Analyse data daily-sea-ice-extent National Snow & Ice Data Center

In [1]:

```
# setup absolute path to location of package Starts and config-file
from inspect import getsourcefile
import os.path as path, sys
current_dir = path.dirname(path.abspath(getsourcefile(lambda:0)))
sys.path.insert(0, current_dir[:current_dir.rfind(path.sep)])

from Starts.startml import *
from Starts.startvis import *
from Starts.startspk import *
%matplotlib inline
```

```
local_kwargs {'data_path': './data/daily-sea-ice-extent-data/seaice.csv,
./data/nsidc_ice_extent.csv, ./data/north_ice_extent.csv, ./data/south_ice
_extent.csv, ./data/glacier-inventory/database.csv', 'drop_obj_col': Fals
e, 'nan_drop_col': False, 'nan_drop_row': False, 'nan_zero': False, 'nan_m
ean': True, 'nan_mean_neighbors': False}
```

In [2]:

```
ice = idata[0]
ice.head()
```

Out[2]:

	Year	Month	Day	Extent	Missing	Source Data	hemisph
0	1978	10	26	10.231	0.0	['ftp://sidads.colorado.edu/pub/DATASETS/nsidc...	nc
1	1978	10	28	10.420	0.0	['ftp://sidads.colorado.edu/pub/DATASETS/nsidc...	nc
2	1978	10	30	10.557	0.0	['ftp://sidads.colorado.edu/pub/DATASETS/nsidc...	nc
3	1978	11	1	10.670	0.0	['ftp://sidads.colorado.edu/pub/DATASETS/nsidc...	nc
4	1978	11	3	10.777	0.0	['ftp://sidads.colorado.edu/pub/DATASETS/nsidc...	nc

In [3]:

```
ice['Time'] = pd.to_datetime(dict(year=ice.Year, month=ice.Month, day=ice.Day))
```

In [4]:

```
StartML.convert_time_series(data=ice, time_column='Time').head()
```

Out[4]:

Time	Year	Month	Day	Extent	Missing	Source Data	hemi
1978-10-26	1978	10	26	10.231	0.0	['ftp://sidads.colorado.edu/pub/DATASETS/nsidc...	
1978-10-26	1978	10	26	17.624	0.0	['ftp://sidads.colorado.edu/pub/DATASETS/nsidc...	
1978-10-28	1978	10	28	10.420	0.0	['ftp://sidads.colorado.edu/pub/DATASETS/nsidc...	
1978-10-28	1978	10	28	17.803	0.0	['ftp://sidads.colorado.edu/pub/DATASETS/nsidc...	
1978-10-30	1978	10	30	10.557	0.0	['ftp://sidads.colorado.edu/pub/DATASETS/nsidc...	

In [5]:

```
nsidc_ice = ice[['Extent', 'hemisphere']]
nsidc_ice.head()
```

Out[5]:

Time	Extent	hemisphere
1978-10-26	10.231	north
1978-10-28	10.420	north
1978-10-30	10.557	north
1978-11-01	10.670	north
1978-11-03	10.777	north

In [6]:

```
north_ice = nsidc_ice[nsidc_ice['hemisphere']=='north']
north_ice.head()
```

Out[6]:

Time	Extent	hemisphere
1978-10-26	10.231	north
1978-10-28	10.420	north
1978-10-30	10.557	north
1978-11-01	10.670	north
1978-11-03	10.777	north

In [7]:

```
north_ice = north_ice.drop(['hemisphere'], axis=1)
north_ice.head()
```

Out[7]:

Time	Extent
1978-10-26	10.231
1978-10-28	10.420
1978-10-30	10.557
1978-11-01	10.670
1978-11-03	10.777

In [8]:

```
south_ice = nsidc_ice[nsidc_ice['hemisphere']=='south']
south_ice.head()
```

Out[8]:

Time	Extent	hemisphere
1978-10-26	17.624	south
1978-10-28	17.803	south
1978-10-30	17.670	south
1978-11-01	17.527	south
1978-11-03	17.486	south

In [9]:

```
south_ice = south_ice.drop(['hemisphere'], axis=1)
south_ice.head()
```

Out[9]:

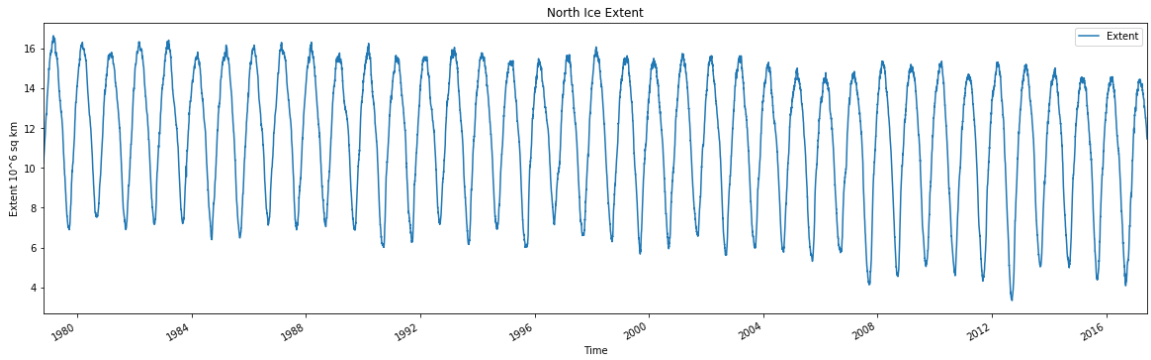
Time	Extent
1978-10-26	17.624
1978-10-28	17.803
1978-10-30	17.670
1978-11-01	17.527
1978-11-03	17.486

