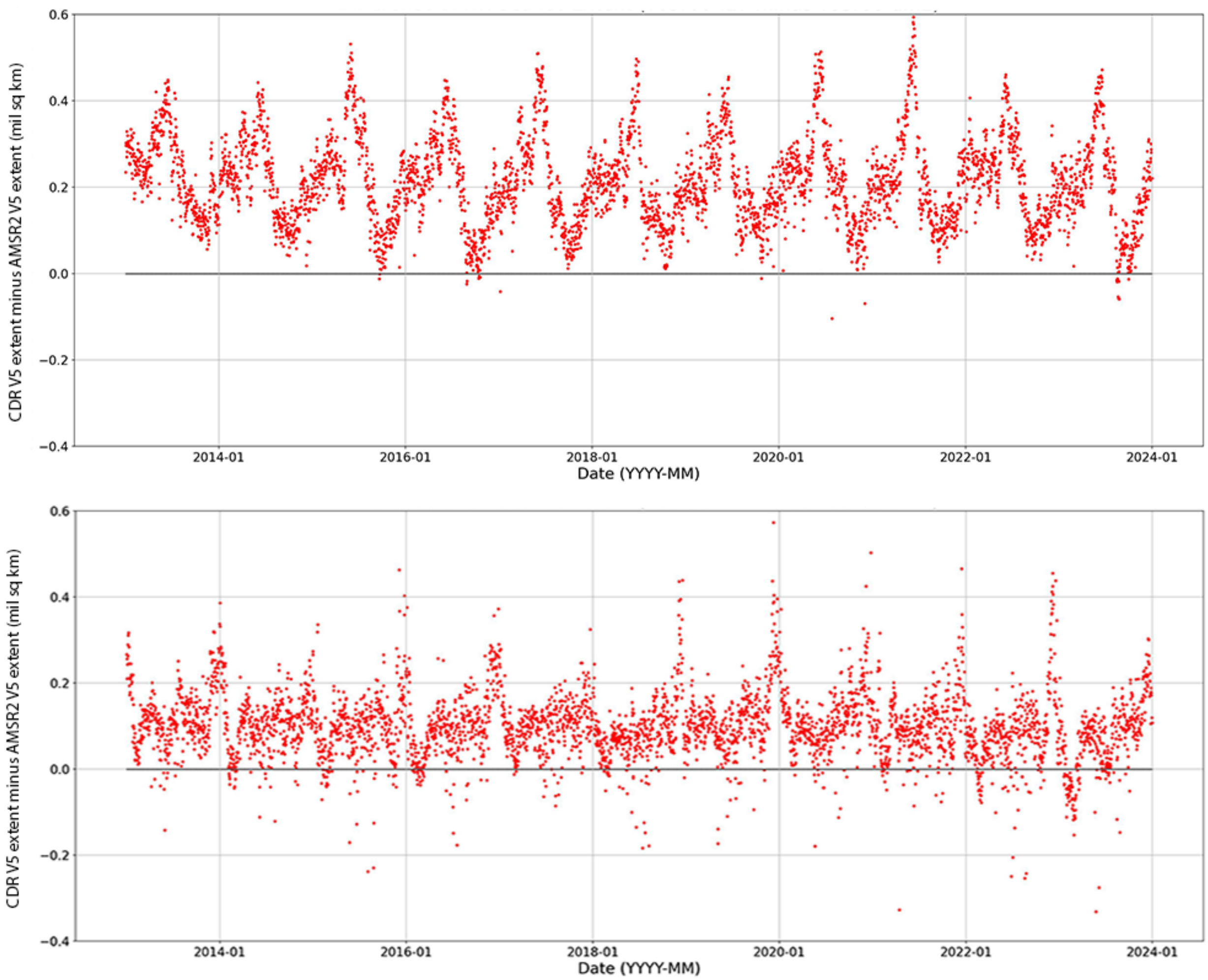

Figure 14. Difference in sea ice extent from CDR V5 and AMSR2 V5 (CDR V5 minus AMSR2 V5) for the Northern Hemisphere (top) and the Southern Hemisphere (bottom) from 2013 – 2023.

The AMSR2 instrument's smaller sensor footprint facilitates a higher standard gridded resolution of 12.5 km compared to SSMIS's 25 km, which results in lower calculated ice extent values. Even after downsampling the AMSR2 data to a 25 km grid for the V5 product, it still captures ice concentration details with greater fidelity than SSMIS data, as Figure 15 demonstrates.

