

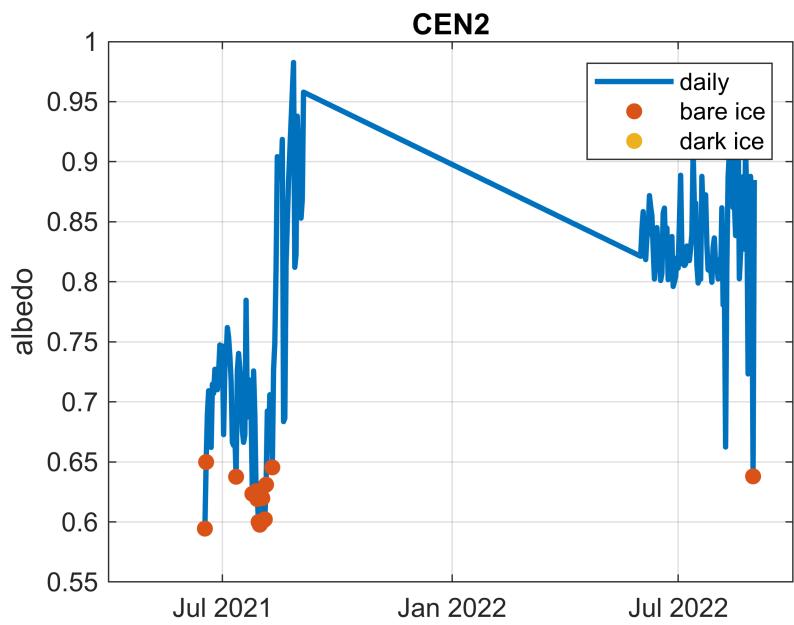
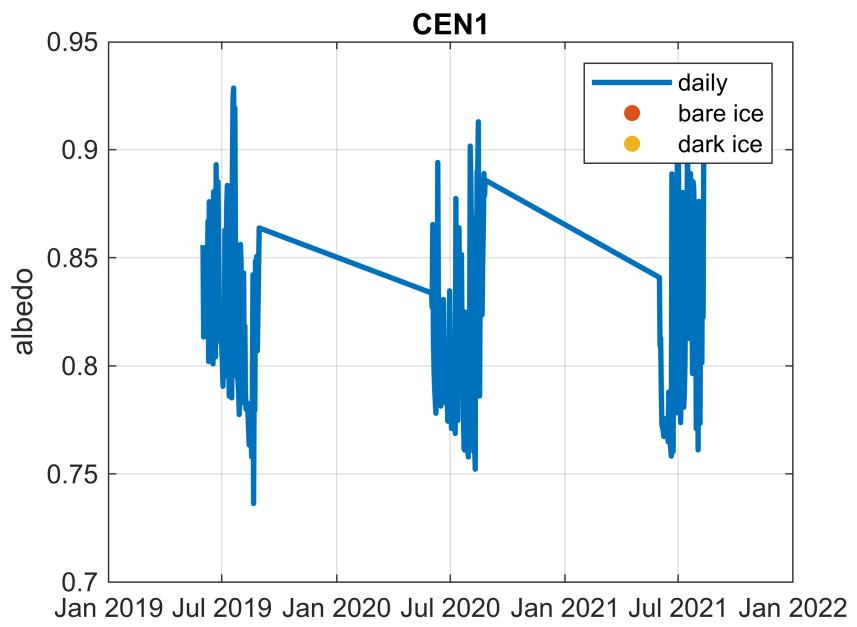
## promice data processing

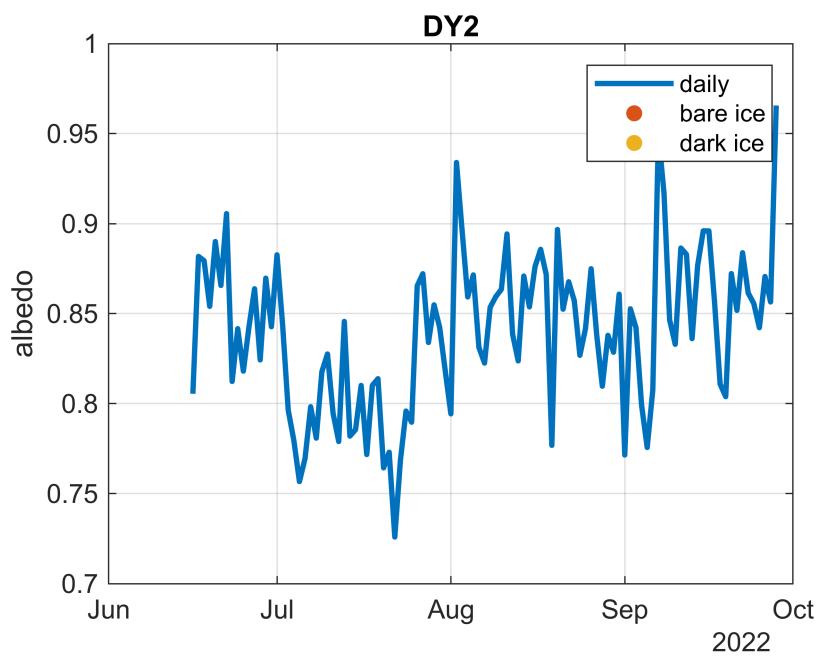
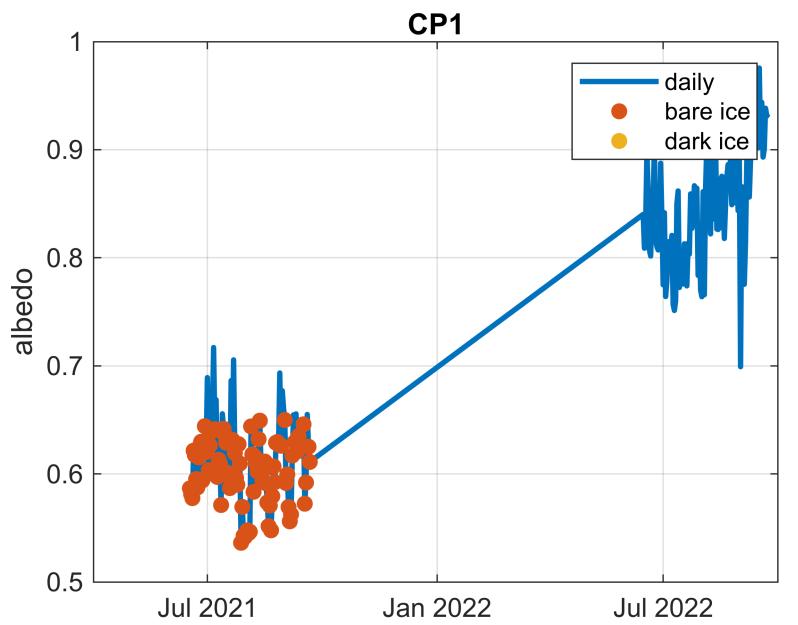
```
opts = detectImportOptions("promice/promiceHourly.csv");
