

```

clear;
clear all;
import matlab.io.hdf4.*

% Open the HDF4 File.
FILE_NAME = 'CAL_LID_L2_VFM-Standard-V4-20.2020-06-30T20-55-17ZN.hdf';
SD_id = sd.start(FILE_NAME, 'ronly');

% Read data.
datafield_name='Feature_Classification_Flags';
sds_index = sd.nameToIndex(SD_id, datafield_name);
sds_id = sd.select(SD_id, sds_index);
data = sd.readData(sds_id);
sd.endAccess(sds_id);

% Read lat.
lat_name='Latitude';
sds_index = sd.nameToIndex(SD_id, lat_name);
sds_id = sd.select(SD_id, sds_index);
lat = sd.readData(sds_id);
sd.endAccess(sds_id);

% Close the file.
sd.close(SD_id);

lat = lat';

b = data(:,1);
b = b';
ll = vfm_row2block(b,'type');

for i=2:3728
    b = data(:,i);
    %b = b';
    lol = vfm_row2block(b,'type');
    c = cat(2,ll,lol);
    ll=c;
end

altitude = zeros(545,1);
% 20.2km to 30.1km
for i=0:54
    altitude(i+1) = 30.1 - i*0.18;
end

% 8.2km to 20.2km
for i=0:199
    altitude(i+56) = 20.2 - (i)*0.06;
end

% -0.5km to 8.2km
for i=0:289
    altitude(i+256) = 8.2 - (i)*0.03;
end

```

```
end
```

```
% Create a Figure to Plot the data.
```

```
f = figure('Name', FILE_NAME, ...
```

```
    'Renderer', 'zbuffer', ...
```

```
    'Position', [0,0,800,600], ...
```

```
    'Visible', 'off', ...
```

```
    'PaperPositionMode', 'auto');
```

```
cmap=[                % Key          R G B
    % [1.0000 1.0000 1.0000]; ... % 0=invalid    [255,255,255]
    [0.0000 0.0000 1.0000]; ... % 1=clear air  [000,000,255]
    [0.2000 1.0000 1.0000]; ... % 2=cloud     [051,255,255]
    [1.0000 0.6000 0.0000]; ... % 3=aerosol   [255,153,000]
    [1.0000 0.6000 0.0000]; ... % 3=aerosol   [255,153,000]
    [1.0000 1.0000 0.0000]; ... % 4=strato. feat [255,255,000]
    [0.0000 1.0000 0.0000]; ... % 5=surface   [000,255,000]
    [0.4980 0.4980 0.4980]; ... % 6=subsurface [127,127,127]
    [0.0000 0.0000 0.0000]; ... % 7=no signal  [000,000,000]
];
```

```
colormap(cmap);
```

```
caxis([0 7]);
```

```
imagesc(lat, altitude,ll);
```

```
set(gca,'YDir','normal');
```

```
set(gca,'XDir','reverse');
```

```
% Set axis labels.
```

```
xlabel('Latitude (degrees north)');
```

```
ylabel('Altitude (km)');
```

```
% Put colorbar.
```

```
y = [ 1, 2, 3, 4, 5, 6, 7];
```

```
h = colorbar('YTickLabel', {'Clear Air','Cloud', 'Tropo. Aerosol','Strat. Aerosol',...  
    'Surface','Subsurface','No Signal'}, 'YTick', y);
```

```
tstring = {FILE_NAME,['Aerosol Type (Bits 1-3) in' ...
```

```
    ' Feature Classification Flag']};
```

```
title(tstring, 'Interpreter', 'none', 'FontSize', 16, ...
```

```
    'FontWeight','bold');
```

```
saveas(gcf,'raw_fig.png');
```