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MOSAIK Strong-Wind Scenarios

```
In [1]: %matplotlib inline
from scenariotk import Scenario, diurnal_cycle, load_cosmo_data, plot_panel
from scenariotk import SCHOENEFELD, FUHLBUETTEL, ECHTERDINGEN
```

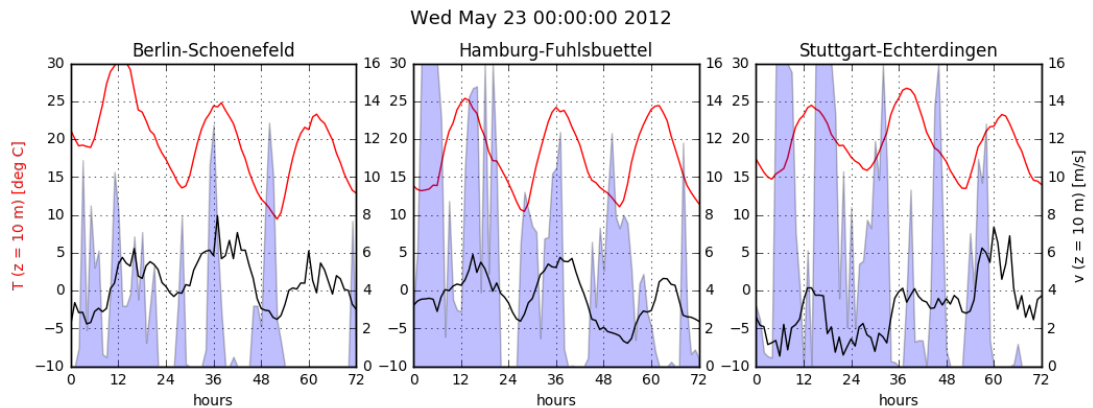
```
In [2]: # Create list of the democities (i.e. list of objects providing the respective coordinates)
democities = [SCHOENEFELD, FUHLBUETTEL, ECHTERDINGEN]
```

```
# Create scenarios
may2012 = Scenario('2012052300', '2012052600', \
                  '/data/ekadasch/scenario-data/wind/20120523')
may2016 = Scenario('2016050700', '2016051100', \
                  '/data/ekadasch/scenario-data/wind/20160507')
```

```
Scenario [2012052300 - 2012052600] created successfully
Scenario [2016050700 - 2016051100] created successfully
```

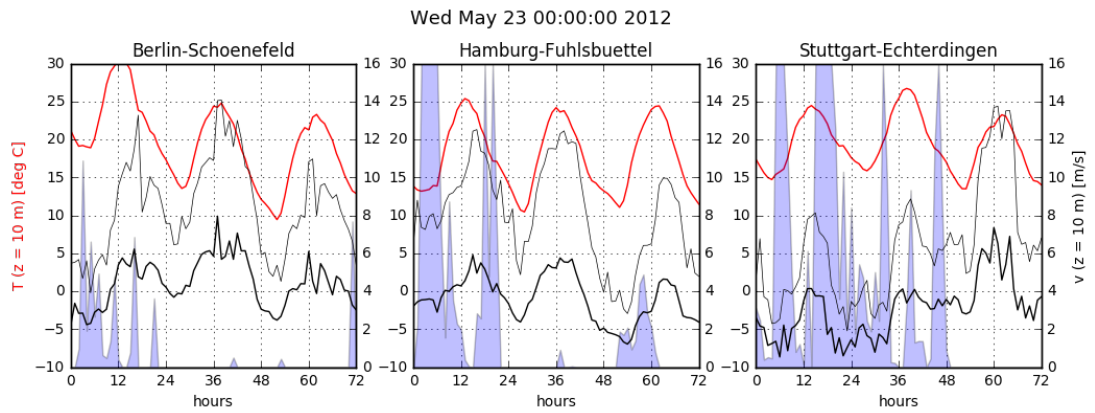
23rd - 25th May 2012

```
In [3]: diurnal_cycle(may2012, democities);
```



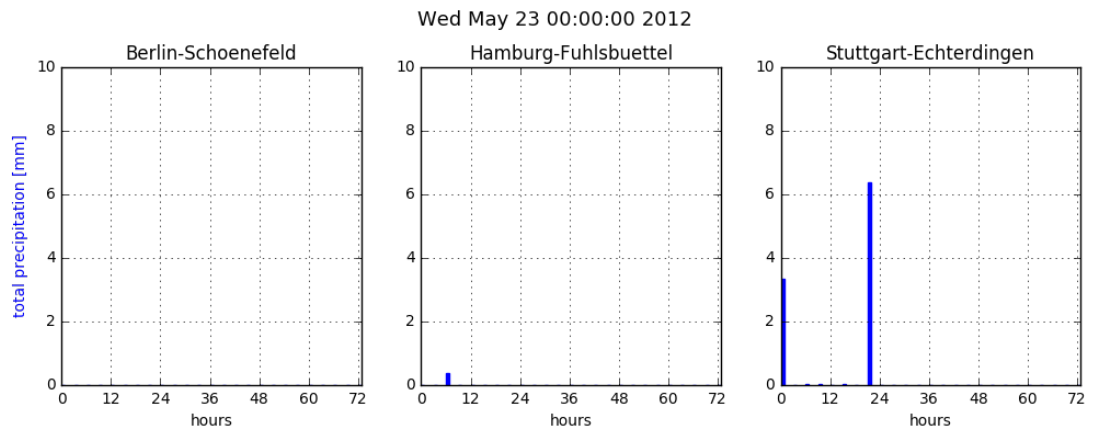
Legend: 2m temperature (red), 10m instantaneous wind (black), and total cloud cover (blue shading)

```
In [4]: diurnal_cycle(may2012, democities, plot_vmax=True, low_and_medium_clc=True);
```