opts.SelectedVariableNames = ["time", "cc", "albedo", "gps_lat", "gps_lon", "aws"];
df = readtable("promice/promiceHourly.csv", opts);
```

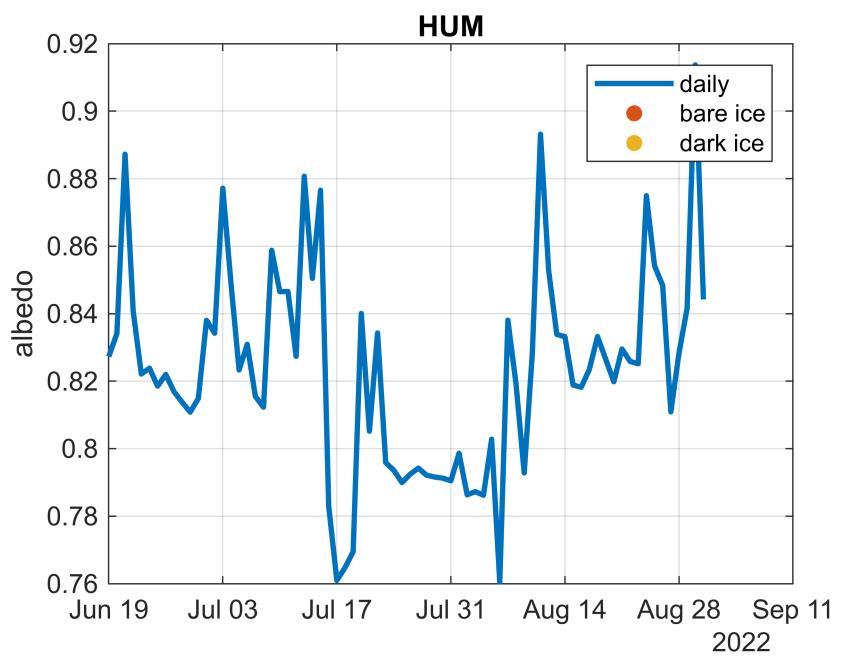
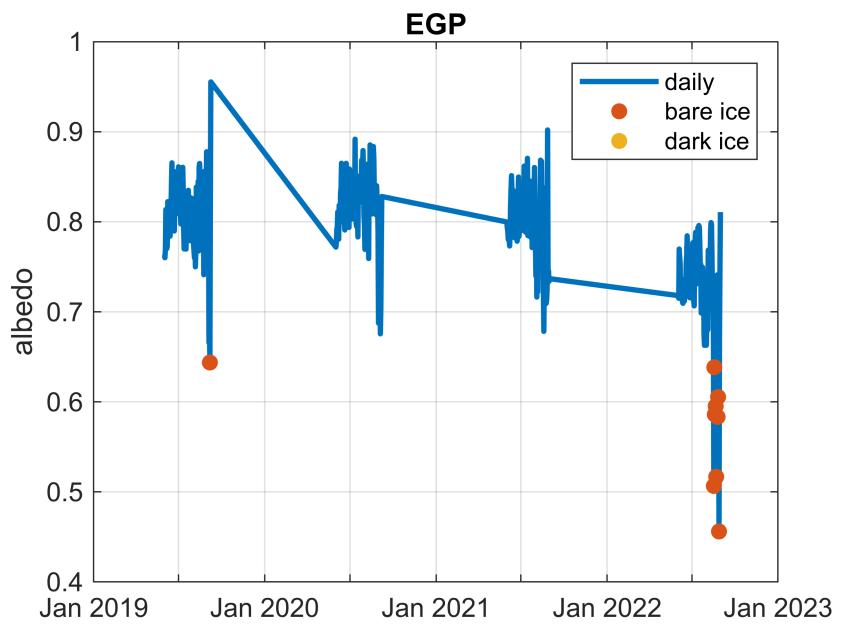
## AWS time series plot

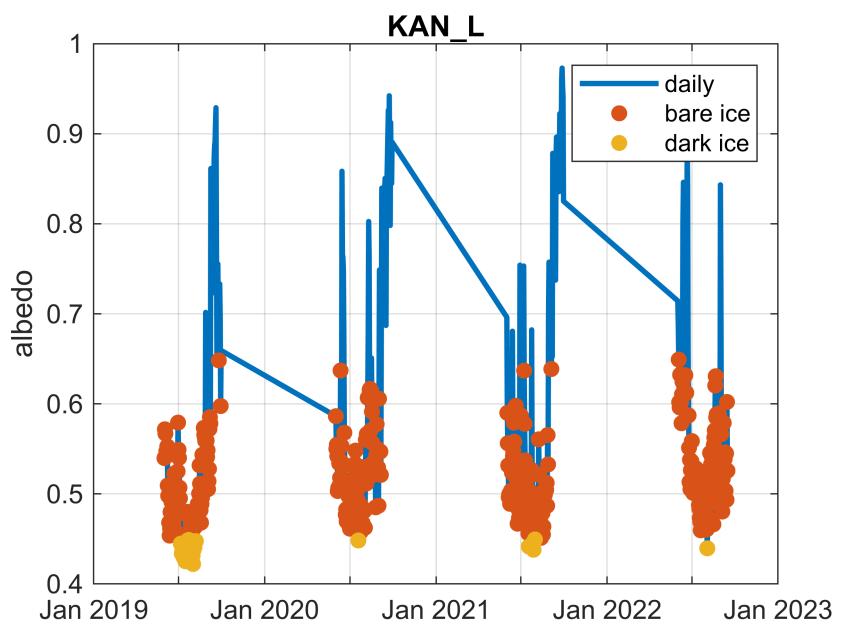
