Table S1. Multicollinearity test for factors.

	vegetation type	NDVI	Elevation	Slope	2-m air temperature	Precipitation	10-m wind speed	distance from the road	distance from the settlement
tolerance	0.442	0.231	0.543	0.699	0.236	0.858	0.561	0.557	0.505
VIF	2.261	4.691	1.842	1.430	4.229	1.165	1.784	1.795	1.974

Table S2 Correlation coefficient of factors

	vegetation type	NDVI	Elevation	Slope	2-m air temperature	Precipitation	10-m wind speed	distance from the road	distance from the settlement
vegetation type	1								
NDVI	-0.725**	1							
Elevation	-0.026**	0.123**	1						
Slope	0.062**	-0.013**	0.529**	1					
2-m air temperature	0.652**	0.840**	-0.026**	0.028**	1				
Precipitation	0.174**	0.229**	0.151**	0.136**	0.137**	1			
10-m wind speed	0.255**	-0.394**	0.241**	-0.324**	-0.418**	-0.177**	1		
distance from the road	0.542**	-0.631**	0.048**	0.082**	-0.581**	-0.105**	0.129**	1	
distance from the settlement	0.549**	-0.613**	-0.115**	-0.070**	-0.664**	-0.239**	0.228**	0.441**	1

Note: ** indicates a significant correlation at 0.01 level (bilateral)

Table S3 Significant difference value of each factor between fire point and non-fire point

	vegetation type	Elevation	Slope	2-m air temperature	Precipitation	10-m wind speed	distance from the road	distance from the settlement
sig	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table S4 The significance of factors in the sample group

Factor	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	the whole sample
vegetation type	+	+	+	+	+	+
Elevation	+	+	+	+	+	+
Slope	+	+	+	+	+	+
2-m air temperature	+	+	+	+	+	+
Precipitation	+	+	+	+	+	+
10-m wind speed	—	+	+	+	+	+
distance from the road	+	+	+	+	+	+
distance from the settlement	+	+	+	+	+	+

Note: "+" indicates significant; "—" indicates not significant.

Table S5 The 1990–2019 ENSO event

Start and end time (Year/Month)	Peak time (Year/Month)	Peak intensity	Months of duration
1991/05-1992/06	1992/01	1.9	14
1994/09-1995/03	1994/12	1.3	7

1997/04-1998/04	1997/11	2.7	13
2002/05-2003/03	2002/11	1.6	11
2004/07-2005/01	2004/09	0.8	7
2006/08-2007/01	2006/11	1.1	6
2009/06-2010/04	2009/12	1.7	11
2014/10-2016/04	2015/12	2.8	19
2018/09-2019/06	2018/11	1.0	10