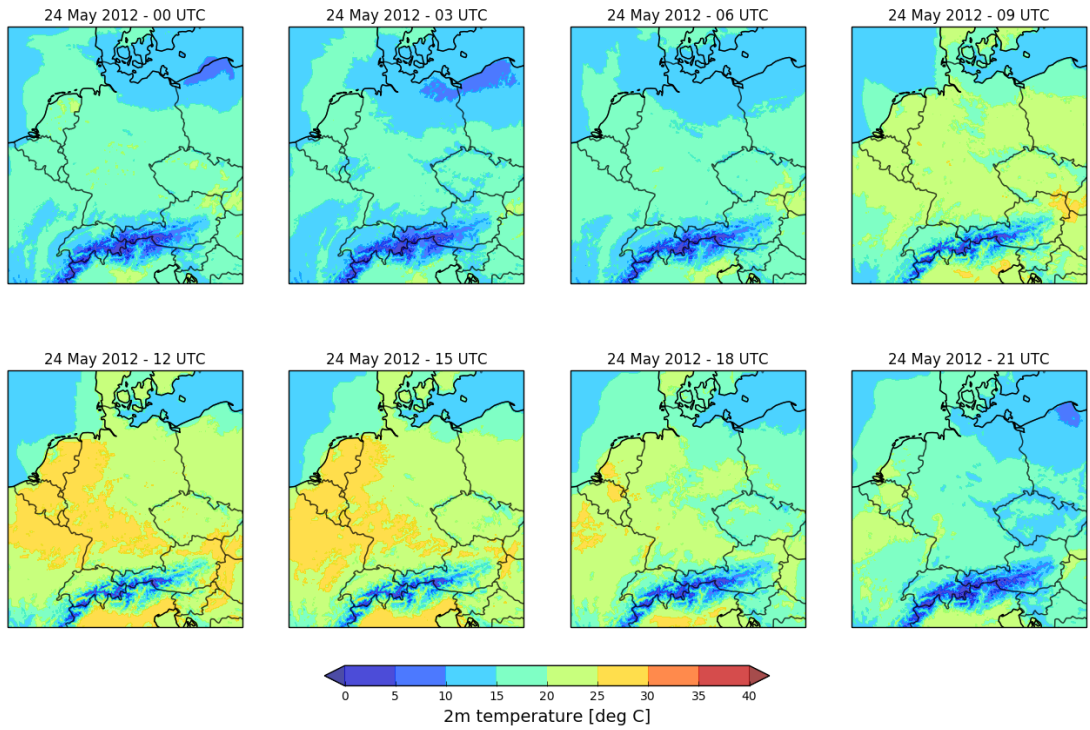


Legend: As above but with the maximum of low and medium cloud cover (blue shading) and 1h gusts (thin black lines)

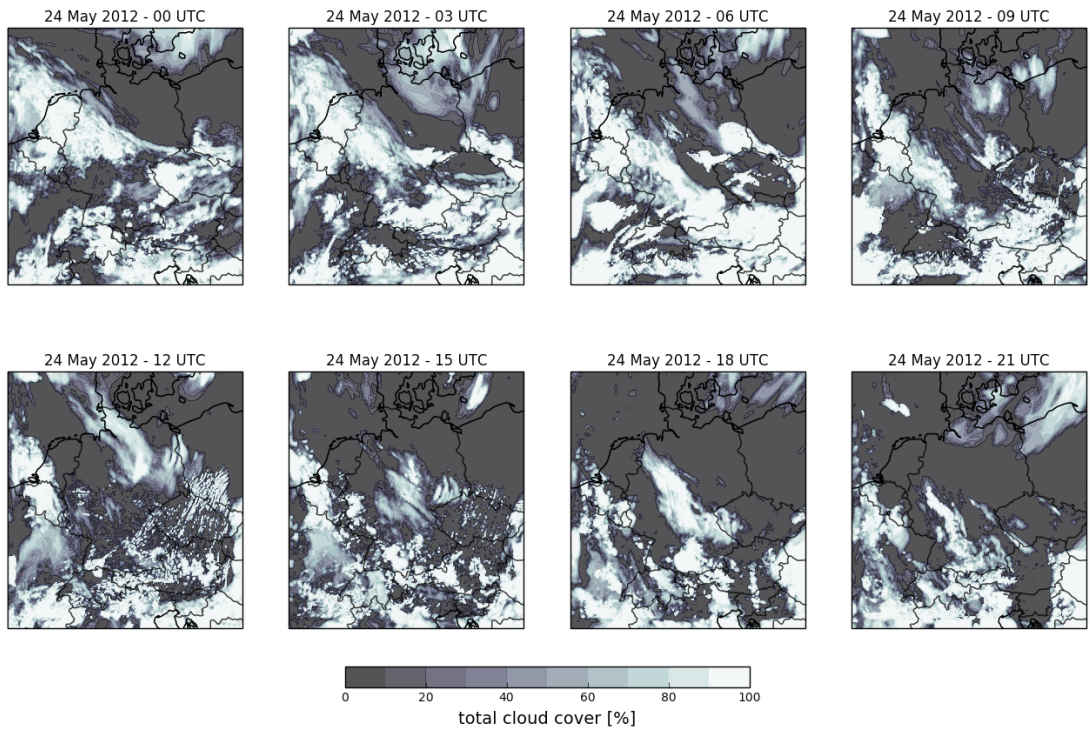
```
In [5]: diurnal_cycle(may2012, democities, only_precip=True);
```



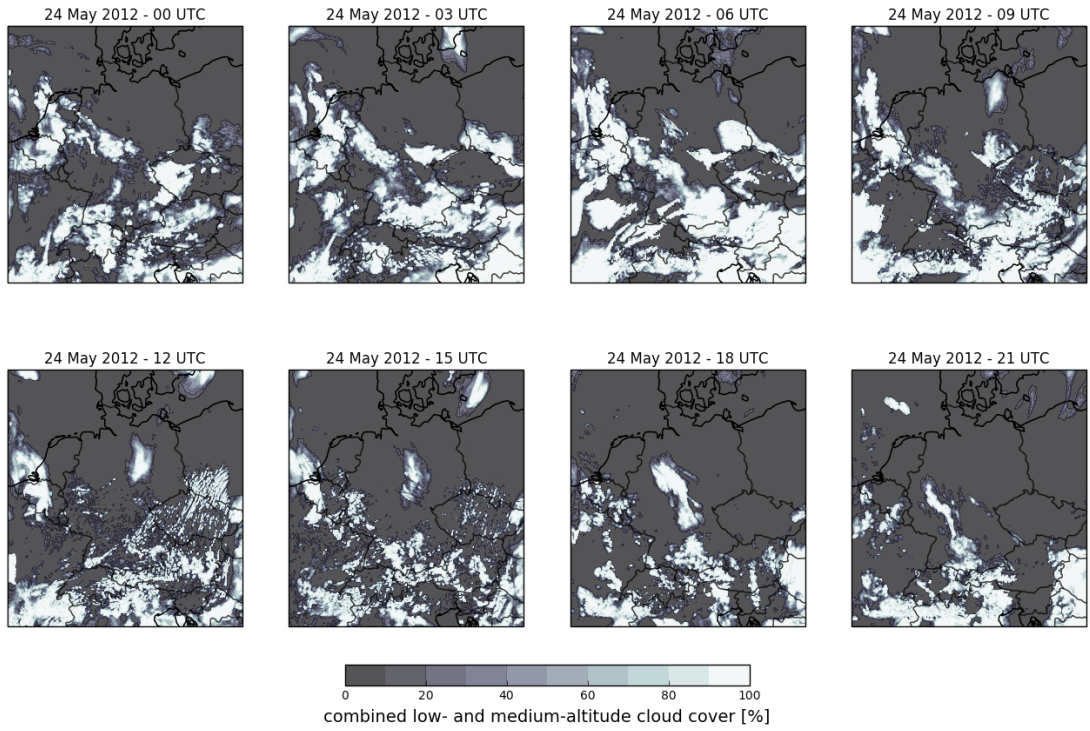
```
In [6]: cosmo_data_package = load_cosmo_data(may2012)  
plot_panel(cosmo_data_package, var='t2m', start=24, end=48)
```