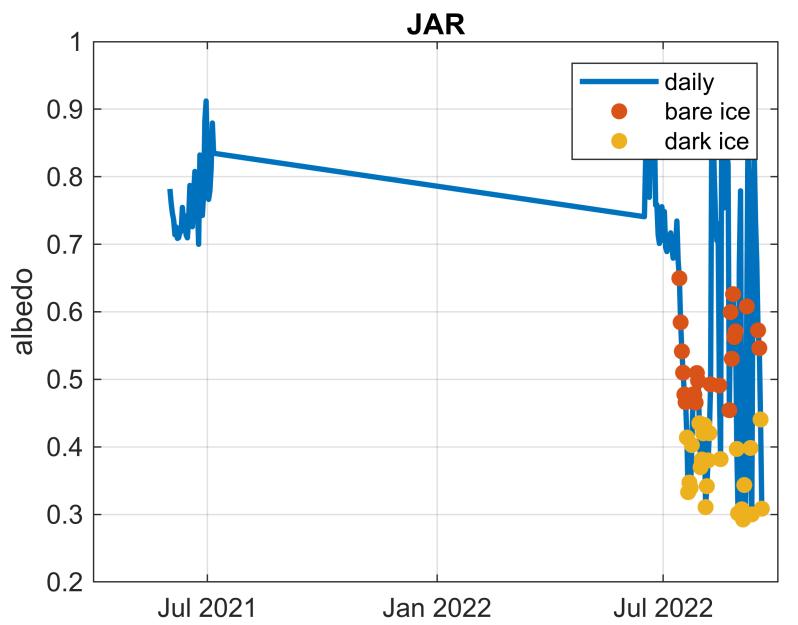
```
aws = unique(df.aws);
for i = 1:numel(aws)
    dfaws = df(df.aws == string(aws(i)), :);
    [dfaws.y, dfaws.m, dfaws.d] = ymd(dfaws.time);
    index = dfaws.m>5 & dfaws.m<10 & dfaws.y>2018;
    dfaws = dfaws(index, :);