Table S6 The 1990-2019 La Niña event

Start and end time (Year/Month)	Peak time (Year/Month)	Peak intensity	Months of duration
1995/09-1996/03	1995/11	− 0.9	7
1998/07-2000/06	2000/01	− 1.6	24
2000/10-2001/02	2000/12	− 0.8	5
2007/08-2008/05	2008/01	− 1.7	10
2010/06-2011/05	2010/12	− 1.6	12
2011/08-2012/03	2011/12	− 1.1	8
2017/10-2018/03	2018/01	− 0.8	6
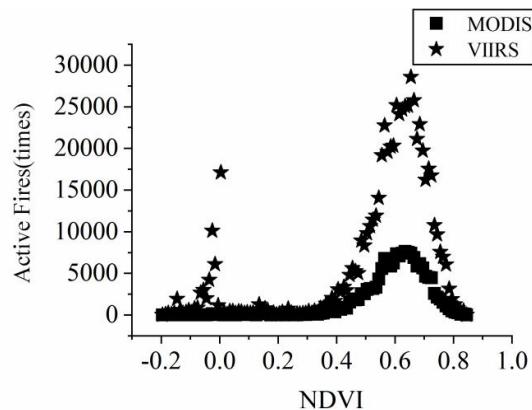
Figure S1 The relationship between NDVI and the number of active fires in the Arctic region
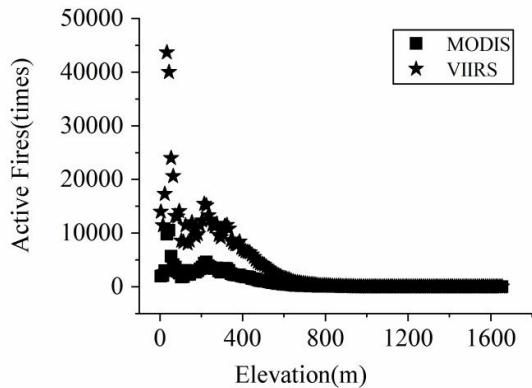
Figure S2 The relationship between elevation and the frequency of active fires in the Arctic region
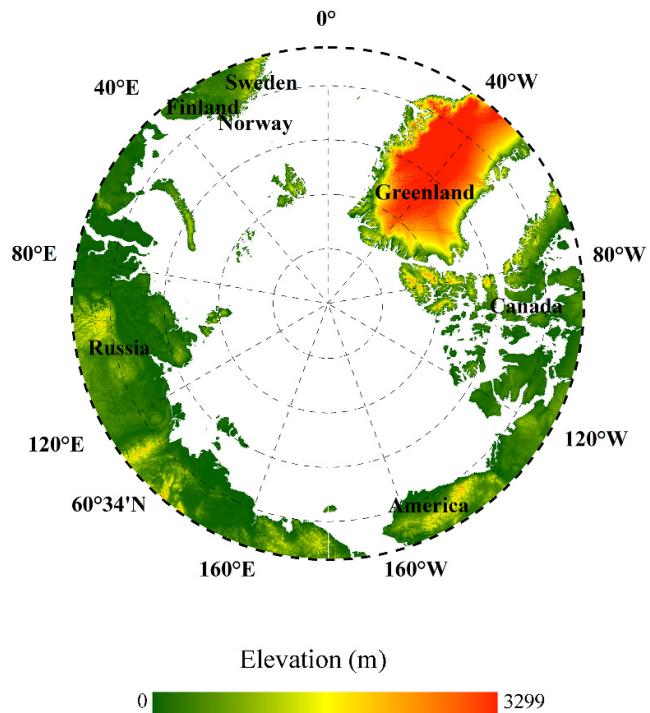
Figure S3 The elevation map in the Arctic region
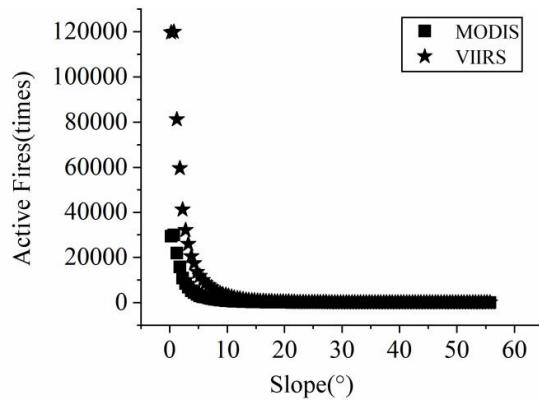
Figure S4 The relationship between slope and the number of active fires in the Arctic region
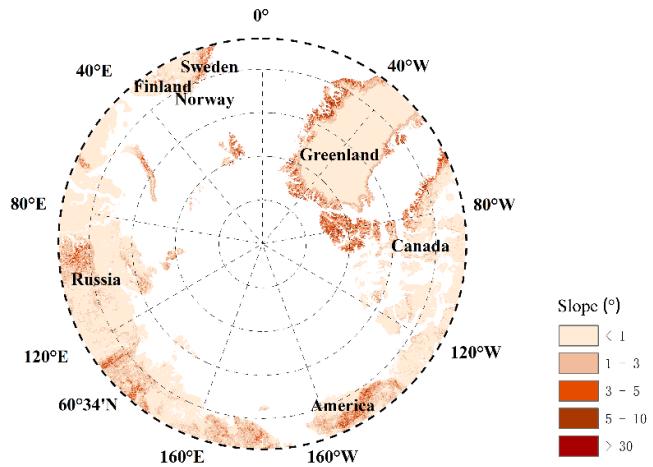
Figure S5 The slope map in the Arctic region
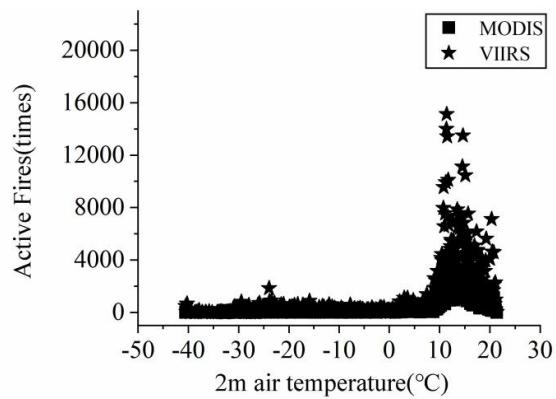
Figure S6 The relationship between 2-m temperature and the number of active fires in the
Arctic region
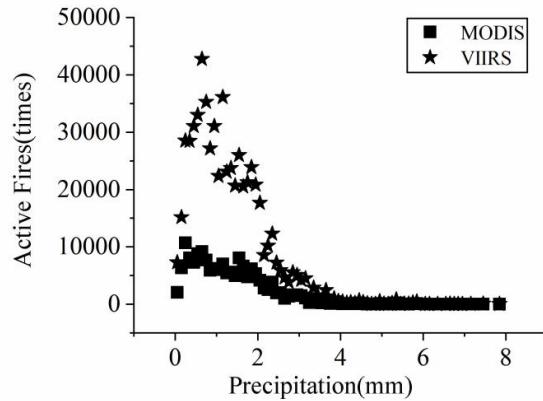
Figure S7 The relationship between precipitation and the number of active fires in the Arctic region
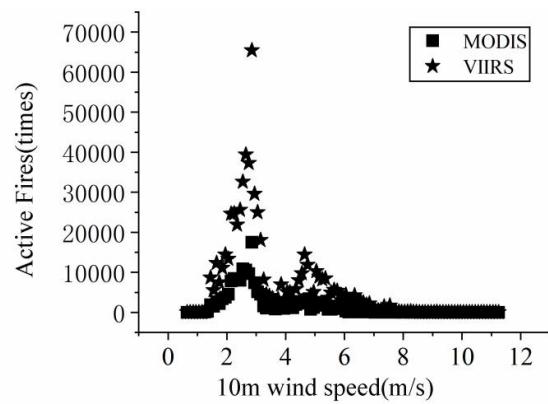

