Grads Lab report

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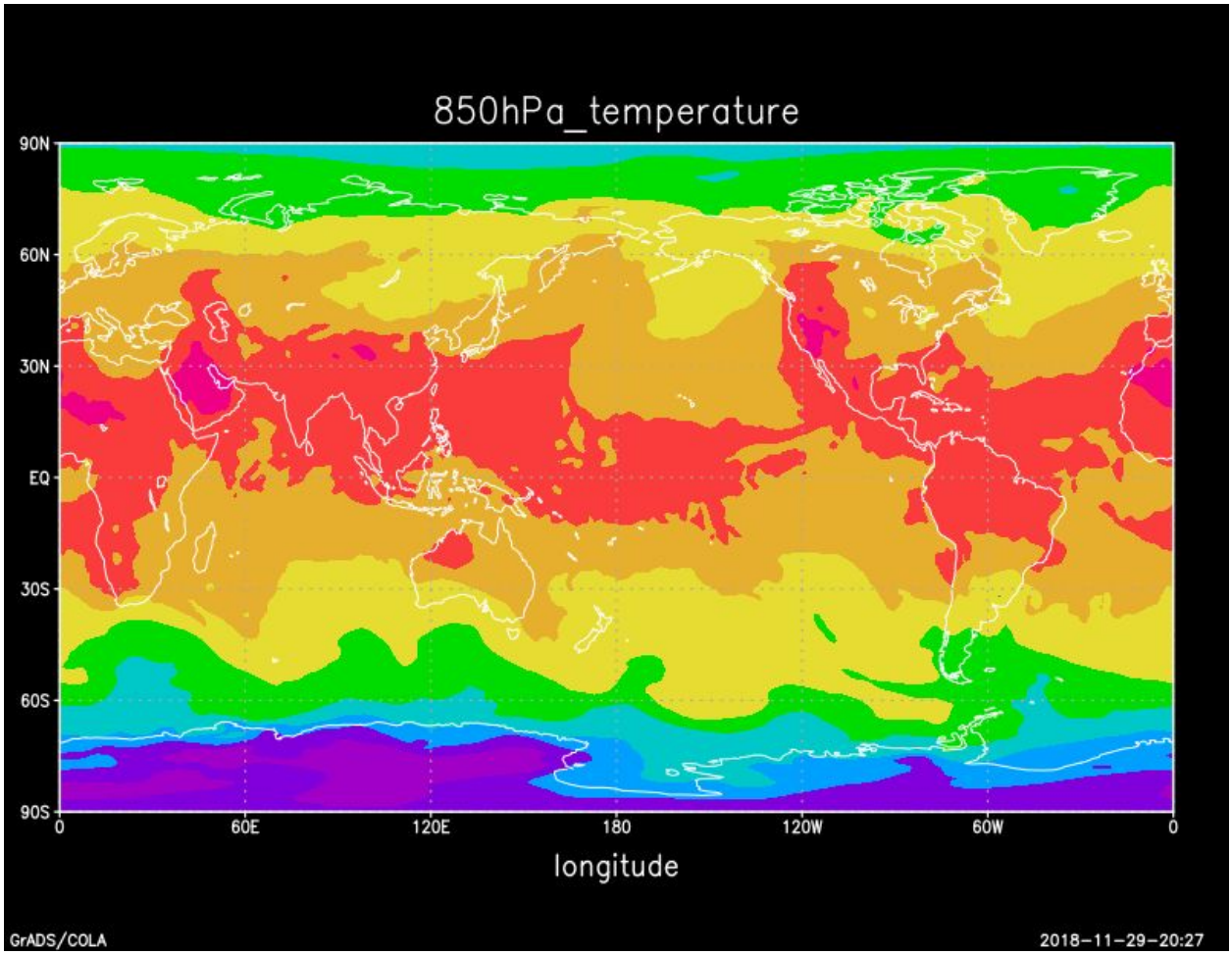
- SC15B148