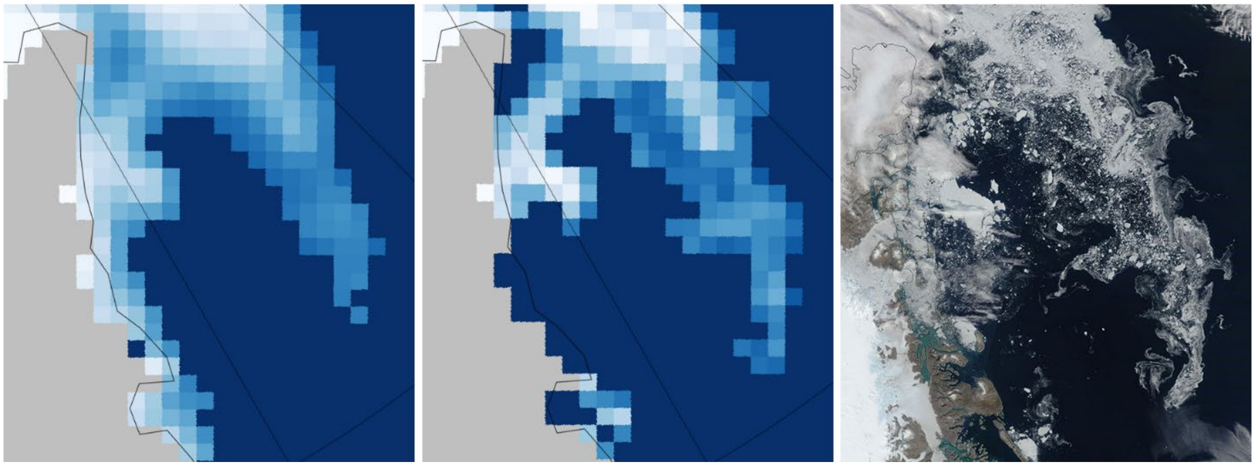

Figure 15. Comparison of sea ice concentration from CDR V5 (left), AMSR2 V5 (middle), and 500 m MODIS for 30 July 2021 off the northern coast of Greenland.

This results in lower ice extent values, on average, because the higher resolution of AMSR2 gives a sharper ice edge, while the lower resolution of SSMIS tends to blur that edge. The SSMIS sensor's 19 GHz channel has a field of view of almost 75 km in one dimension. Consequently, ice well within the ice edge can contribute to the concentration value of a 25 km grid cell outside the ice edge, causing it to exceed the 15% concentration threshold and be classified as *ice*.

It is important to note that the *ice edge* – the boundary between ice and water – does not translate into a clear geophysical border in satellite imagery. Instead, it presents as a gradual transition zone with varying concentrations of different ice types and floe sizes. For satellite imagery, particularly for lower resolution passive microwave data, the ice edge is defined using a concentration threshold on gridded concentration fields. Commonly, a threshold of 15% is used for passive microwave (and often other) products. Nevertheless, some ice extent products more accurately place the ice edge where an operational ice chart analyst would draw a 15% contour when examining high resolution visible band imagery. By this measure, AMSR2 provides more accurate results than SSMIS.

Figure 16 maps the difference in sea ice extent between CDR V5 and AMSR2 V5 on 15 March 2018. Areas where CDR V5 detects ice but AMSR2 V5 does not are shown in cyan, while areas where AMSR2 V5 detects ice but CDR V5 does not appear in orange. While there is some variation, cyan grid cells typically border regions where both sensors detect ice. Figure 17 shows a closer view of Figure 16 around Greenland further illustrating this pattern.