    dfaws = groupsummary(dfaws, ["y", "m", "d"], "mean", "albedo");
    dfaws.time = datetime(dfaws.y, dfaws.m, dfaws.d);

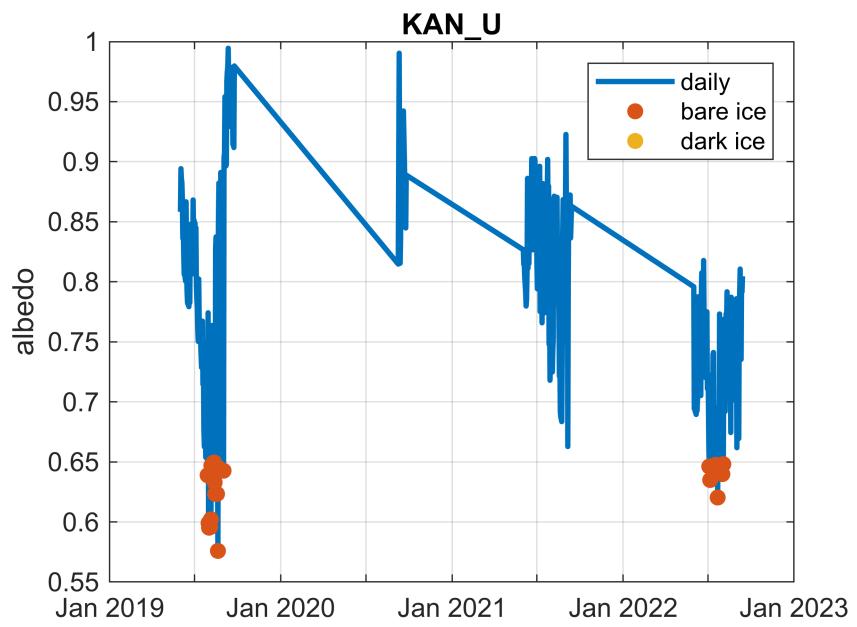
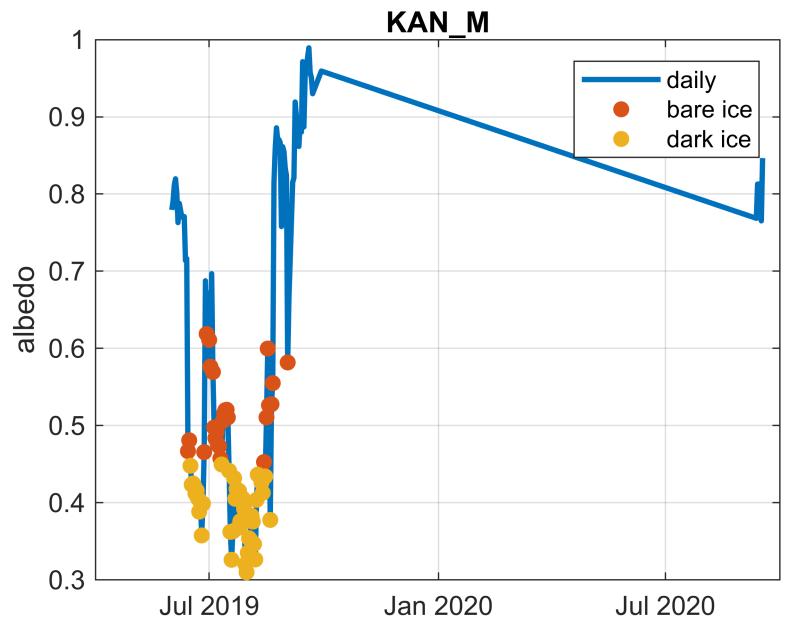
    f1 = figure;
    plot(dfaws.time, dfaws.mean_albedo, LineWidth=2);
    hold on
    index = find(dfaws.mean_albedo<0.65);