Figure S8 The relationship between 10-m windspeed and the number of active fires in the Arctic region
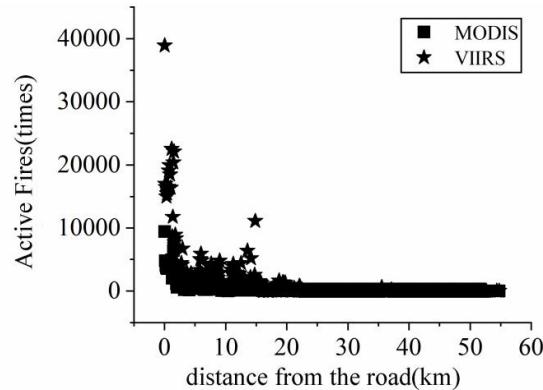

Figure S9 The relationship between the distance from roads and the number of active fires in the Arctic region
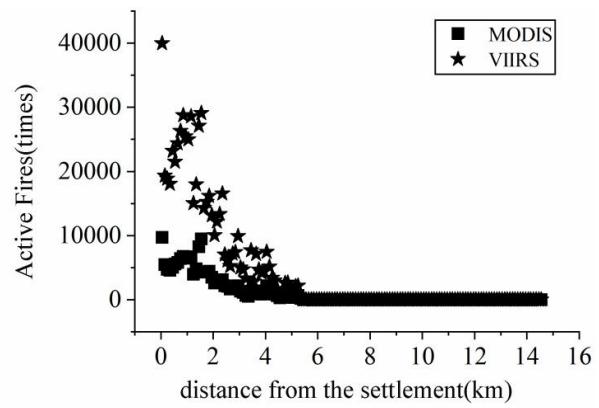
Figure S10 The relationship between the distance from residential settlements and the number of active fires in the Arctic region
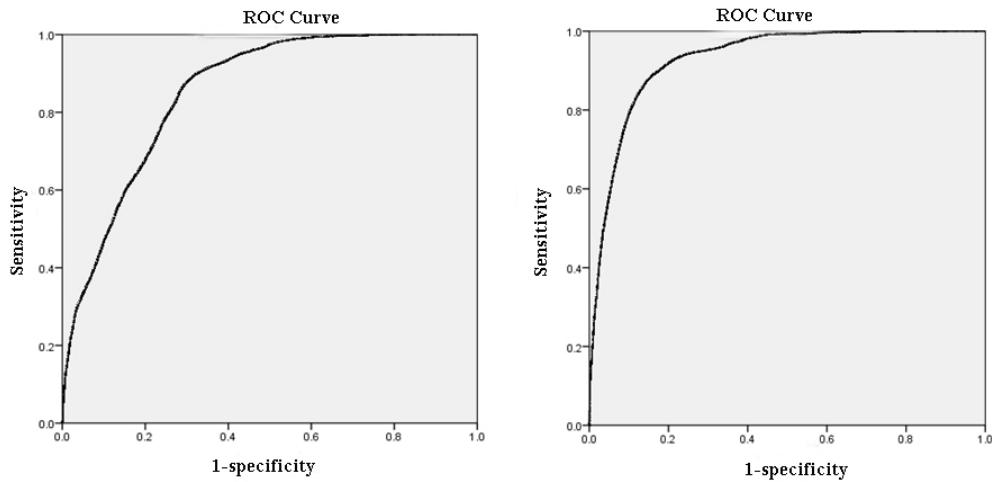
(a) ROC curve of sample data, (b) ROC curve of verification data

Figure S11 ROC curve