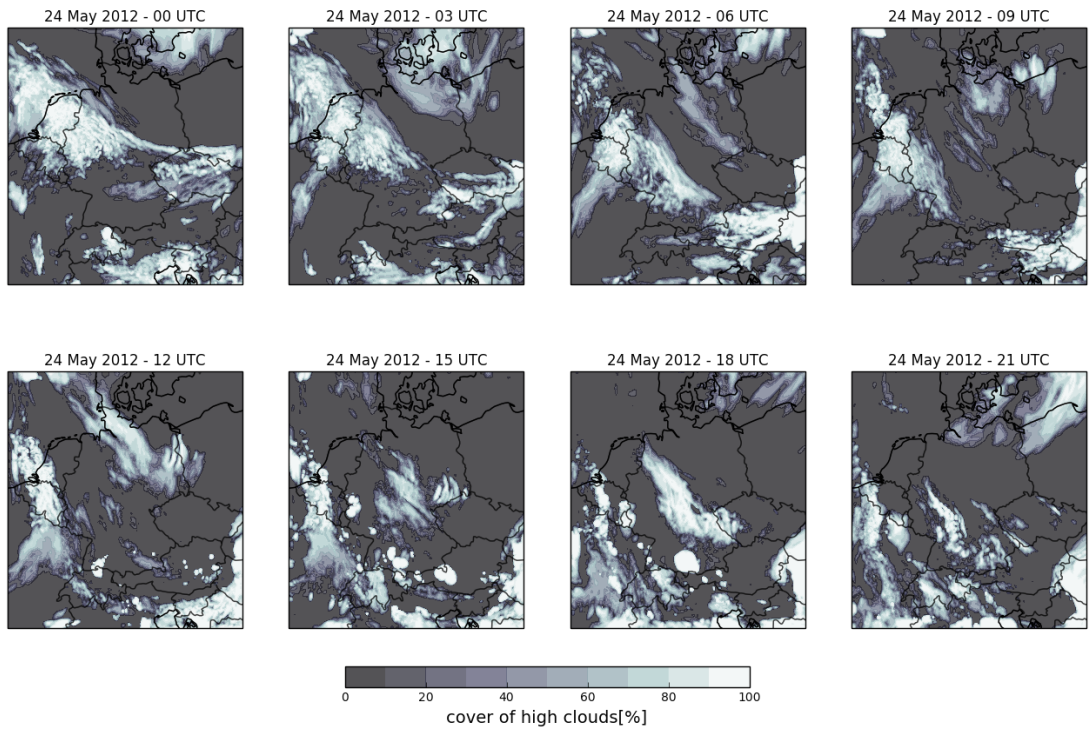
```
In [7]: plot_panel(cosmo_data_package, var='clct', start=24, end=48)
```



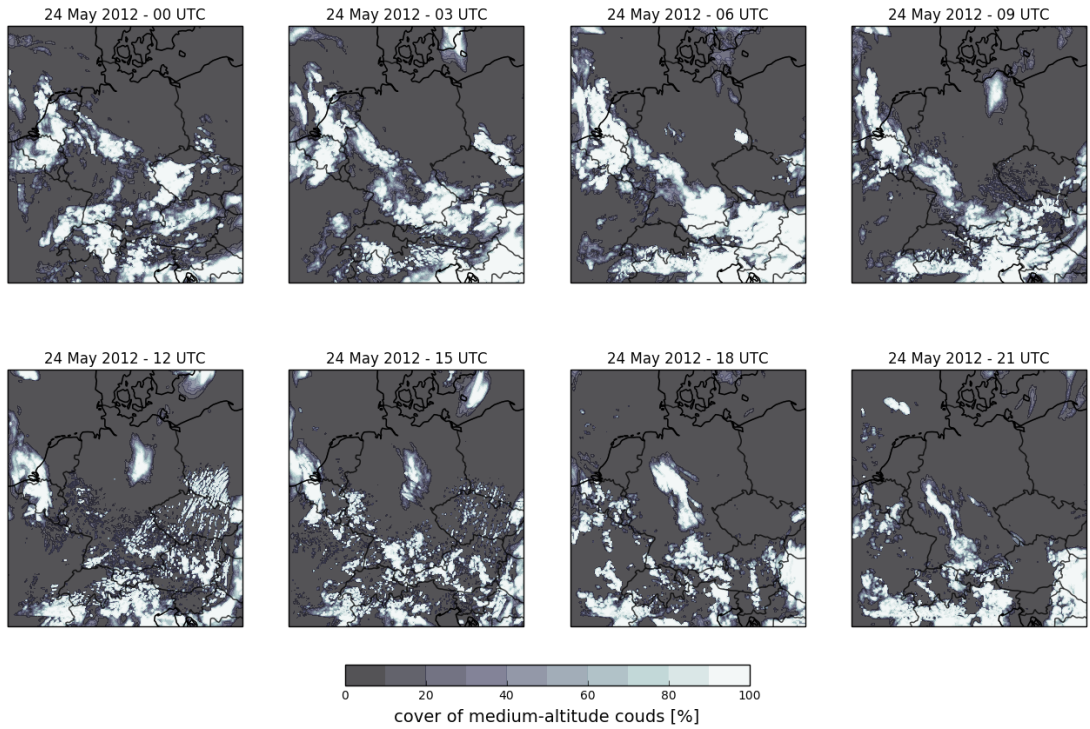
```
In [8]: plot_panel(cosmo_data_package, var='clcc', start=24, end=48)
```



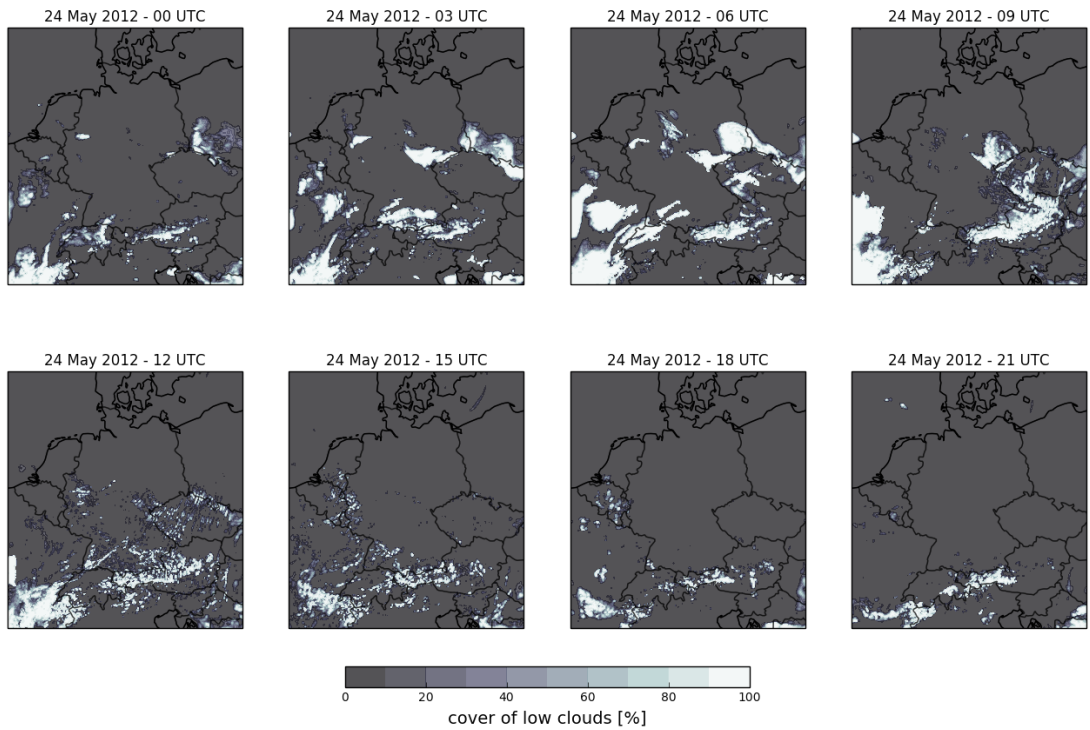
```
In [9]: plot_panel(cosmo_data_package, var='clch', start=24, end=48)
```