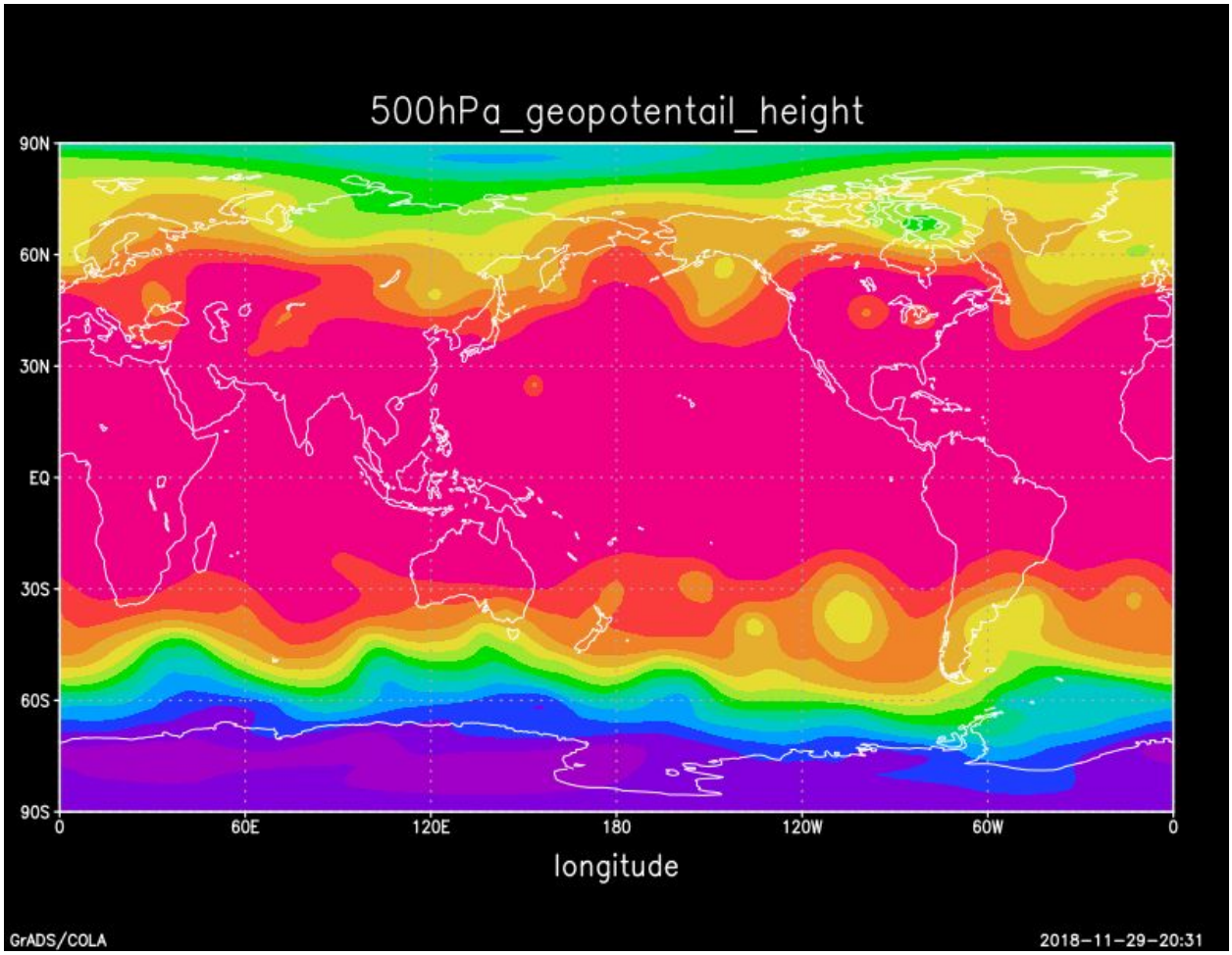


Code:

```
'c'
'open fnl_060903_00_00.ctl'
'set lev 850'
'set lat -90 90'
'set lon 0 360'
'set gxout shaded'
'd tmpprs'
'cbar'
'draw title 850hPa_temperature'
'draw ylab latitude'
'draw xlab longitude'
'gxprint 850hPa_temp.png'
```

Inference:

Temperature is higher near equator and decreases towards poles.