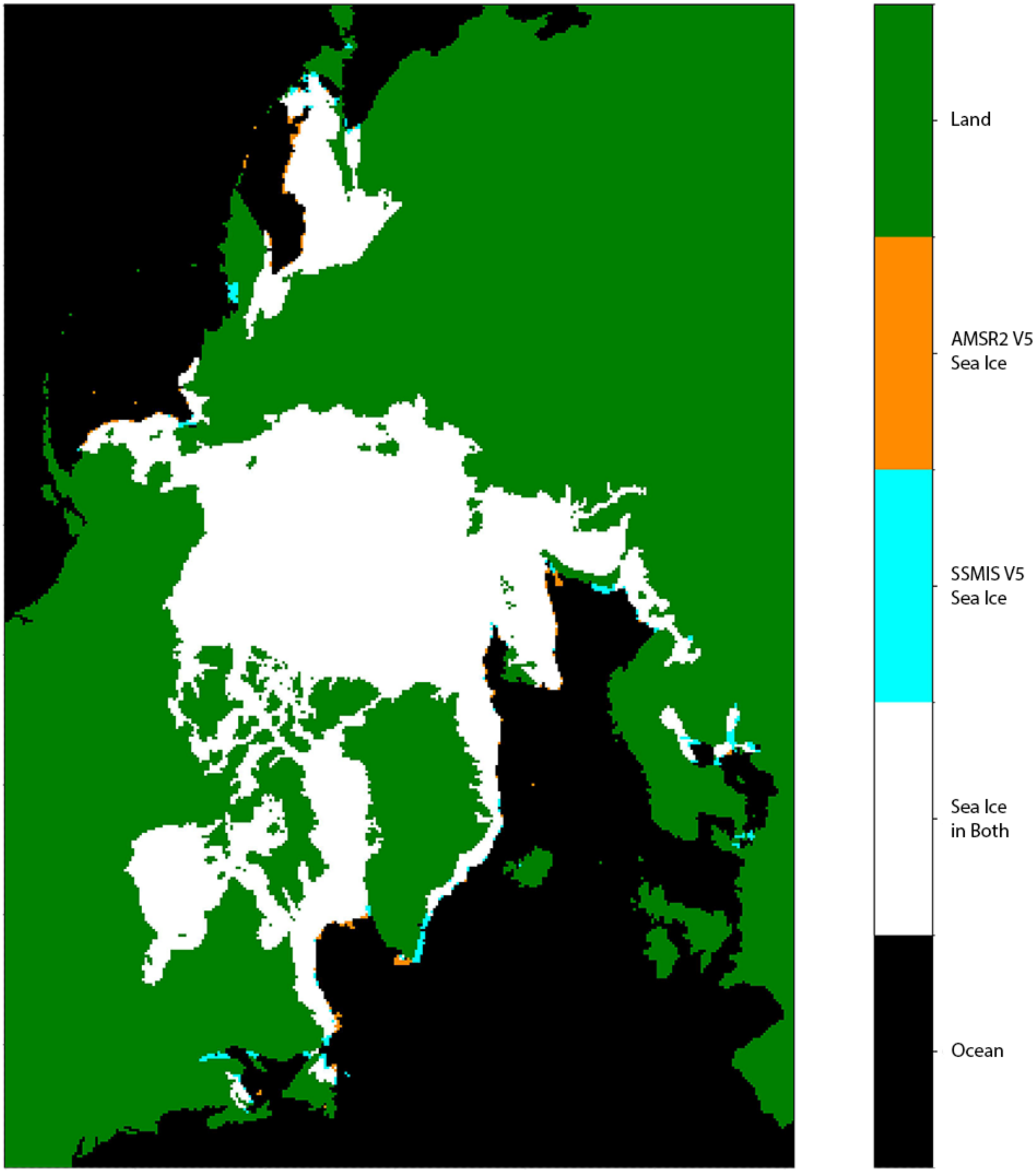

Figure 16. Difference in sea ice extent for CDR V5 and AMSR2 V5 for 15 March 2018