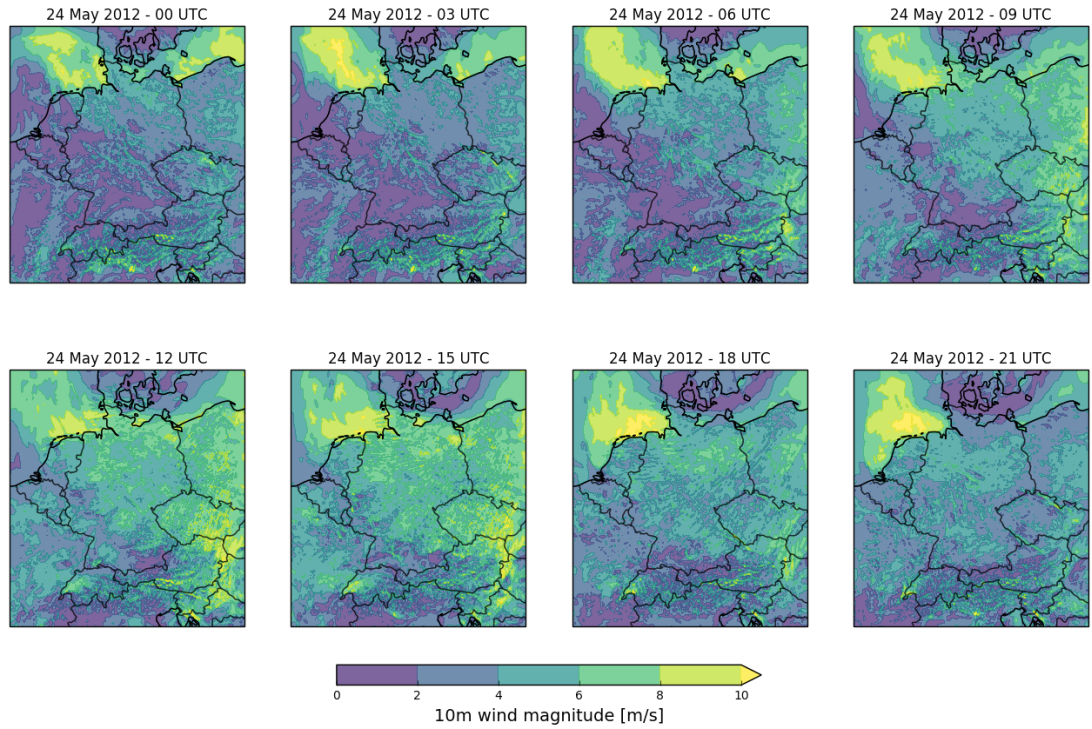
```
In [10]: plot_panel(cosmo_data_package, var='clcm', start=24, end=48)
```



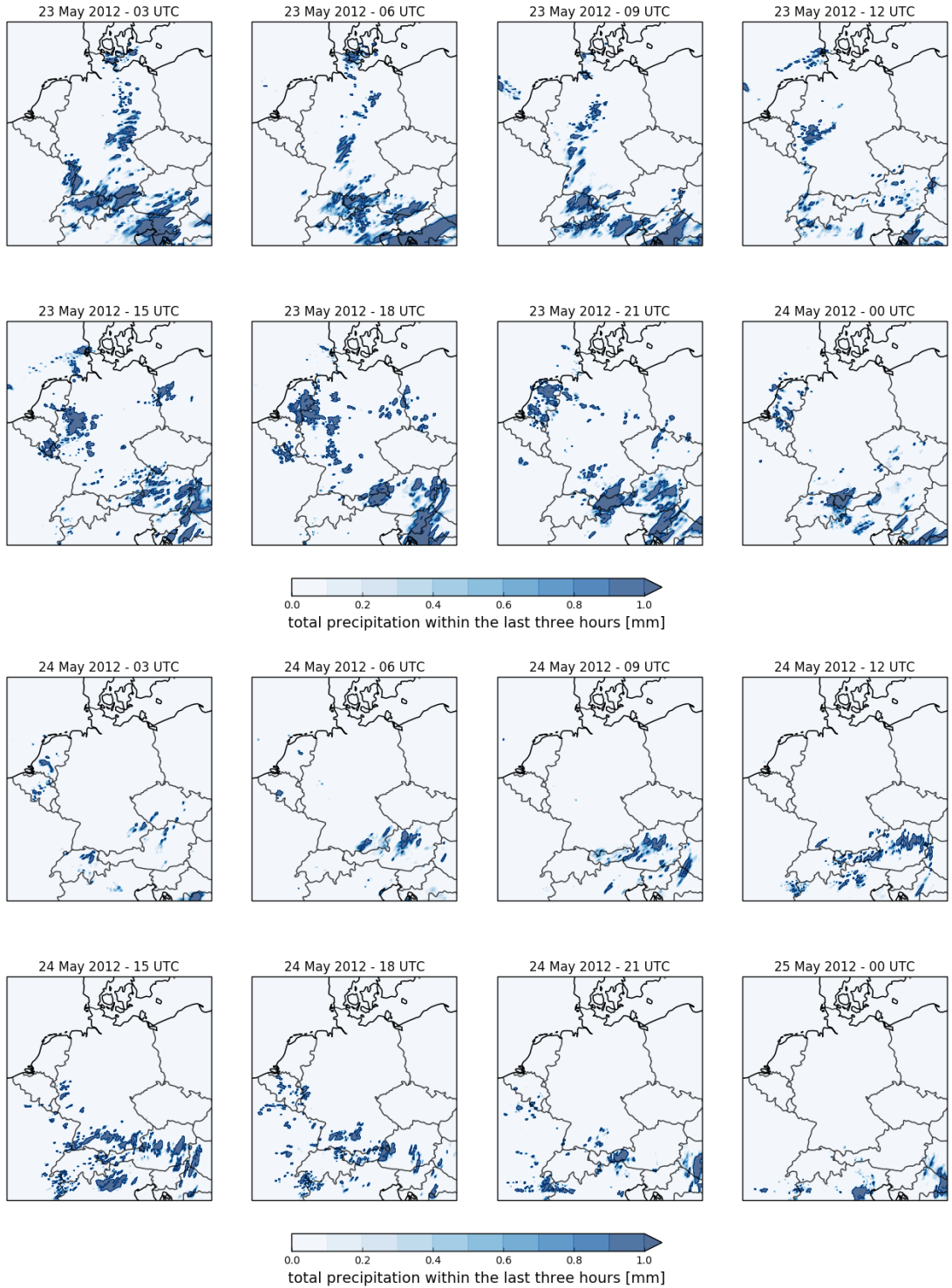
```
In [11]: plot_panel(cosmo_data_package, var='clcl', start=24, end=48)
```