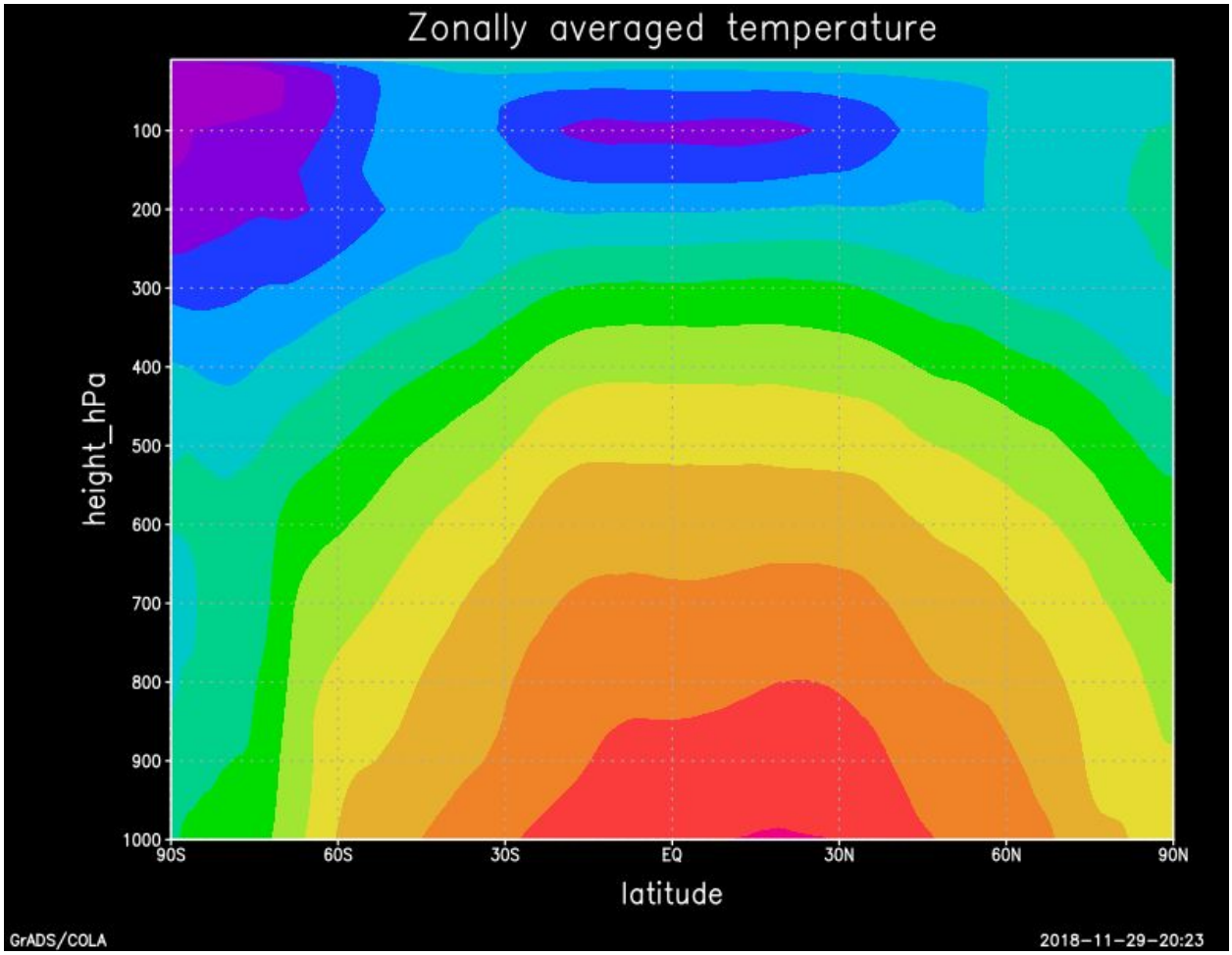


Code:

```
'c'
'open fnl_060903_00_00.ctl'
'set lev 500'
'set lat -90 90'
'set lon 0 360'
'set gxout shaded'
'd hgtprs'
'draw title 500hPa_geopotentail_height'
'draw ylab latitude'
'draw xlab longitude'
'gxprint 500hPa_geopotential_height.png'
```

Inference:

The geopotential height of 500hPa surface is higher at tropics and decreases towards the poles because the temperature is decreasing polewards.

