```
%
% Read in CS 510 input fields
xc1 = zeros(511,511,6);
yc1 = zeros(511,511,6);
dxf1 = zeros(511,511,6);
dyf1 = zeros(511,511,6);
ra1 = zeros(511,511,6);
xg1 = zeros(511,511,6);
yg1 = zeros(511,511,6);
dxv1 = zeros(511,511,6);
dyu1 = zeros(511,511,6);
raz1 = zeros(511,511,6);
dxc1 = zeros(511,511,6);
dyc1 = zeros(511,511,6);
raw1 = zeros(511,511,6);
ras1 = zeros(511,511,6);
dxg1 = zeros(511,511,6);
dyg1 = zeros(511,511,6);
for iface=1:6
fid = fopen(['tile00' num2str(iface) '.mitgrid'],'r','b');
xc1(:,:,iface) = fread(fid,[511 511],'real*8');
yc1(:,:,iface) = fread(fid,[511 511],'real*8');
dxf1(:,:,iface) = fread(fid,[511 511],'real*8');
dyf1(:,:,iface) = fread(fid,[511 511],'real*8');
ra1(:,:,iface) = fread(fid,[511 511],'real*8');
xg1(:,:,iface) = fread(fid,[511 511],'real*8');
yg1(:,:,iface) = fread(fid,[511 511],'real*8');
dxv1(:,:,iface) = fread(fid,[511 511],'real*8');
dyu1(:,:,iface) = fread(fid,[511 511],'real*8');
raz1(:,:,iface) = fread(fid,[511 511],'real*8');
dxc1(:,:,iface) = fread(fid,[511 511],'real*8');
dyc1(:,:,iface) = fread(fid,[511 511],'real*8');
raw1(:,:,iface) = fread(fid,[511 511],'real*8');
ras1(:,:,iface) = fread(fid,[511 511],'real*8');
dxg1(:,:,iface) = fread(fid,[511 511],'real*8');
dyg1(:,:,iface) = fread(fid,[511 511],'real*8');
end
%
% Now output (approx 1 deg) grid
xc2 = zeros(103,103,6);
yc2 = zeros(103,103,6);
dxf2 = zeros(103,103,6);
dyf2 = zeros(103,103,6);
ra2 = zeros(103,103,6);
xg2 = zeros(103,103,6);
yg2 = zeros(103,103,6);
dxv2 = zeros(103,103,6);
dyu2 = zeros(103,103,6);
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raz2 = zeros(103,103,6);
dxc2 = zeros(103,103,6);
dyc2 = zeros(103,103,6);
raw2 = zeros(103,103,6);
ras2 = zeros(103,103,6);
dxg2 = zeros(103,103,6);
dyg2 = zeros(103,103,6);
% Create left, x-center, bottom and y-center indeces into 510 grid
ratio = 5;
ileft=[1:5:510];
icent=ileft+2;
jbott=[1:5:510];
jcent=jbott+2;
% First do the interior of each face
for iface=1:6
xc2(1:102,1:102,iface)=xc1(icent,jcent,iface);
yc2(1:102,1:102,iface)=yc1(icent,jcent,iface);
xg2(1:102,1:102,iface)=xg1(ileft,jcent,iface);
yg2(1:102,1:102,iface)=yg1(icent,jbott,iface);
for ipnt=0:ratio-1
dxf2(1:102,1:102,iface)=dxf2(1:102,1:102,iface) + dxf1(ileft+ipnt,jcent,iface);
dxg2(1:102,1:102,iface)=dxg2(1:102,1:102,iface) + dxg1(ileft+ipnt,jbott,iface);
dxv2(2:102,2:102,iface)=dxv2(2:102,2:102,iface) + dxv1(icent(2:102)+ipnt+1,jbott(2:102),iface);
dxc2(2:102,2:102,iface)=dxc2(2:102,2:102,iface) + dxc1(icent(2:102)+ipnt+1,jcent(2:102),iface);
end
for ipnt=0:ratio-1
dyf2(1:102,1:102,iface)=dyf2(1:102,1:102,iface) + dyf1(icent,jbott+ipnt,iface);
dyg2(1:102,1:102,iface)=dyg2(1:102,1:102,iface) + dyg1(ileft,jbott+ipnt,iface);
dyu2(2:102,2:102,iface)=dyu2(2:102,2:102,iface) + dyu1(ileft(2:102),jcent(2:102)+jpnt+1,iface);
dyc2(2:102,2:102,iface)=dyc2(2:102,2:102,iface) + dyc1(icent(2:102),jcent(2:102)+jpnt+1,iface);
end
for ipnt=0:ratio-1
for jpnt=0:ratio-1
ra2(1:102,1:102,iface)=ra2(1:102,1:102,iface) + ra1(ileft+ipnt,jbott+jpnt,iface);
ras2(2:102,2:102,iface)=ras2(2:102,2:102,iface) + ras1(ileft(2:102)+ipnt+1,jbott(2:102)+jpnt,iface);
raw2(2:102,2:102,iface)=raw2(2:102,2:102,iface) + raw1(ileft(2:102)+ipnt,jbott(2:102)+jpnt+1,iface);
raz2(2:102,2:102,iface)=raz2(2:102,2:102,iface) + raz1(ileft(2:102)+ipnt,jbott(2:102)+jpnt,iface);
end
end
% Now the edges, corners and exchanges
% Exchange for lon and lat's at center and edges - no directions
xc2(103,1:102,[1 3 5])=xc2(1,1:102,[2 4 6]);
xc2(1:102,103,[1 3 5])=xc2(1,1:102,[3 5 1]);
xc2(103,103,[1 2 3 4 5 6])=xc2(1,1,[3 4 5 6 1 2]);
yc2(103,1:102,[1 3 5])=yc2(1,1:102,[2 4 6]);
yc2(103,1:102,[1 3 5])=yc2(1,1:102,[2 4 6]);
yc2(103,103,[1 2 3 4 5 6])=yc2(1,1,[3 4 5 6 1 2]);
xg2(103,1:102,[1 3 5])=xg2(1,1:102,[2 4 6]);
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xg2(103,1:102,[1 3 5])=xg2(1,1:102,[2 4 6]);
xg2(103,103,[1 2 3 4 5 6])=xg2(1,1,[3 4 5 6 1 2]);
yg2(103,1:102,[1 3 5])=yg2(1,1:102,[2 4 6]);
yg2(103,1:102,[1 3 5])=yg2(1,1:102,[2 4 6]);
yg2(103,103,[1 2 3 4 5 6])=yg2(1,1,[3 4 5 6 1 2]);
% Exchange for dx's and dy's at center - directions but no signs
dxf2(103,1:102,[1 3 5])=dxf2(1,1:102,[2 4 6]);
dxf2(103,1:102,[1 3 5])=dxf2(1,1:102,[2 4 6]);
dxf2(103,103,[1 2 3 4 5 6])=dxf2(1,1,[3 4 5 6 1 2]);
```