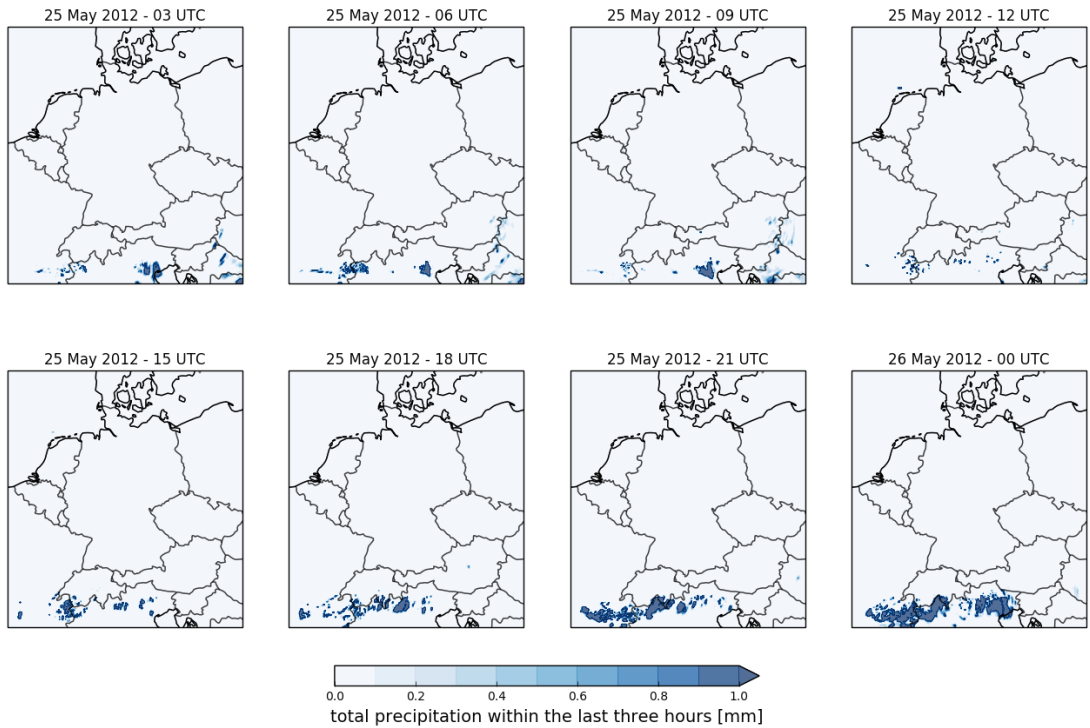


```
In [12]: plot_panel(cosmo_data_package, var='v 10m', start=24, end=48)
```



```
In [13]: for start in (0+3, 24+3, 48+3):  
         plot_panel(cosmo_data_package, var='tot_prec', start=start, end=start +  
         24)
```

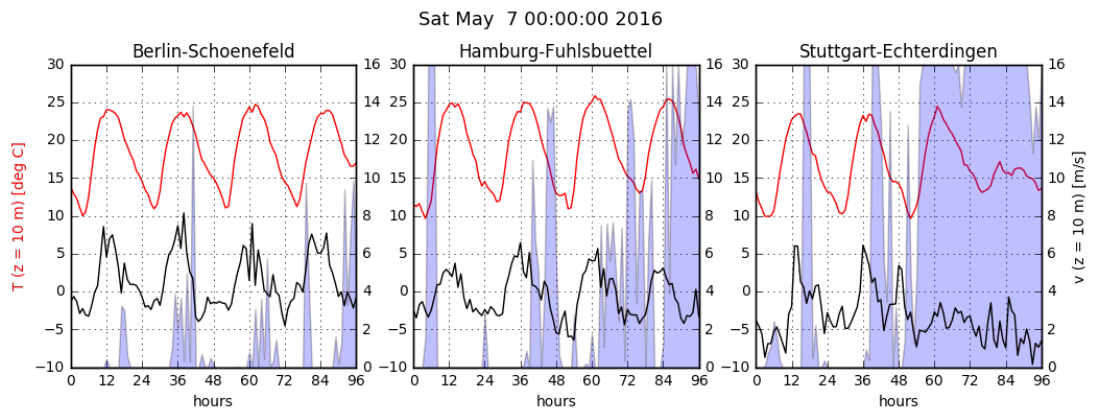




7th - 9th May 2016

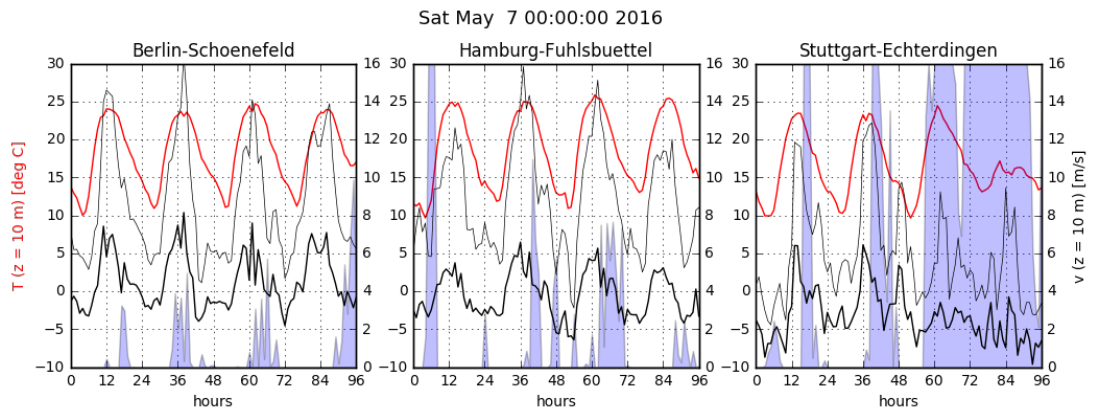
On May 8th, power prices in Germany dropped below zero (https://www.energy-charts.de/price_de.htm?year=2016&auction=1h&month=5), due to strong electricity generation of wind and solar.

```
In [14]: diurnal_cycle(may2016, democities);
```