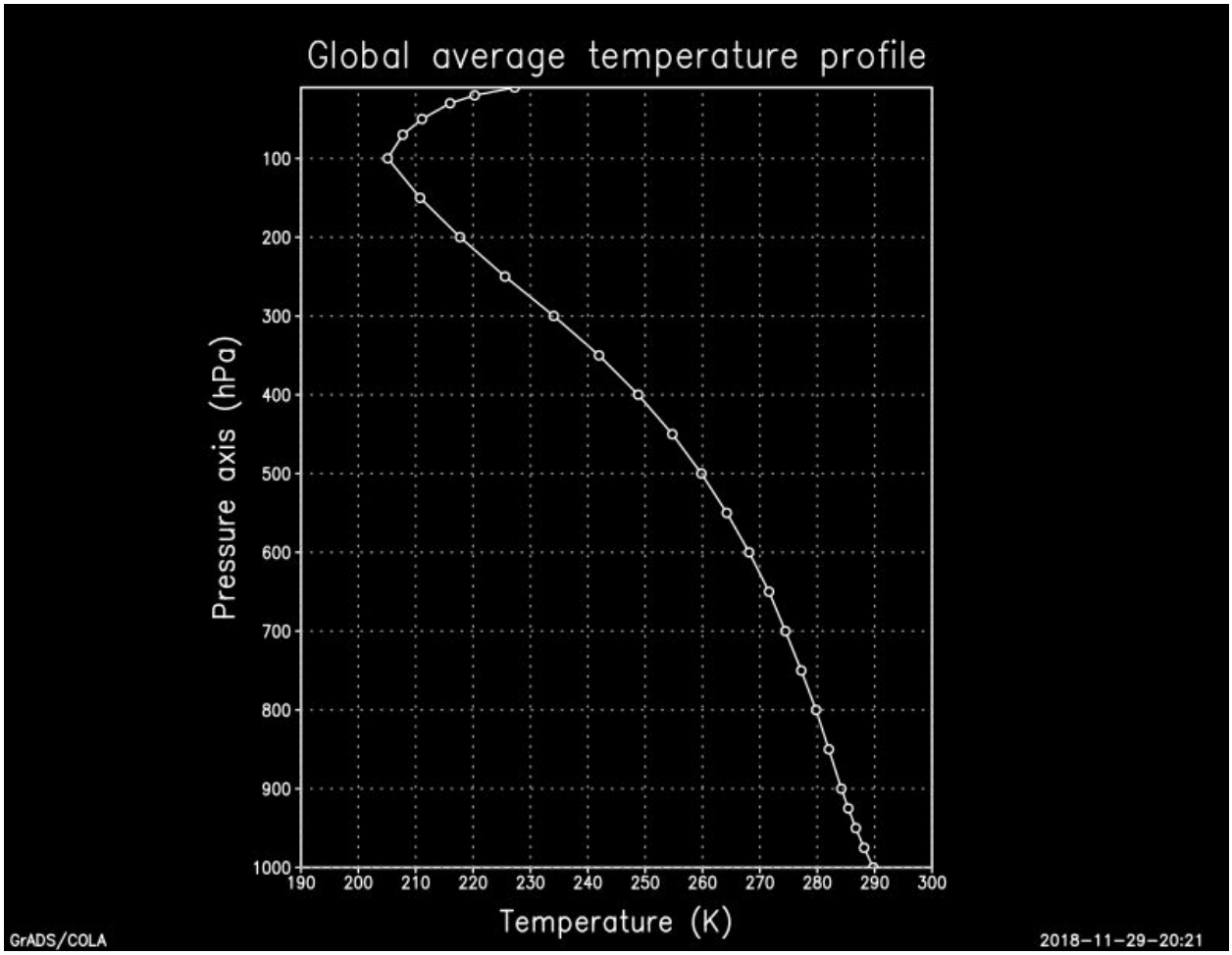


Code:

```
'c'
'open fnl_060903_00_00.ctl'
'set lev 1000 10'
'set lat -90 90'
'set lon 90'
'set gxout shaded'
'd ave(tmpprs,lon=0,lon=360)'
'draw title Zonally averaged temperature'
'draw xlab latitude'
'draw ylab height_hPa'
'gxprint zonal_avg_temp.png'
```

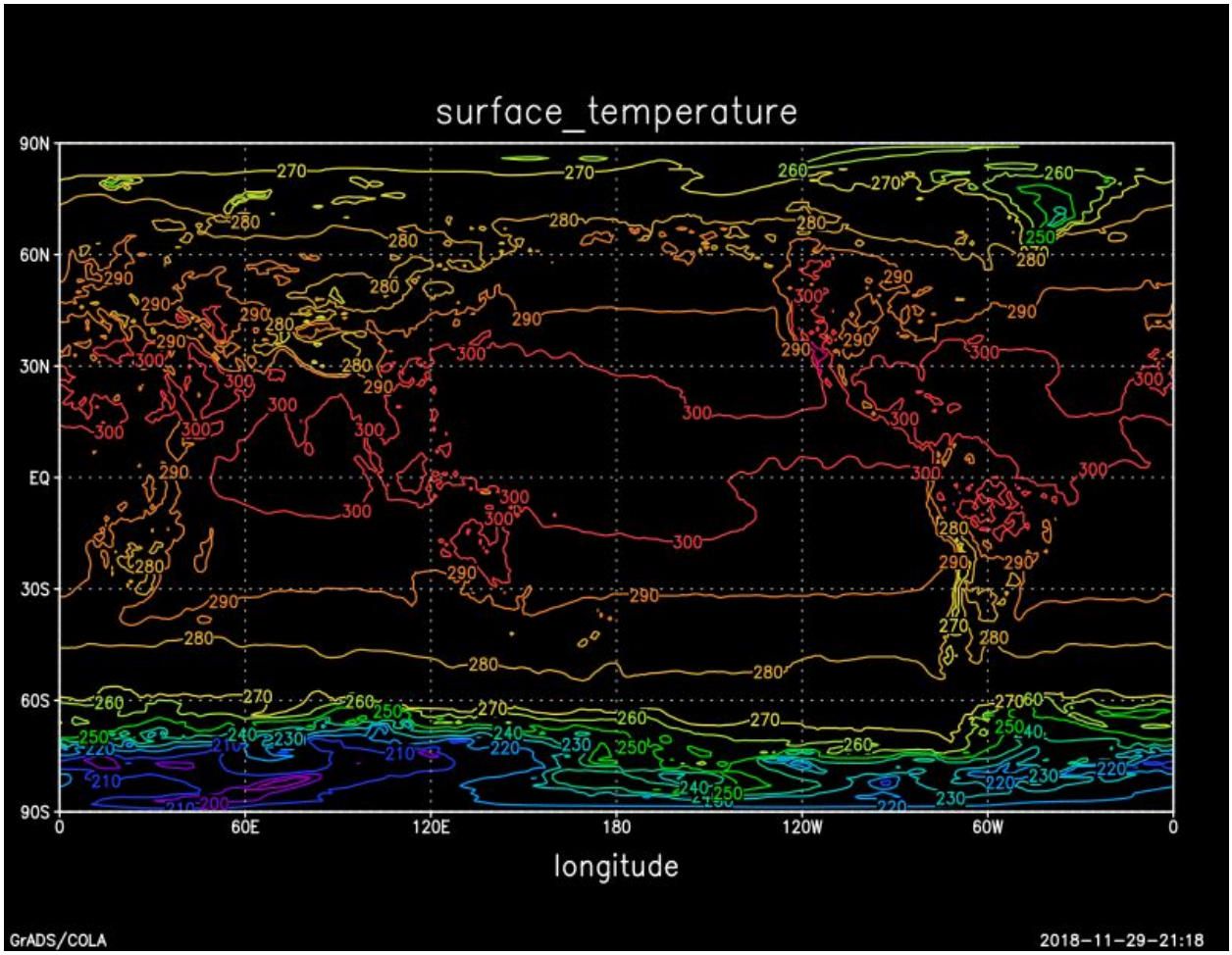
Inference:

The temperature is higher in the tropics and reduces towards the poles.



Code:

```
'c'
'open fnl_060903_00_00.ctl'
'set lev 1000 10'
'set lat 0'
'set lon 90'
'myvar = ave(ave(tmpprs,lat=-90,lat=90),lon=0,lon=360)'
'd myvar'
'draw xlab Temperature (K)'
'draw ylab Pressure axis (hPa)'
'draw title Global average temperature profile'
'gxprint temp_profile.png'
```

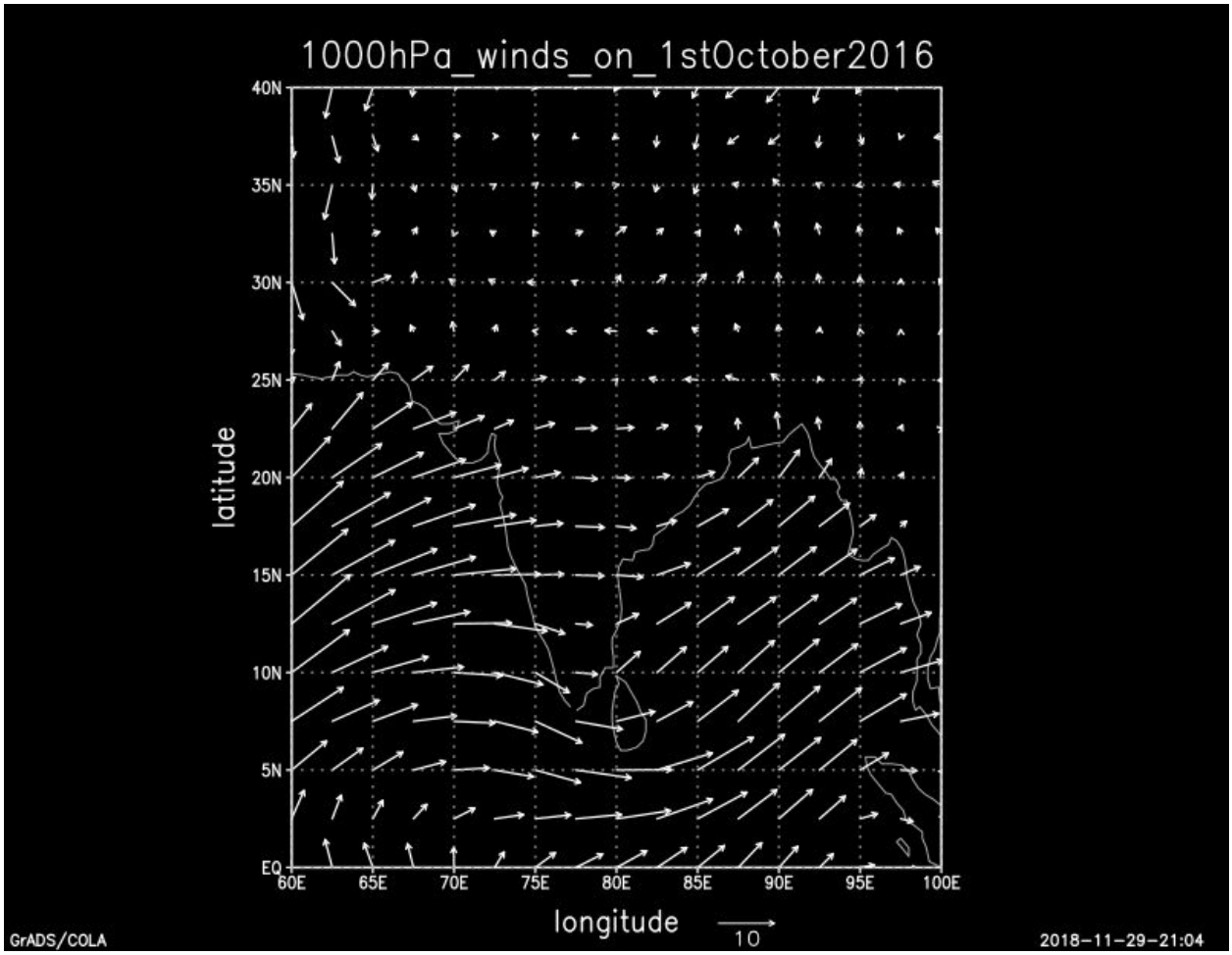


Code:

```
'c'
'open fnl_060903_00_00.ctl'
'set lat -90 90'
'set lon 0 360'
'set mpdraw off'
'd tmpsfc'
'draw title surface_temperature'
'draw xlab longitude'
'draw ylab latitude'