    scatter(dfaws.time(index), dfaws.mean_albedo(index), 'filled');
    index = find(dfaws.mean_albedo<0.45);
    scatter(dfaws.time(index), dfaws.mean_albedo(index), 'filled')
    ylabel("albedo")
    title(upper(insertBefore(aws(i), "_", "\\")));
    hold off
    grid on
    legend('daily', 'bare ice', 'dark ice')
end
```

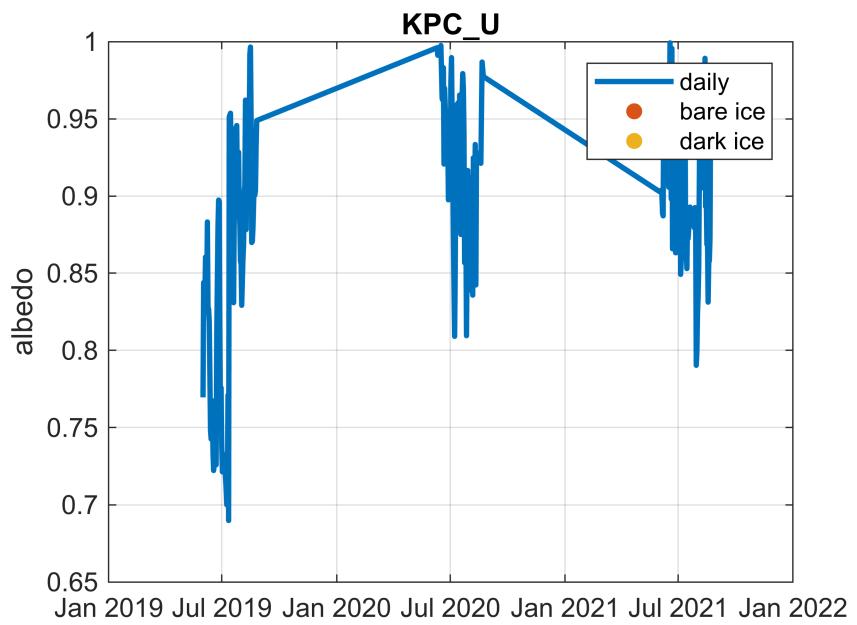
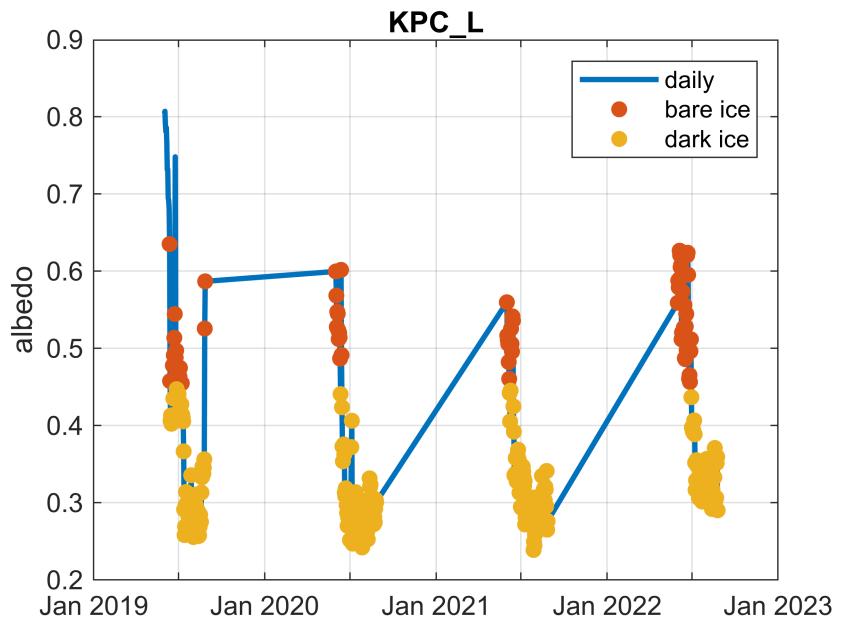


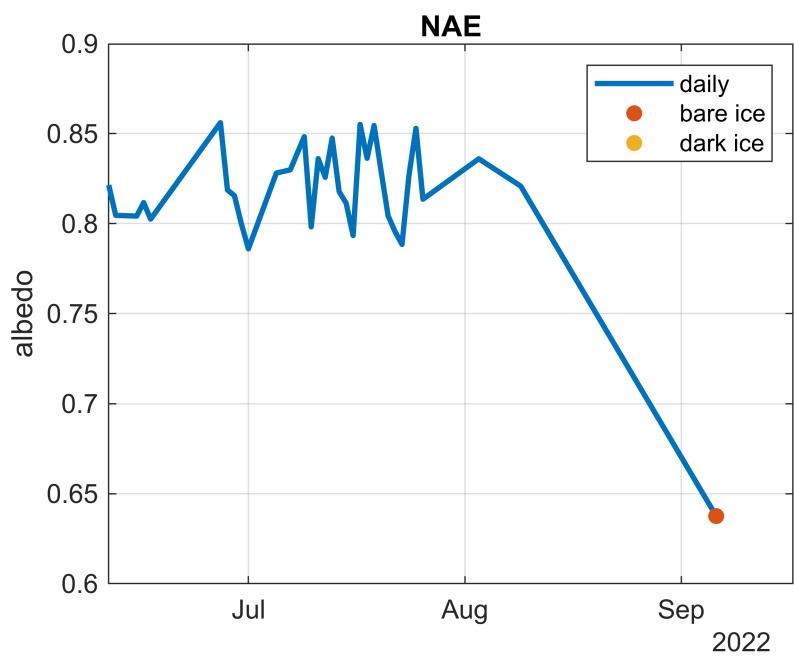
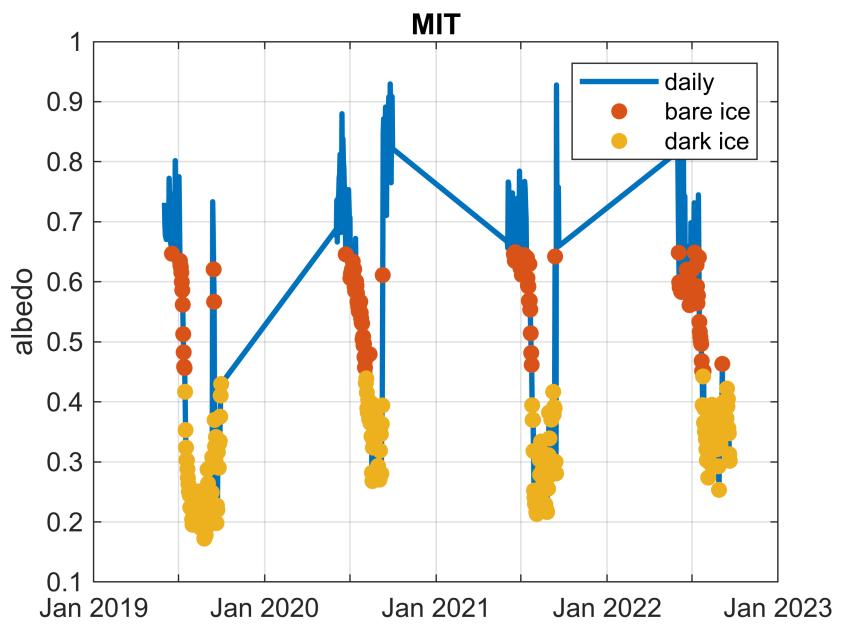


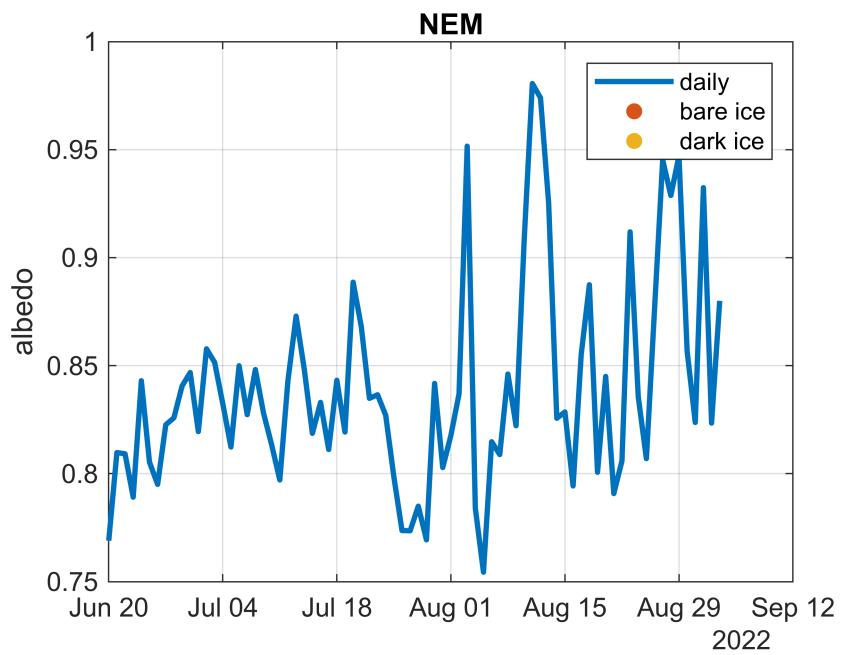