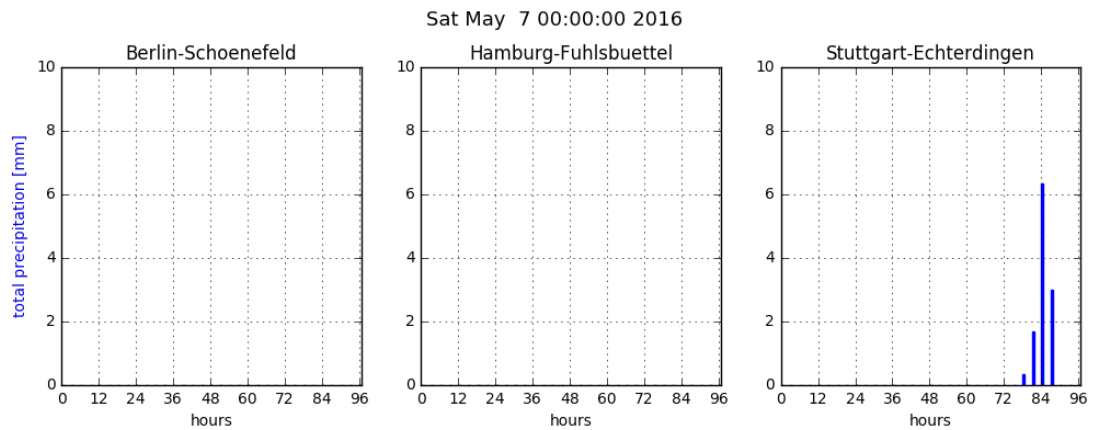
Legend: 2m temperature (red), 10m instantaneous wind (black), and total cloud cover (blue shading)

```
In [15]: diurnal_cycle(may2016, democities, plot_vmax=True, low_and_medium_clc=True);
```

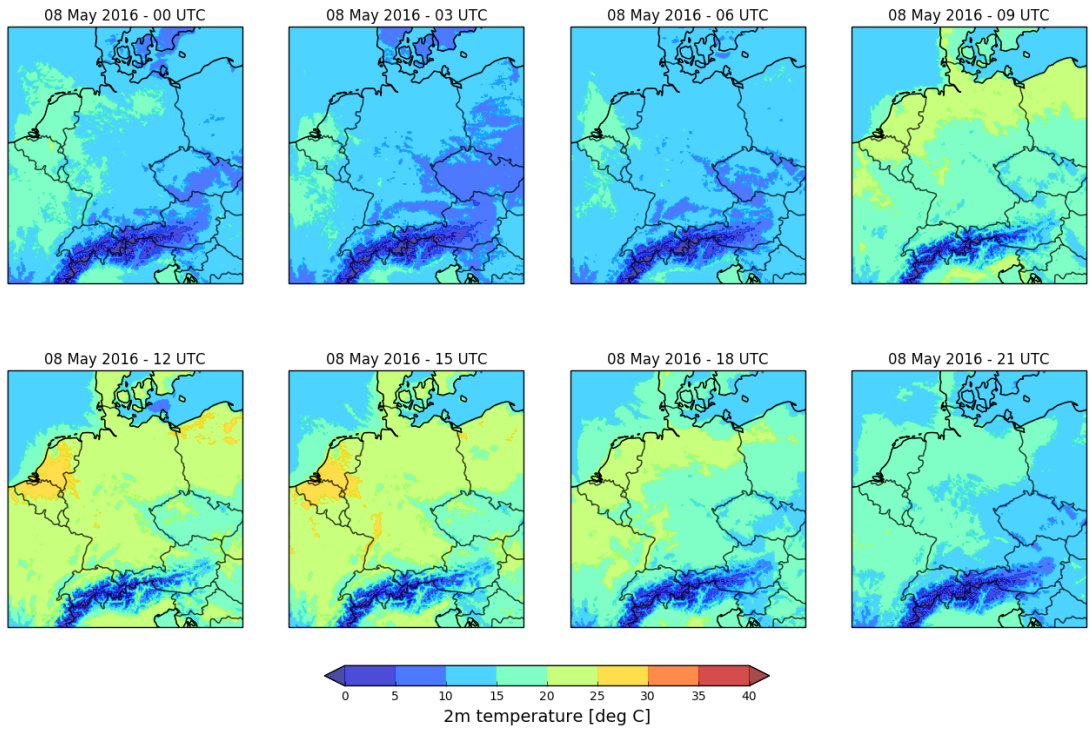


Legend: As above but with the maximum of low and medium cloud cover (blue shading) and 1h gusts (thin black lines)

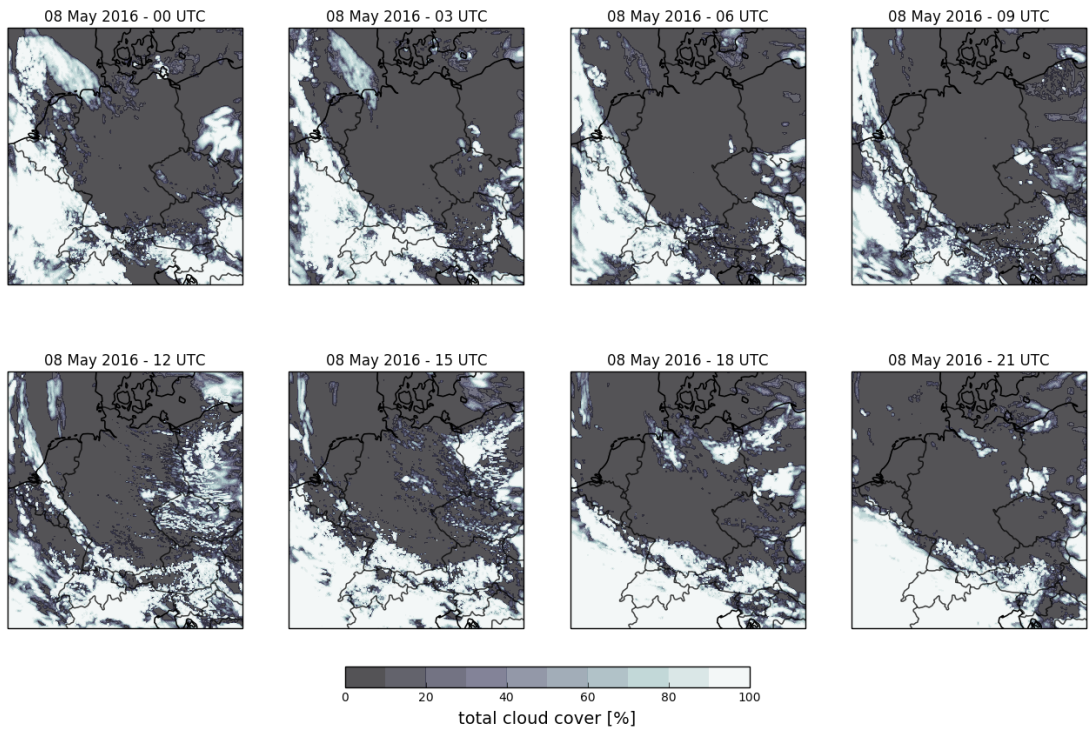
```
In [16]: diurnal_cycle(may2016, democities, only_precip=True);
```