'gxprint surface_temp.png'
```

Inference:

To find the borders of continents, surface temperature contours can be used. There exists a land sea temperature gradient and this gradient will be shown as a contour line in a contour plot.

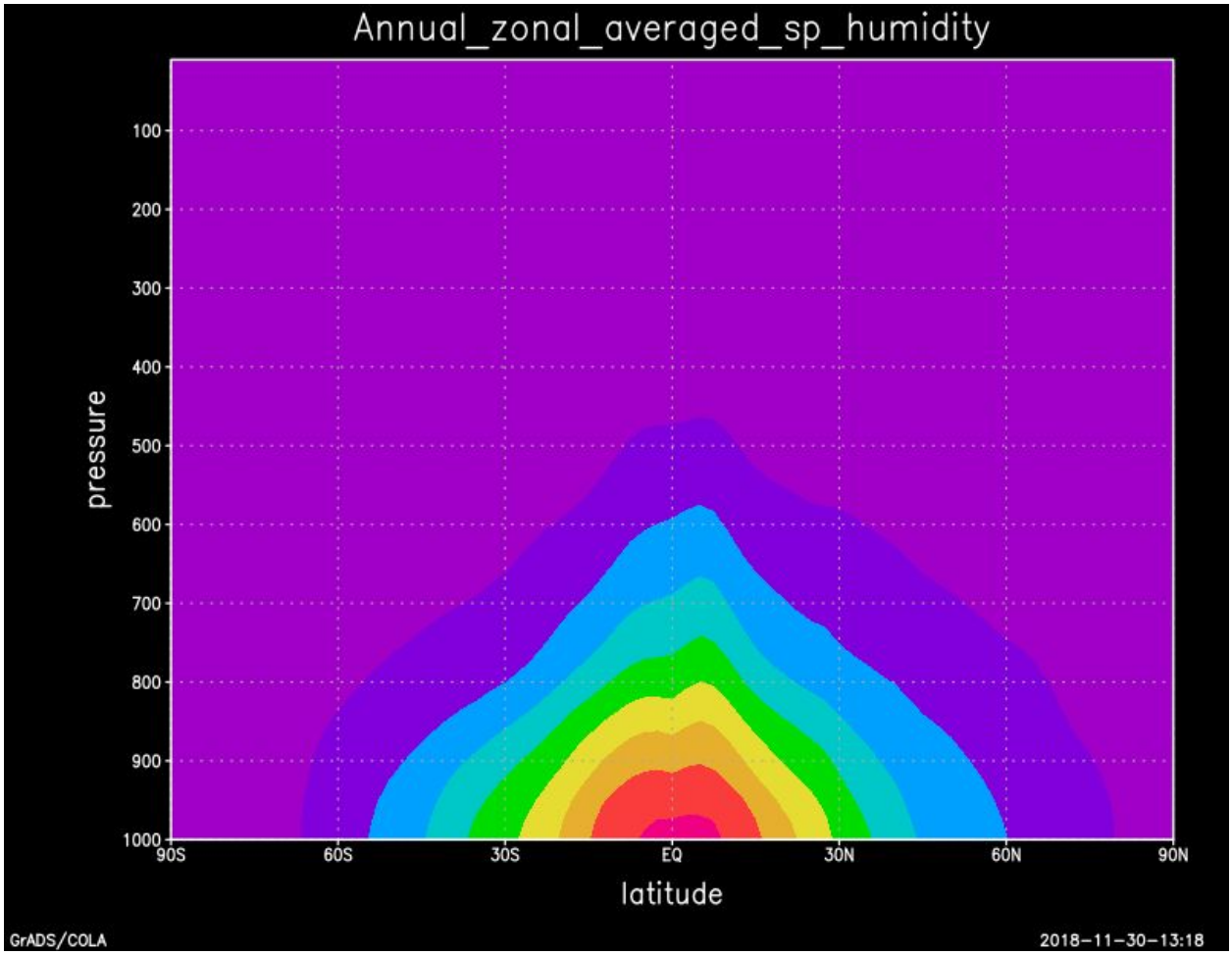


Code:

```
'c'
'open data_2016.ctl'
'set lev 1000'
'set lat 0 40'
'set lon 60 100'
'set t 8'
'd skip(uprs,1);skip(vprs,1)'
'draw title 1000hPa_winds_on_1stOctober2016'
'draw xlab longitude'
'draw ylab latitude'
'gxprint 1000hPa_winds.png'
```

Inference:

South west winds which are south west monsoon winds are observed during october.