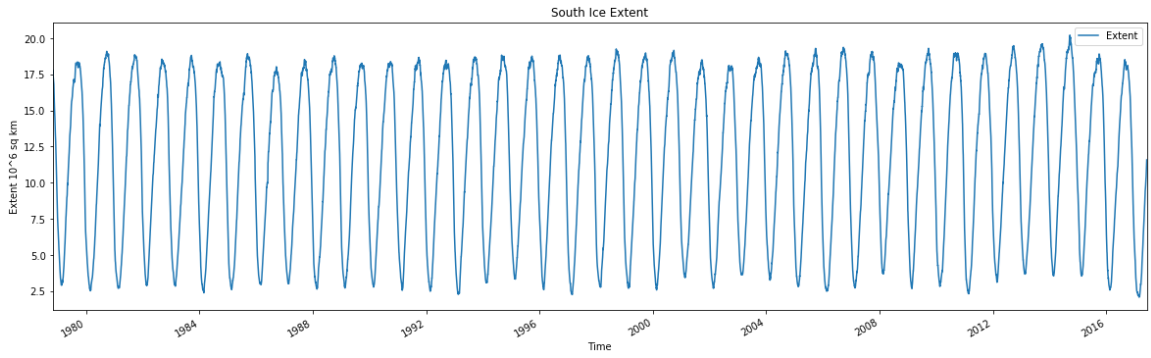
In [10]:

```
# Visual plot
north_ice.plot(figsize=(20,6), title='North Ice Extent')
plt.ylabel('Extent 10^6 sq km')
south_ice.plot(figsize=(20,6), title='South Ice Extent')
plt.ylabel('Extent 10^6 sq km')
```

Out[10]:

```
<matplotlib.text.Text at 0x7fb6199f55f8>
```



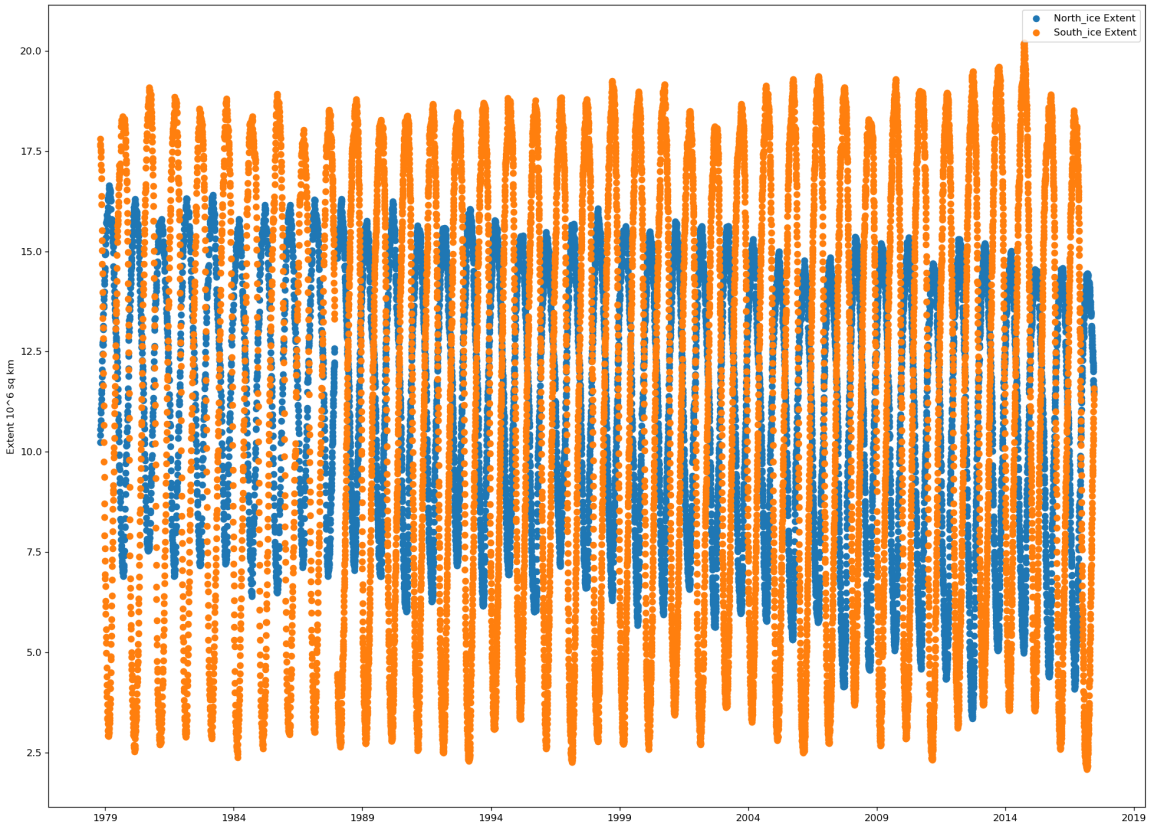


In [11]:

```
# Visual scatter
plt.figure(figsize=(20, 15), dpi=120)
plt.scatter(x=north_ice.index, y=north_ice.values, label='North_ice Extent')
plt.scatter(x=south_ice.index, y=south_ice.values, label='South_ice Extent')
plt.ylabel('Extent 10^6 sq km')
plt.legend()
```

Out[11]:

```
<matplotlib.legend.Legend at 0x7fb619847da0>
```



In [12]:

```
north_ice.to_csv('./data/north_ice_extent.csv', index=True)
south_ice.to_csv('./data/south_ice_extent.csv', index=True)
```

In [ ]:

```

```