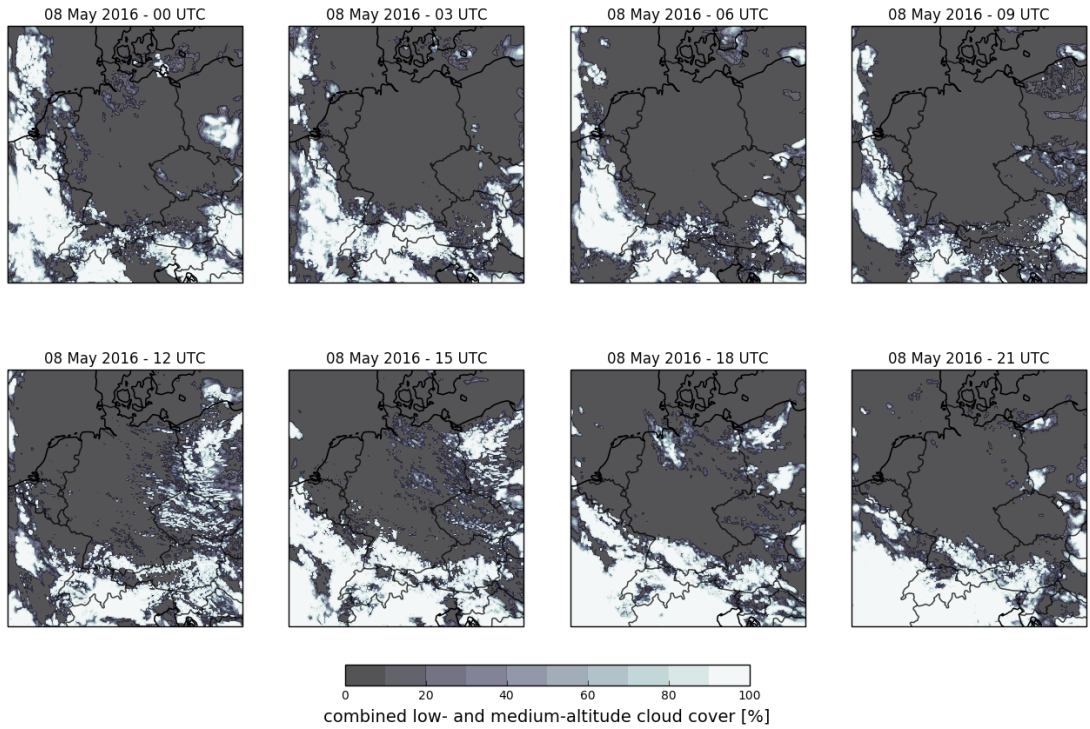
```
In [17]: cosmo_data_package = load_cosmo_data(may2016)  
plot_panel(cosmo_data_package, var='t2m', start=24, end=48)
```



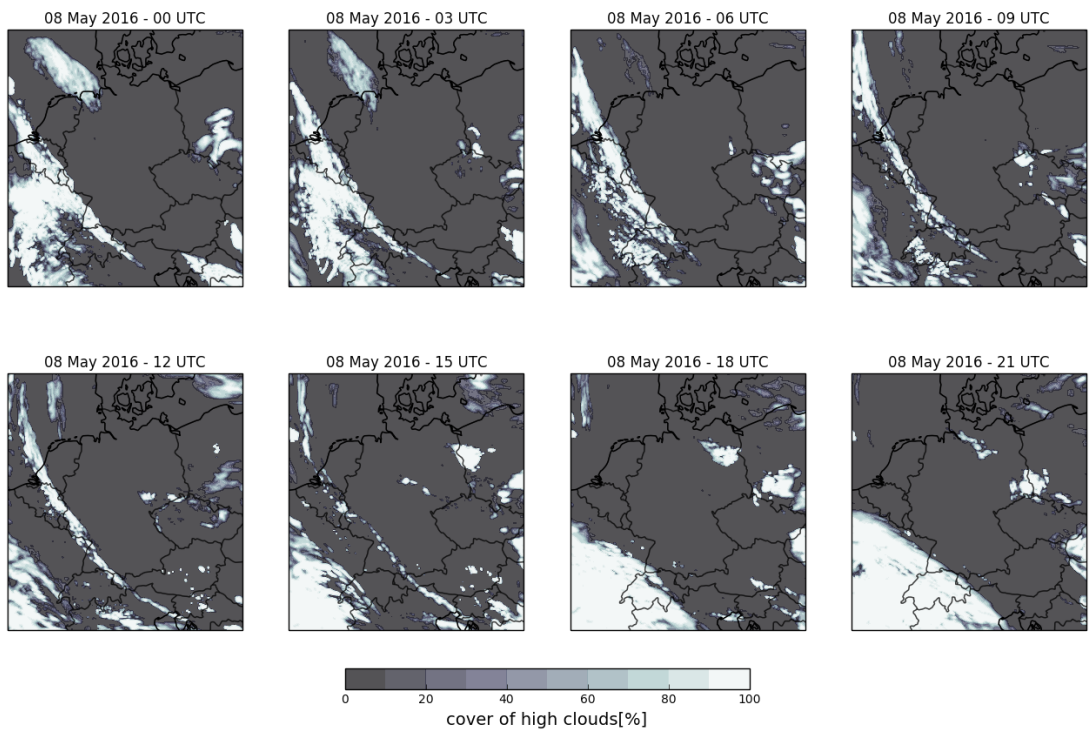
```
In [18]: plot_panel(cosmo_data_package, var='clct', start=24, end=48)
```



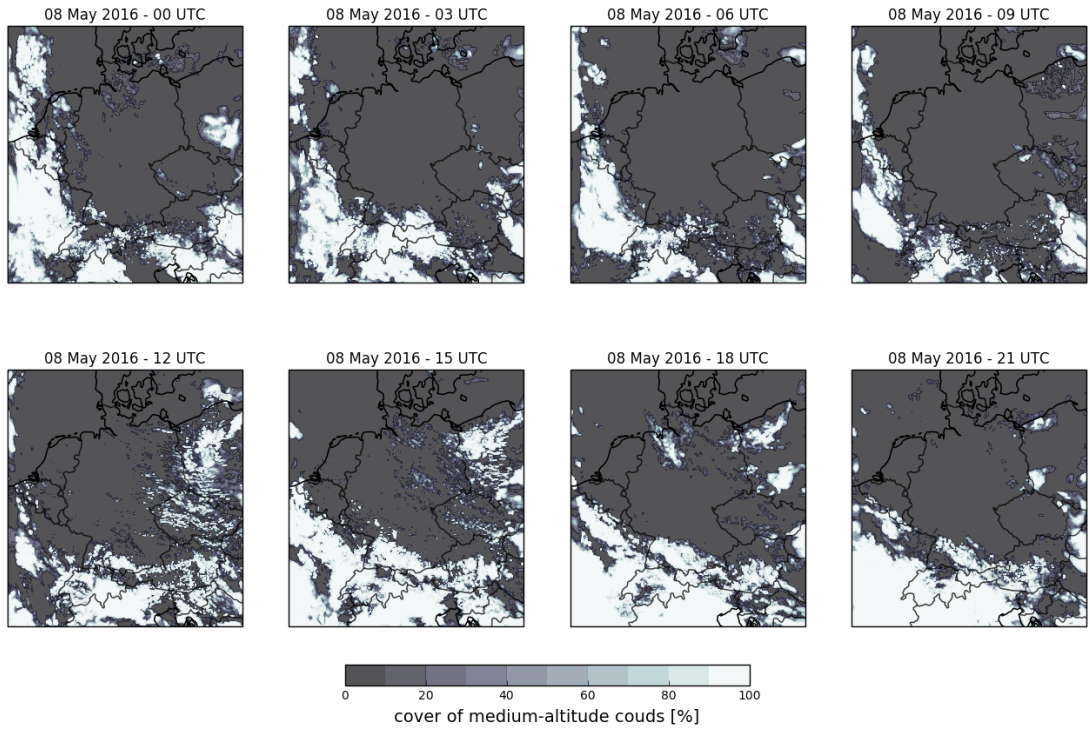
```
In [19]: plot_panel(cosmo_data_package, var='clcc', start=24, end=48)
```



