

北半球の海氷域と Arctic Flow Event

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Sea ice Extent and Arctic Flow Event

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Arctic flow event influences agricultural production in British Columbia, Canada. Environment Canada collects daily arctic flow event occurrence from 1949 to 2009. Sea ice extent in the arctic has a seasonal variation and annual trend. Sea ice extent and snow cover data with spatial information is provided by National Snow and Ice Data Center, Colorado University. The authors developed weekly sea ice extent and snow cover data in the Northern hemisphere on Microsoft Excel Sheet from 19931227 to 20070624 except the periods from 20040322 to 20040425. The arctic flow event and the northern hemisphere divided into 8 regions are shown in Figure 1. The number of cells with sea ice and snow extent is counted and shown in Figure 2.

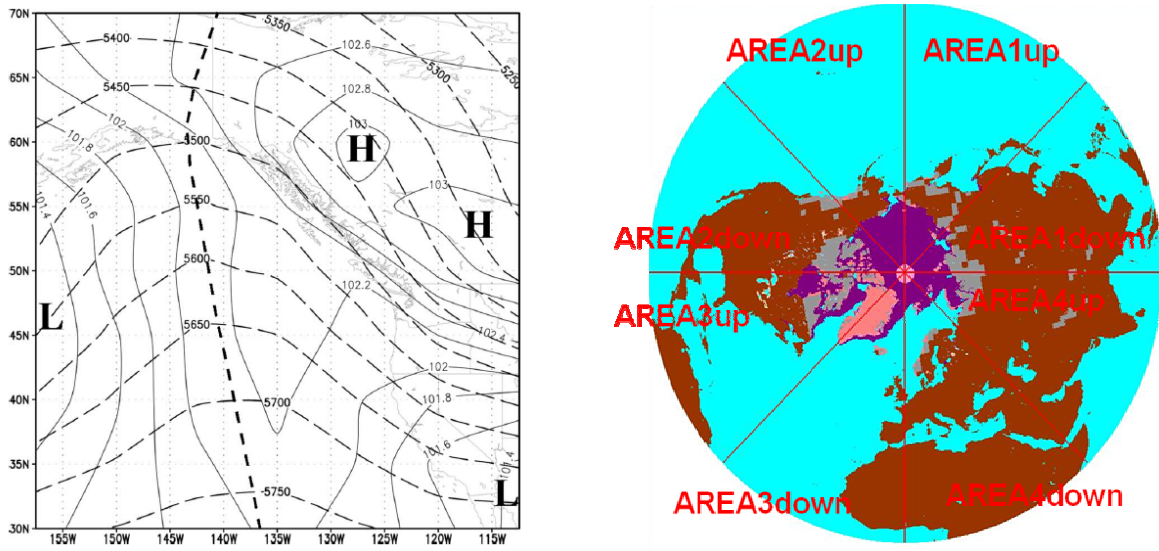


Figure 1. The arctic flow event (Left) and the northern hemisphere divided into 8 regions on Spread sheet (Right)

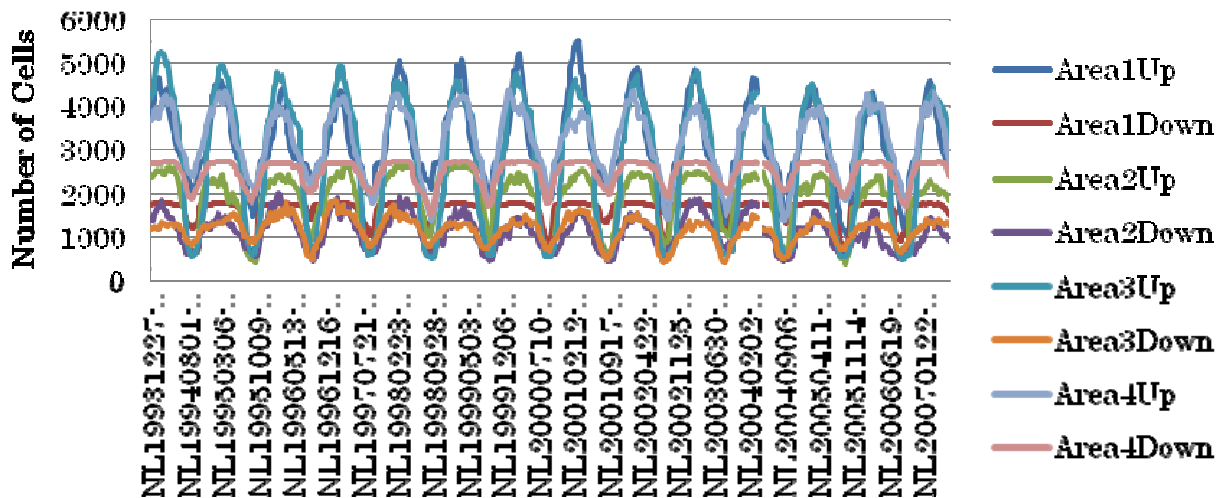


Figure 2. The number of cells with sea ice extent

The arctic flow event occurrences are compared with sea ice extent in each region shown Figure 3. The weeks with arctic flow event have more sea ice extent in the region of “Area 4 down” and then “Area 1 down” The analysis using co-relation coefficient were conducted and shown in Table 1