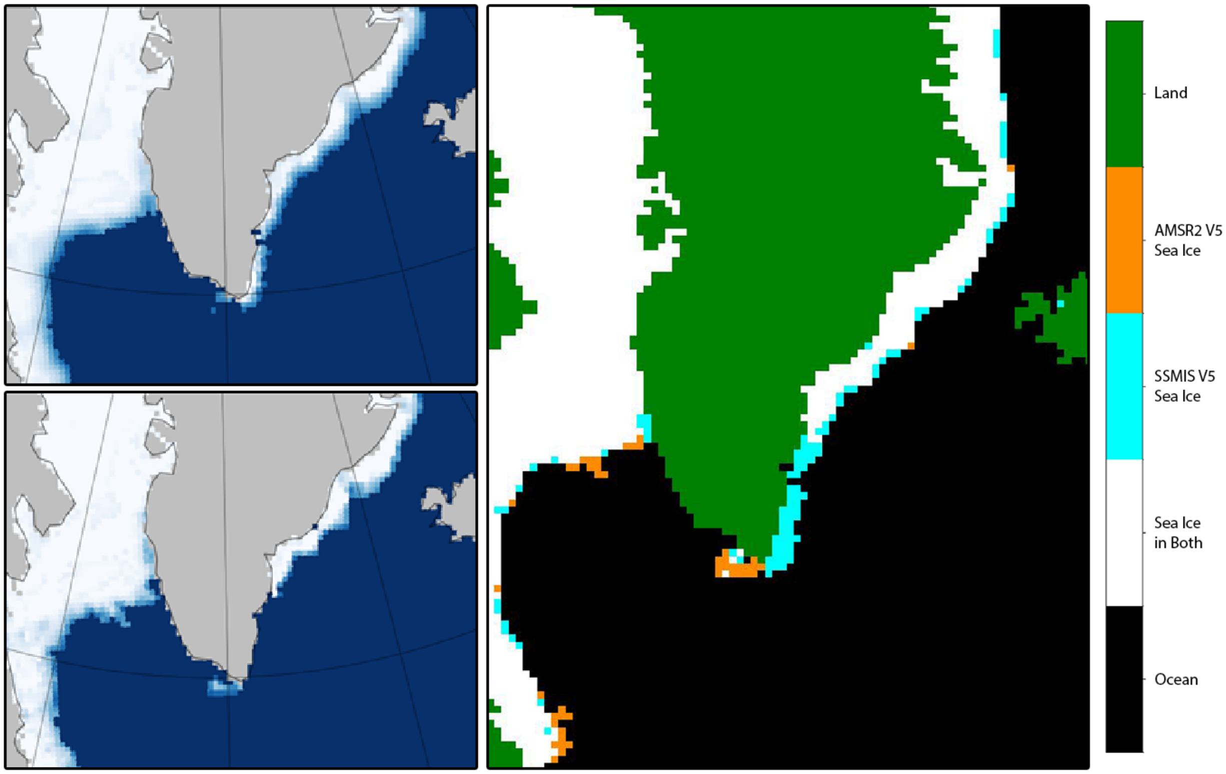

Figure 17. Close-up view comparing sea ice extent differences between CDR V5 and AMSR2 V5 around Greenland on 15 March 2018 (right), with corresponding ice concentration maps from CDR V5 (top left) and AMSR2 V5 (bottom left).

6. Conclusion

Overall, the differences between CDR V5 and CDR V4 are minor and stem from the improvements noted in the Summary.

The differences between CDR V5 and AMSR2 V5 arise from AMSR2's higher resolution. Because of the bias in where AMSR2 puts the ice edge relative to SSMIS, we do not recommend combining AMSR2 data with DMSP data for long-term climate analyses of sea ice extent. We are currently developing methods to address this bias, which should eventually enable us to extend the DMSP sea ice extent record with AMSR2.

7. References

Meier, W. N., Fetterer, F., Windnagel, A. K., Stewart, J. S. & Stafford, T. (2024). NOAA/NSIDC Climate Data Record of Passive Microwave Sea Ice Concentration. (G02202, Version 5). [Data Set]. Boulder, Colorado USA. National Snow and Ice Data Center. https://doi.org/10.7265/rjzb-pf78.

Meier, W. N., Fetterer, F., Windnagel, A. K. & Stewart, J. S. (2021). NOAA/NSIDC Climate Data Record of Passive Microwave Sea Ice Concentration. (G02202, Version 4). [Data Set]. Boulder, Colorado USA. National Snow and Ice Data Center. https://doi.org/10.7265/efmz-2t65.

Windnagel, A., Meier, W., Stewart, S., Fetterer, F., & Stafford, T. (2024). NOAA/NSIDC Climate Data Record of Passive Microwave Sea Ice Concentration Version 5 Analysis. NSIDC Special Report 26. Boulder CO, USA: National Snow and Ice Data Center. https://nsidc.org/sites/default/files/documents/technical-reference/nsidc-special-report-26.pdf.

8. Appendix 1 – CDR V4, CDR V5, and AMSR2 V5 Trends for the Northern Hemisphere for 1979 – 2024

The table below gives the Northern Hemisphere SSISM V4, CDR V5, and AMSR2 V5 linear regressions from 1979 through 2024 for all months and for each month alone. The table provides the slope and the ± 95% confidence interval.