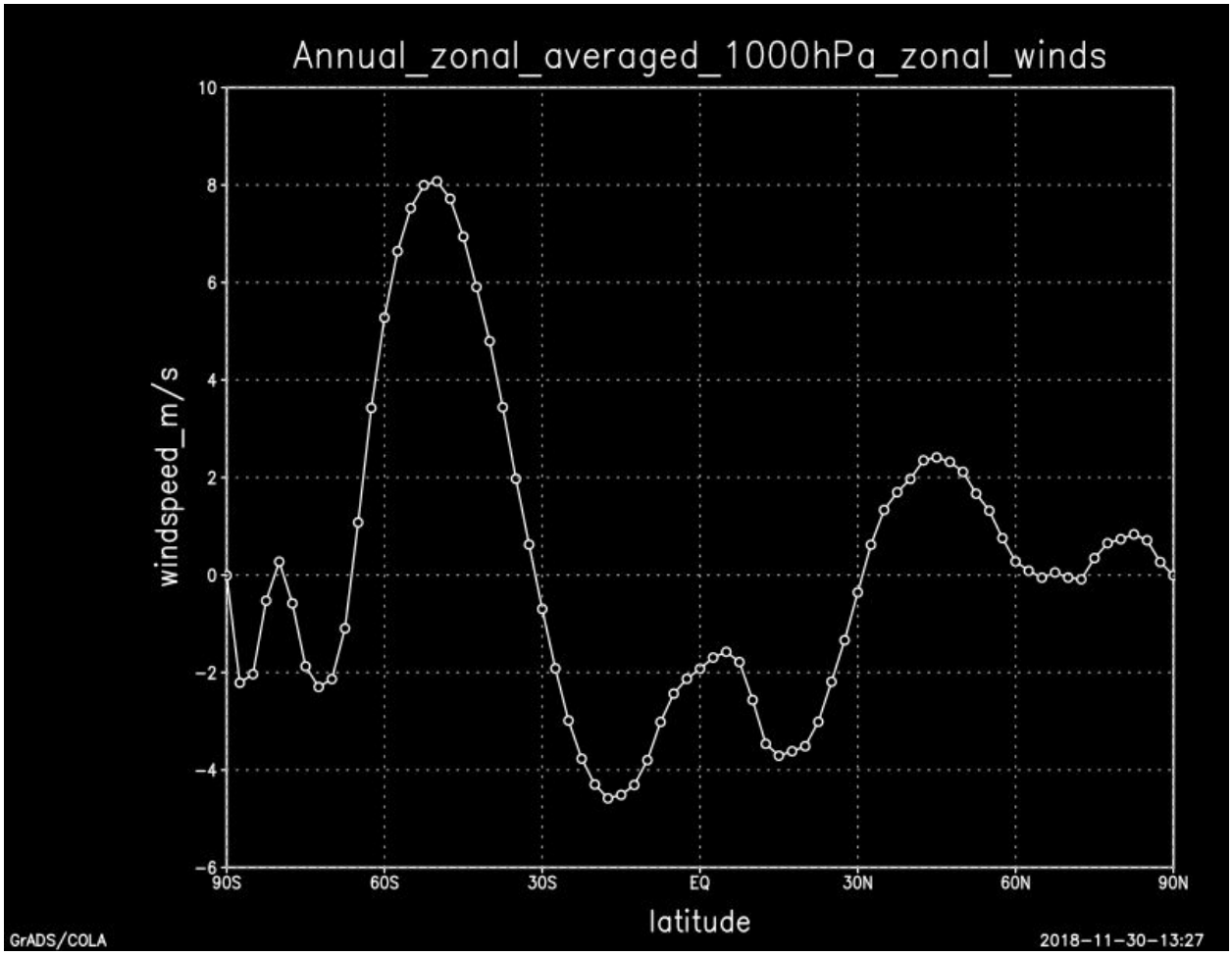


Code:

```
'c'
'open data_2016'
'set lat -90 90'
'set lev 1000 10'
'set lon 180'
'set t 6'
'set gxout shaded'
'd ave(ave(Qprs,lon=0,lon=360),t=1,t=12)'
'draw title Annual_zonal_averaged_sp_humidity'
'draw xlab latitude'
'draw ylab pressure'
'gxprint humidity.png'
```

Inference:

Humidity is higher in tropics and reduces with latitude.