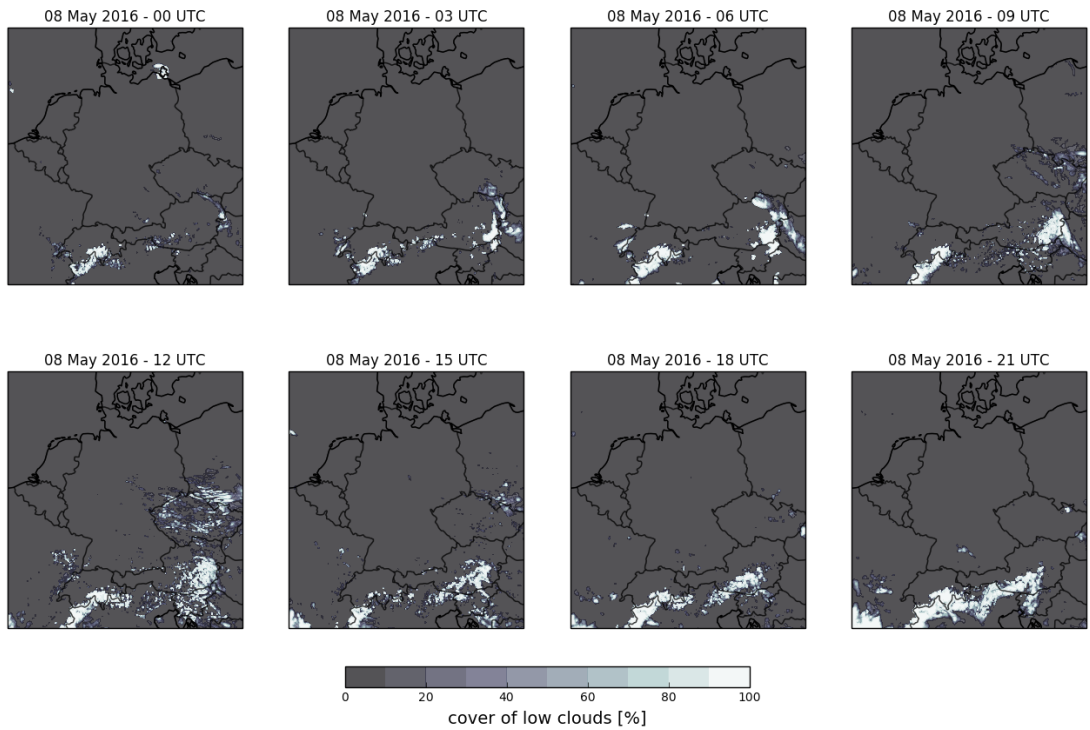
```
In [20]: plot_panel(cosmo_data_package, var='clch', start=24, end=48)
```



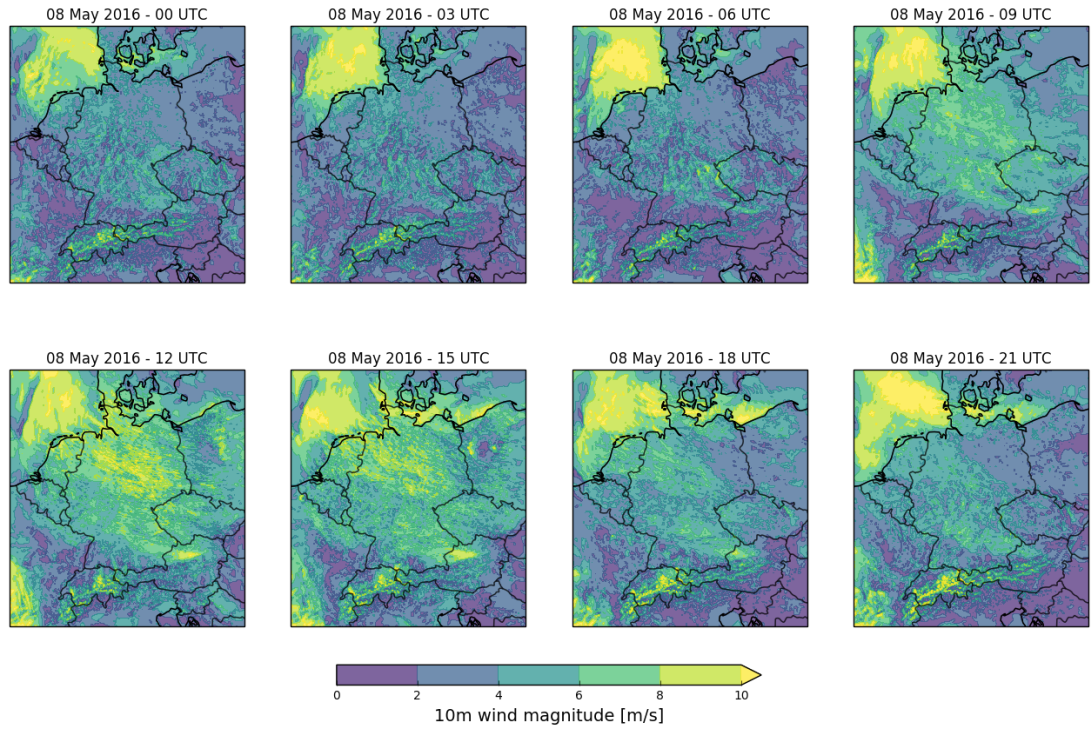
```
In [21]: plot_panel(cosmo_data_package, var='clcm', start=24, end=48)
```



```
In [22]: plot_panel(cosmo_data_package, var='clcl', start=24, end=48)
```



```
In [23]: plot_panel(cosmo_data_package, var='v 10m', start=24, end=48)
```



```
In [24]: for start in (0+3, 24+3, 48+3):  
         plot_panel(cosmo_data_package, var='tot_prec', start=start, end=start +  
         24)
```