Month	Slope (mil sq km per decade)
Time Series (n = 552) (all months)	CDR V4: -0.622 ± 0.204
	CDR V5: -0.646 ± 0.205
	AMSR2 V5: -0.699 ± 0.204
January (n = 46)	CDR V4: -0.473 ± 0.059
	CDR V5: -0.504 ± 0.059
	AMSR2 V5: -0.559 ± 0.058
February (n = 46)	CDR V4: -0.473 ± 0.059
	CDR V5: -0.497 ± 0.060
	AMSR2 V5: -0.551 ± 0.060
March (n = 46)	CDR V4: -0.453 ± 0.05
	CDR V5: -0.471 ± 0.057
	AMSR2 V5: -0.529 ± 0.060
April (n = 46)	CDR V4: -0.440 ± 0.067
	CDR V5: -0.458 ± 0.065
	AMSR2 V5: -0.523 ± 0.068
May (n = 46)	CDR V4: -0.388 ± 0.068
	CDR V5: -0.393 ± 0.069
	AMSR2 V5: -0.473 ± 0.072
June (n = 46)	CDR V4: -0.501 ± 0.053
	CDR V5: -0.517 ± 0.054
	AMSR2 V5: -0.616 ± 0.052
July (n = 46)	CDR V4: -0.789 ± 0.093
	CDR V5: -0.794 ± 0.095
	AMSR2 V5: -0.856 ± 0.093

August (n = 46)	CDR V4: -0.820 ± 0.099
	CDR V5: -0.824 ± 0.098
	AMSR2 V5: -0.861 ± 0.097
September (n = 46)	CDR V4: -0.861 ± 0.117
	CDR V5: -0.882 ± 0.118
	AMSR2 V5: -0.910 ± 0.117
October (n = 46)	CDR V4: -0.812 ± 0.116
	CDR V5: -0.867 ± 0.116
	AMSR2 V5: -0.890 ± 0.116
November (n = 46)	CDR V4: -0.554 ± 0.073
	CDR V5: -0.594 ± 0.073
	AMSR2 V5: -0.626 ± 0.072
December (n = 46)	CDR V4: -0.488 ± 0.055
	CDR V5: -0.535 ± 0.056
	AMSR2 V5: -0.583 ± 0.054

9. Appendix 2 – CDR V4, CDR V5, and AMSR2 V5 Trends for the Southern Hemisphere for 1979 – 2024

The table below gives the Southern Hemisphere SSISM V4, CDR V5, and AMSR2 V5 linear regressions from January 1979 through December 2024 for all months and for each month alone. The table provides the slope and the ± 95% confidence interval.

Month	**Slope (mil sq km per decade)**
Time Series (n = 552) (all months)	CDR V4: 0.005 ± 0.362
	CDR V5: -0.024 ± 0.360
	AMSR2 V5: -0.048 ± 0.360
January (n = 46)	CDR V4: -0.105 ± 0.167
	CDR V5: -0.127 ± 0.166
	AMSR2 V5: -0.155 ± 0.165
February (n = 46)	CDR V4: -0.094 ± 0.106
	CDR V5: -0.121 ± 0.106
	AMSR2 V5: -0.128 ± 0.106
March (n = 46)	CDR V4: -0.020 ± 0.135
	CDR V5: -0.048 ± 0.132
	AMSR2 V5: -0.064 ± 0.131
April (n = 46)	CDR V4: 0.005 ± 0.162
	CDR V5: -0.030 ± 0.158
	AMSR2 V5: -0.052 ± 0.158
May (n = 46)	CDR V4: -0.015 ± 0.158
	CDR V5: -0.049 ± 0.156
	AMSR2 V5: -0.068 ± 0.156
June (n = 46)	CDR V4: -0.053 ± 0.156
	CDR V5: -0.091 ± 0.153
	AMSR2 V5: -0.104 ± 0.153
July (n = 46)	CDR V4: -0.065 ± 0.139
	CDR V5: -0.100 ± 0.137
	AMSR2 V5: -0.118 ± 0.136

Month	Slope (mil sq km per decade)
August (n = 46)	CDR V4: -0.028 ± 0.121
	CDR V5: -0.071 ± 0.118
	AMSR2 V5: -0.095 ± 0.118
September (n = 46)	CDR V4: -0.036 ± 0.118
	CDR V5: -0.062 ± 0.115
	AMSR2 V5: -0.090 ± 0.117
October (n = 46)	CDR V4: -0.055 ± 0.116
	CDR V5: -0.079 ± 0.114
	AMSR2 V5: -0.106 ± 0.116
November (n = 46)	CDR V4: -0.149 ± 0.124
	CDR V5: -0.168 ± 0.122
	AMSR2 V5: -0.200 ± 0.126
December (n = 46)	CDR V4: -0.178 ± 0.212
	CDR V5: -0.189 ± 0.210
	AMSR2 V5: -0.243 ± 0.215