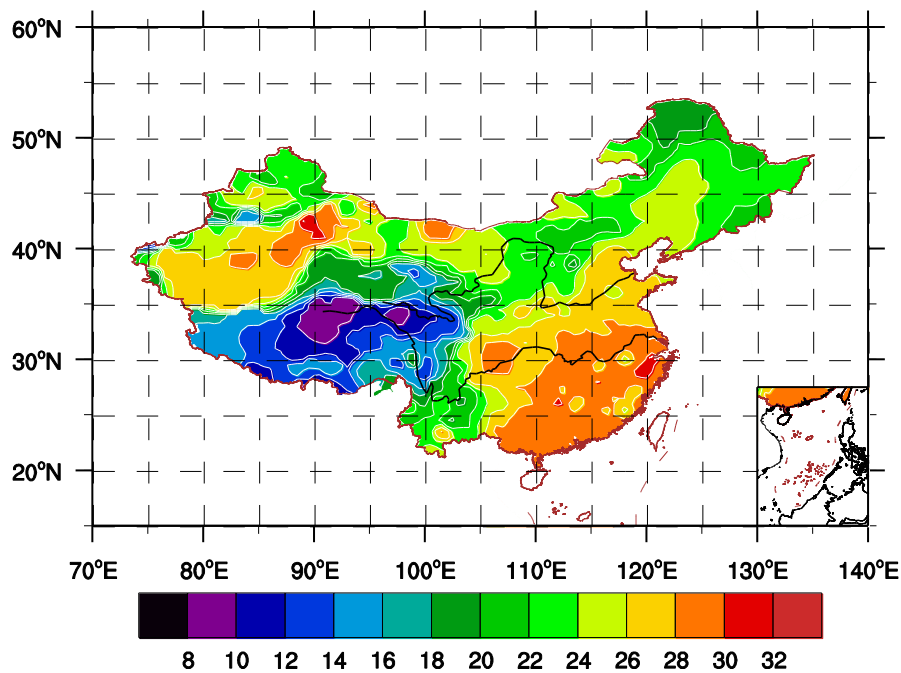


# NCL 绘图示例（六）： 中国区域内的站点（客观分析）图

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```
begin
;--1, 读入 2016 年 7 月中国 839 站逐日地表气温
temp=asciiread("./temp-839-201607.txt",-1,"integer") ;全部读入为 1 维数组
var = reshape(temp,(/839,31,13/)) ;转换为 839 站 X31 天 X13 列
var@_FillValue = 32766

val_mon = dim_avg_n(var(:,:,7),1)/10. ;计算 839 站的月平均气温
lat_stat = var(:,0,1)/100. ;每个站点的纬度
lon_stat = var(:,0,2)/100. ;每个站点的经度

;--2 进行客观分析, 则将台站资料插值至等经纬度网格网格点上
delta = 0.5 ;网格距
lon_s = 70
lon_e = 140
lat_s = 15
lat_e = 55
nlat = ceil((lat_e-lat_s)/delta) + 1 ;29
nlon = ceil((lon_e-lon_s)/delta) + 1 ;21
glat = fspan(lat_s,lat_e,toint(nlat))
```

```

glon = fspan(lon_s,lon_e,toint(nlon))
;-设定经纬度的单位
glon!0          = "lon"
glon@long_name = "longitude"
glon@units      = "degree_east"
glat!0          = "lat"
glat@long_name = "latitude"
glat@units      = "degree_north"
;-客观分析
rscan=(/5.,2.5,1/) ;不超过 10 个数，通常 1 至 4 个数。数值依次递减，表示每
次迭代分析的半径（单位为度）
val_mon                                               :=
obj_anal_ic_Wrap(lon_stat,lat_stat,val_mon,glon,glat,rscan,False);creanm      插
值;creanm 插值

;-3, 图形文件设置
plot = new(1,"graphic")
plot2 = new(1,"graphic")

wks  = gsn_open_wks("eps","plot-china-station")
gsn_define_colormap(wks,"MPL_Spectral")