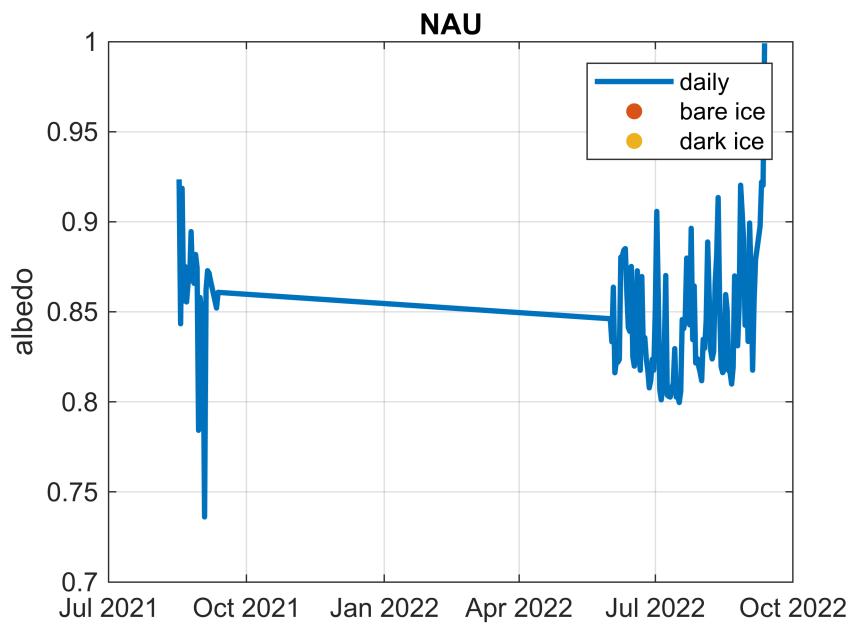


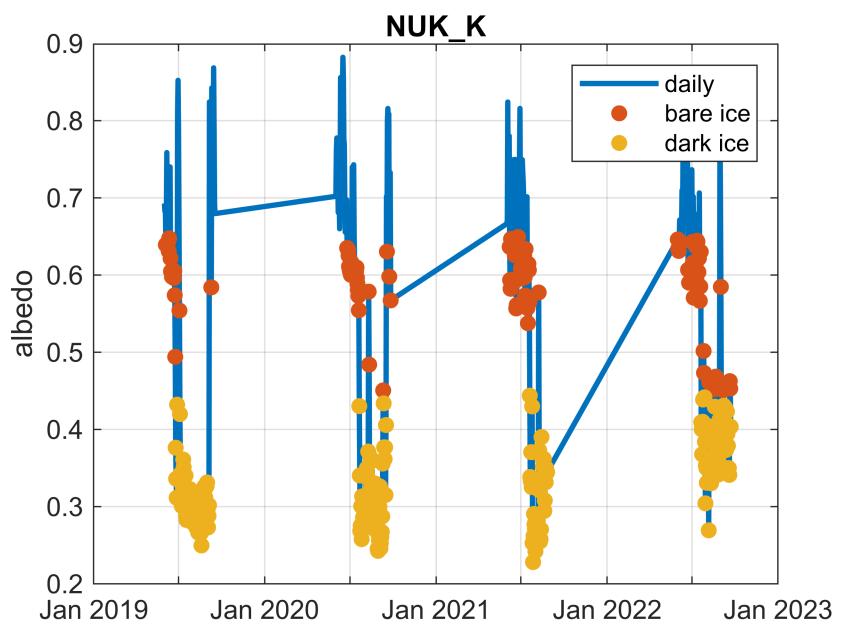
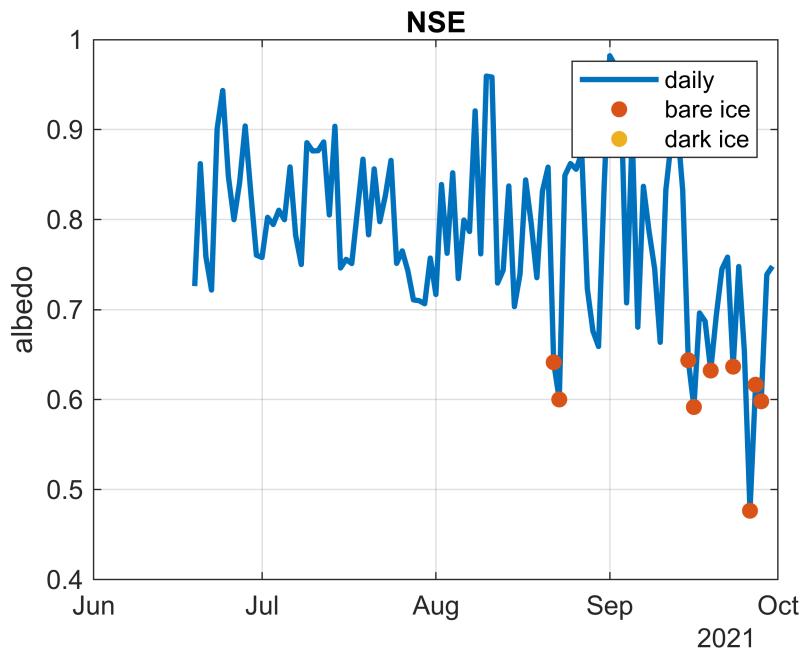


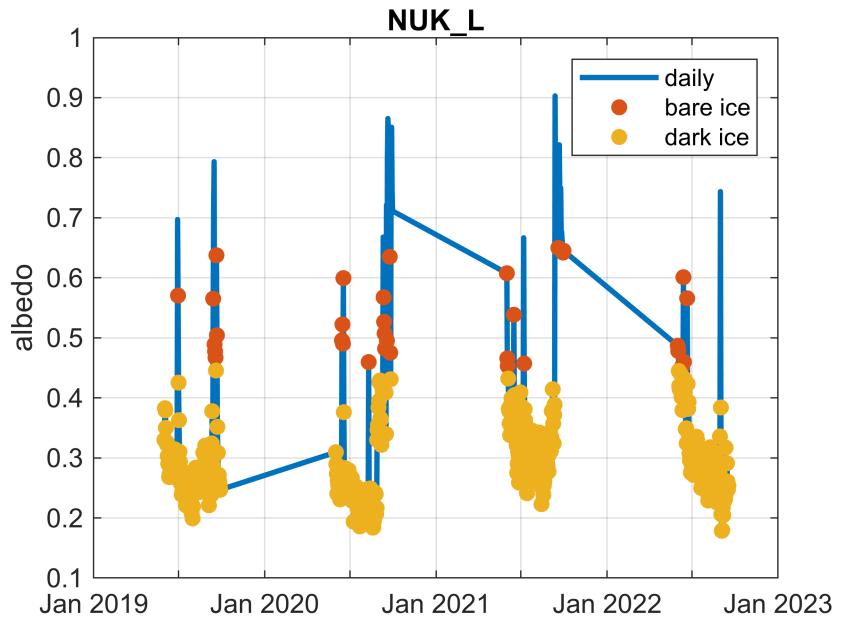




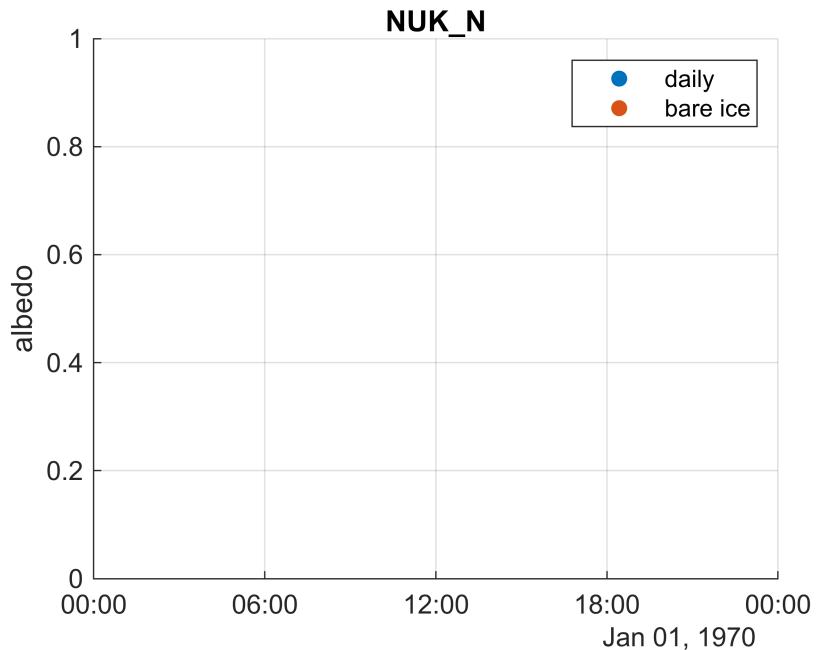


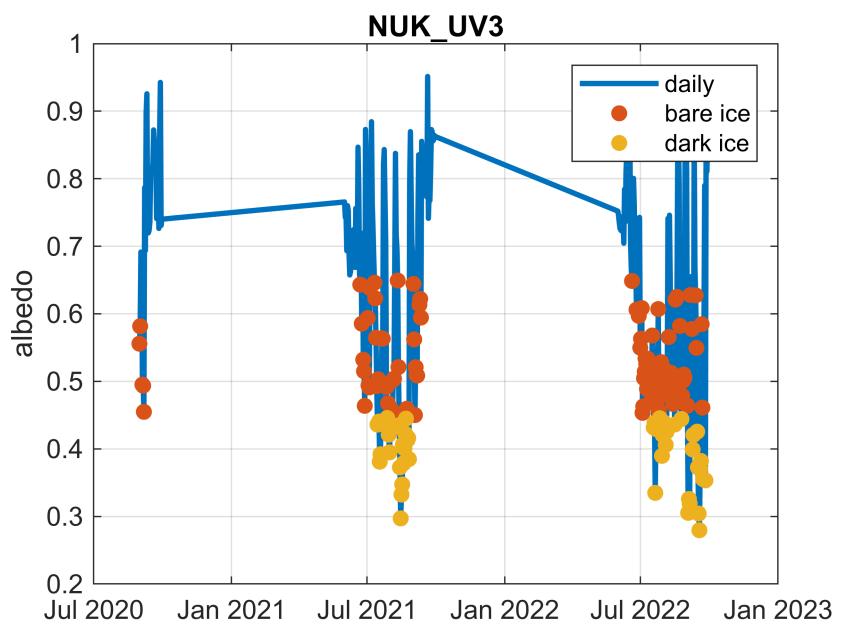
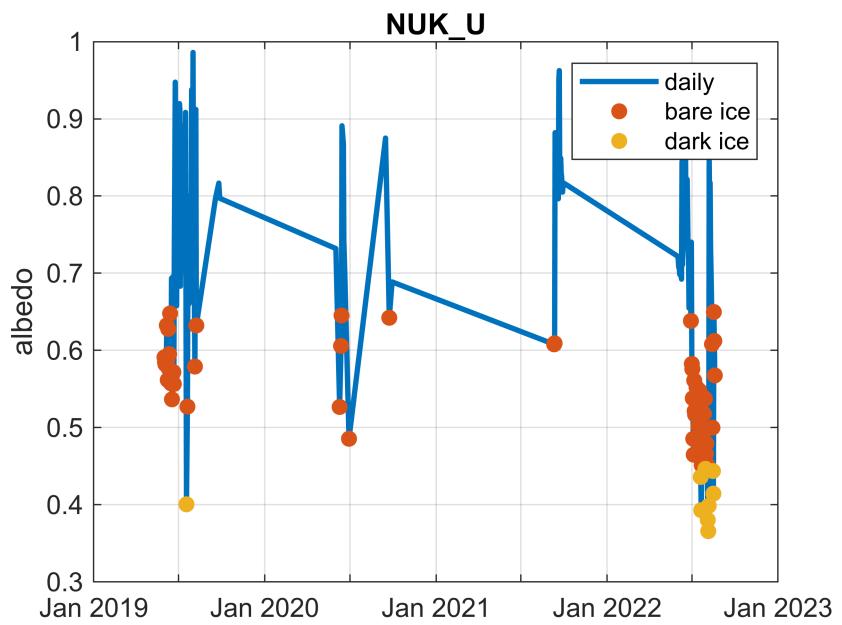