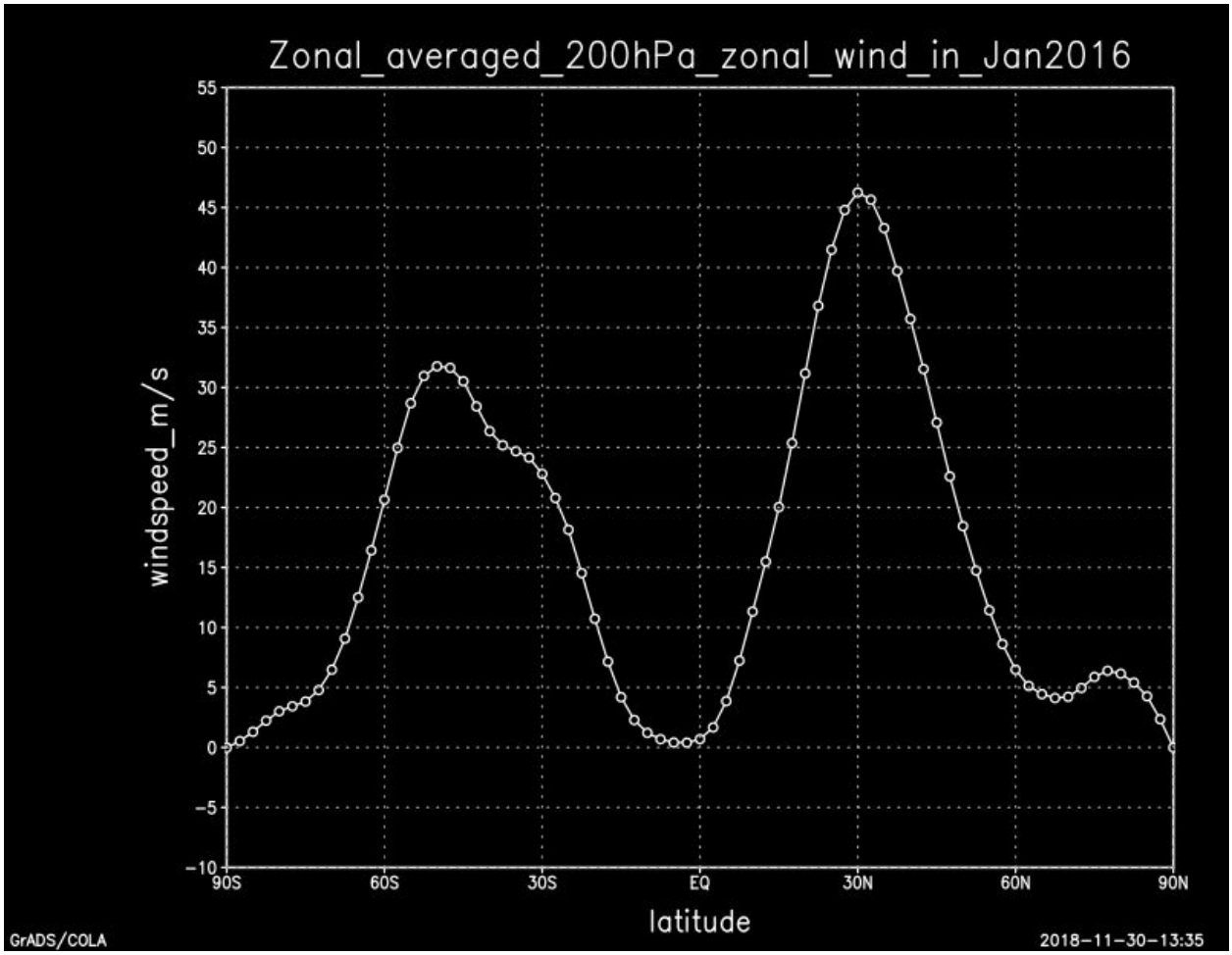


Code:

```
'c'
'open data_2016.ctl'
'set lat -90 90'
'set t 6'
'set lon 180'
'set lev 1000'
'd ave(ave(uprs,lon=0,lon=360),t=1,t=12)'
'draw title Annual_zonal_averaged_1000hPa_zonal_winds'
'draw xlab latitude'
'draw ylab windspeed_m/s'
'gxprint zonal_wind.png'
```

Inference:

Surface easterlies at tropics, westerlies in midlatitudes and easterlies at higher latitudes are observed. Winds are stronger in southern hemisphere. This can be due to lesser land masses.



Code:

```
'c'
'open data_2016.ctl'
'set lat -90 90'
'set lev 200'
'set t 1'
'set lon 180'
'd ave(uprs,lon=0,lon=360)'
'draw title Zonal_averaged_200hPa_zonal_wind_in_Jan2016'
'draw xlab latitude'
'draw ylab windspeed_m/s'
'gxprint jets.png'
```

Inference:

Subtropical westerly jets with wind speeds higher than 30 m/s are observed. Northern winter is observed to have stronger jets i.e. stronger jets in winter.