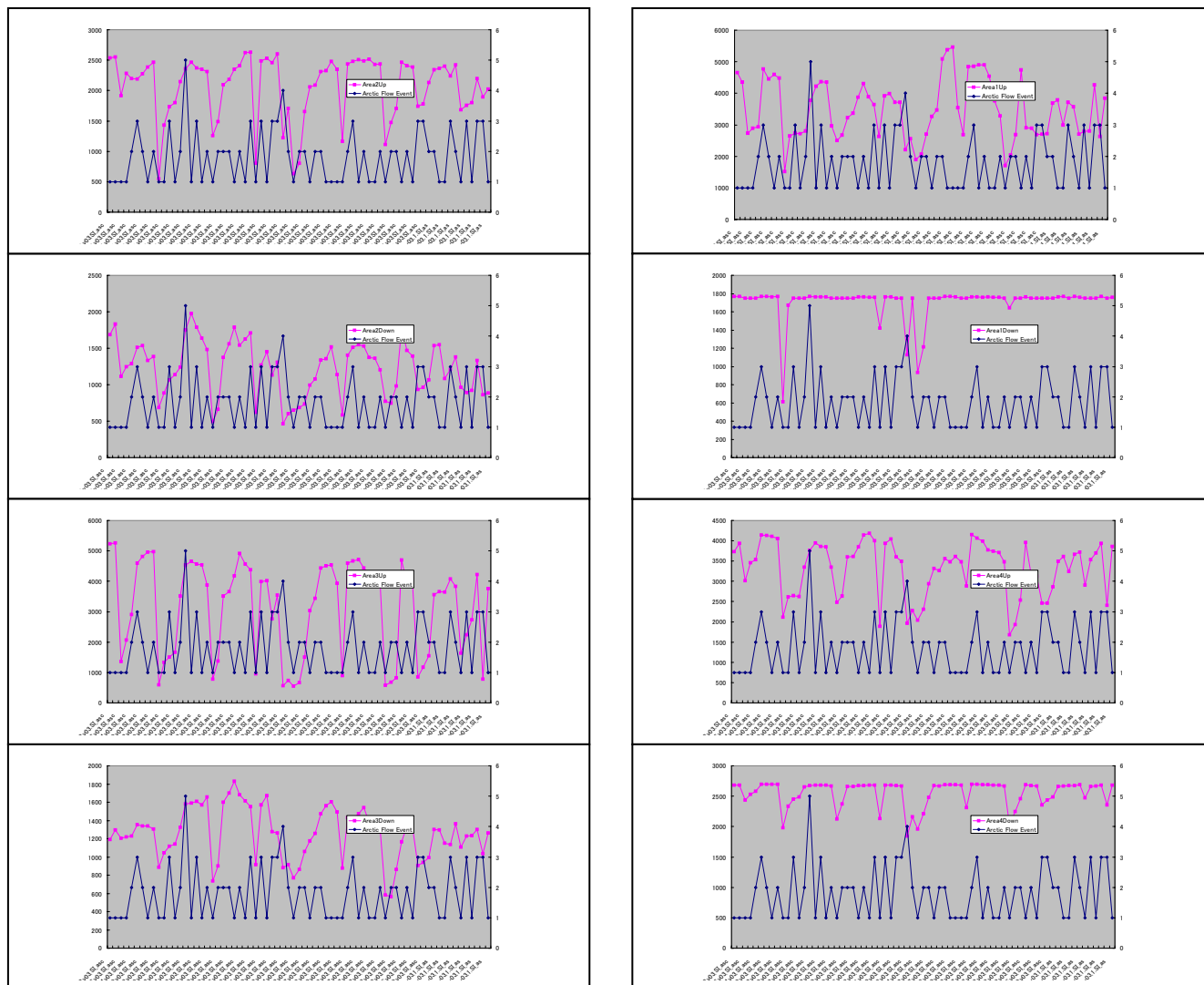


Figure 3. The arctic flow event occurrences and sea ice extent in each region The areas are same order in Figure 1

Table 1 . Co-relation coefficients between sea ice extent and arctic flow event

Area1Up	Area1Down	Area2Up	Area2Down	Area3Up	Area3Down	Area4Up	Area4Down
0.085	0.147	0.107	0.151	0.152	0.055	0.085	0.175

Acknowledgements

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References

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National Snow and Ice Data Center (2011) : Northern Hemisphere EASE-Grid Weekly Snow Cover and Sea Ice Extent Version 3 <http://nsidc.org/data/seaiice/>