;-4, 首先绘制中国区域内的变量
res=True
res@gsnDraw          = False
res@gsnFrame         = False
res@gsnAddCyclic     = False

res@cnFillOn        = True
res@cnLineColor     = "white"
res@cnLineThicknessF = 0.5
res@cnFillDrawOrder = "PreDraw"
res@cnLineDrawOrder = "PreDraw"
res@gsnSpreadColorEnd = -6

res@cnLevelSelectionMode = "ManualLevels"
res@cnMinLevelValF      = 8
res@cnMaxLevelValF      = 32
res@cnLevelSpacingF     = 2

res@mpDataBaseVersion  = "Ncarg4_1"
res@mpDataSetName      = "Earth..4"

res@mpFillOn          = True ;必须设置为 True

```

```

res@mpOceanFillColor          = 0
res@mpInlandWaterFillColor    = 0
res@mpLandFillColor           = 0
res@mpAreaMaskingOn           = True
res@mpMaskAreaSpecifiers      = ("China","Taiwan","Arunachal
Pradesh","Disputed area between India and China"/);这才是正确的中国陆地领土范
围
res@mpOutlineOn                = False ;不绘制国界线，后面将通过 shapefile
文件绘制正确的国界线

```

re = res ;复制上述 res 属性，为绘制南海地区做准备

```

res@mpMinLatF                  = 15
res@mpMaxLatF                  = 60
res@mpMinLonF                  = 70
res@mpMaxLonF                  = 140
res@mpGridAndLimbOn           = True
res@mpGridLineColor           = "black"
res@mpGridLatSpacingF         = 5
res@mpGridLonSpacingF         = 5
res@mpGridLineDashPattern     = 16
res@mpGridLineThicknessF      = 0.2
res@gsnMajorLonSpacing        = 5

```

;-设置坐标标签

```

res@tmXBMode = "Explicit"
lon_value = ispan(70,140,10)
lon_lable = lon_value+"~S~o~N~E"
res@tmXBValues = lon_value
res@tmXBLabels = lon_lable
lat_value = ispan(20,60,10)
lat_lable = lat_value+"~S~o~N~N"
res@tmYLValues = lat_value
res@tmYLLabels = lat_lable

```

;绘图

```

plot = gsn_csm_contour_map(wks,val_mon,res)

```

;-6, 绘制长江、黄河及国界线

```

f=addfile("./lonlat-2river-guo.nc","r");长江与黄河的经纬度
lon_cj = f->lon_cj
lat_cj = f->lat_cj
lon_hh = f->lon_hh
lat_hh = f->lat_hh

```

```

pres                                = True
pres@gsLineColor                    = "black"
pres@gsLineThicknessF = 1.5
dumhh = gsn_add_polyline(wks,plot,lon_hh,lat_hh,pres)
dumcj = gsn_add_polyline(wks,plot,lon_cj,lat_cj,pres)

;通过 shapefile 文件绘制正确的中国国界线
shp_path= "./shp/china.shp"
pres@gsLineColor                    = "brown"
pres@gsLineThicknessF = 1.0
outline_china = gsn_add_shapefile_polylines(wks,plot,shp_path,pres)

draw(plot)

;--7, 绘制南海
;首先在图形右下方绘制一个白色多边形
xlon = (/130,140,140,130,130/)
ylat = (/15,15,27.5,27.5,15/)
reg = True
reg@gsFillColor = "white"
gsn_polygon(wks,plot,xlon,ylat,reg)

;再在该多边形内绘制南海区域
re@vpXF = 0.75
re@vpYF = 0.4
re@vpWidthF = 0.1
re@vpHeightF = 0.125

re@mpMinLatF = 0
re@mpMaxLatF = 25
re@mpMinLonF = 105
re@mpMaxLonF = 125

re@mpOutlineOn = True ;此时可设置为 True

re@tmXBLabelsOn = False
re@tmXTLabelsOn = False
re@tmYLLLabelsOn = False
re@tmYRLabelsOn = False
re@tmXBOn = False
re@tmXTOn = False
re@tmYLOn = False
re@tmYROn = False

```

```
re@lbLabelBarOn = False

;绘制南海地区
plot2 = gsn_csm_contour_map(wks,val_mon,re)
outline_scs = gsn_add_shapefile_polylines(wks,plot2,shp_path,pres)
draw(plot2)

frame(wks)
end
```