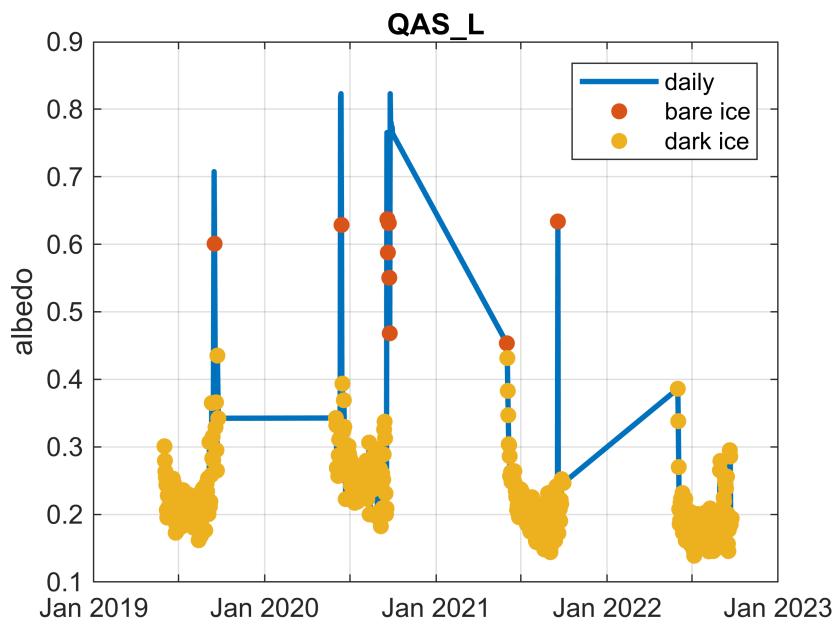
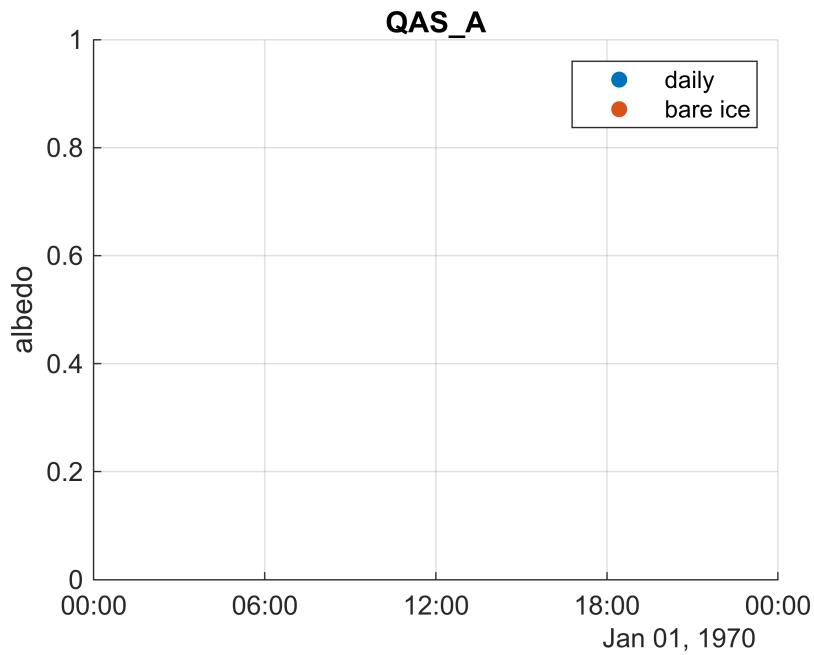


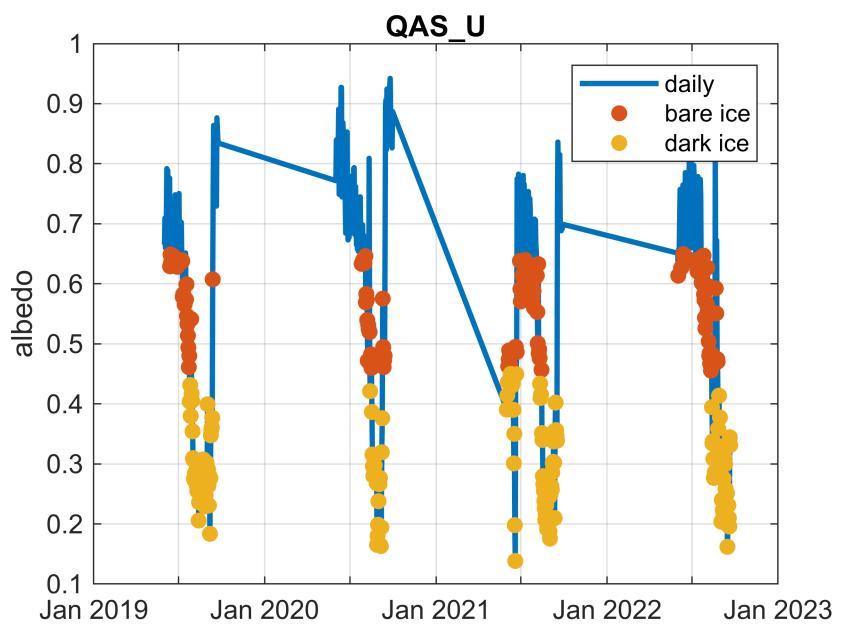
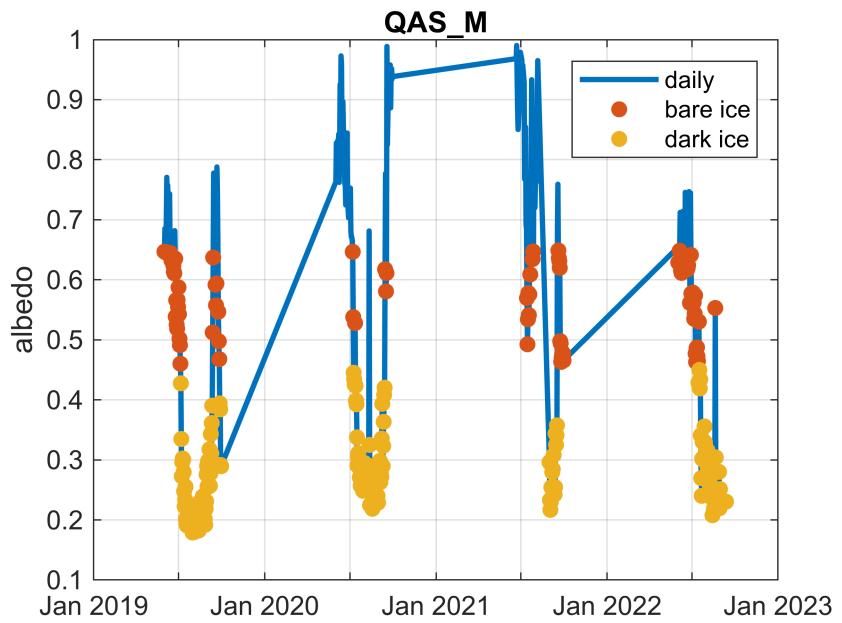
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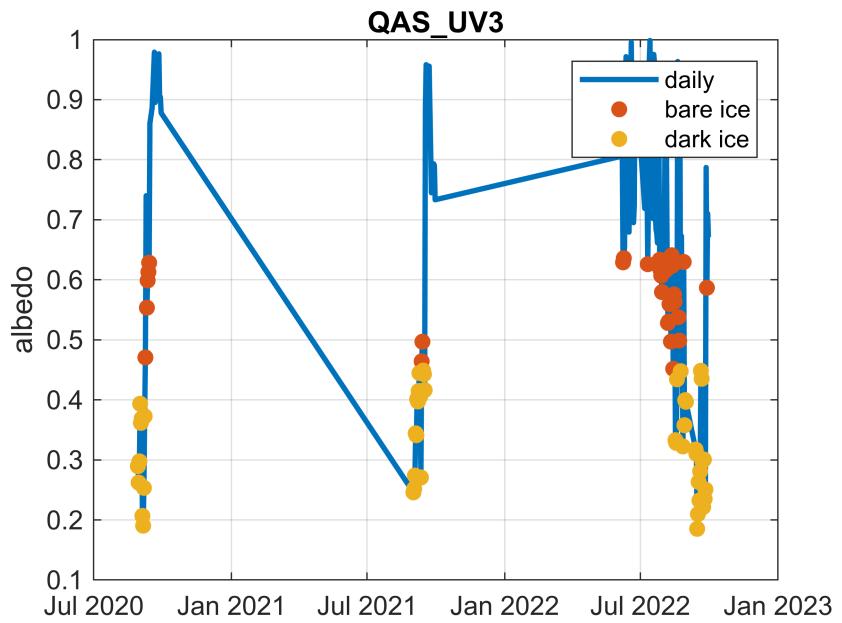




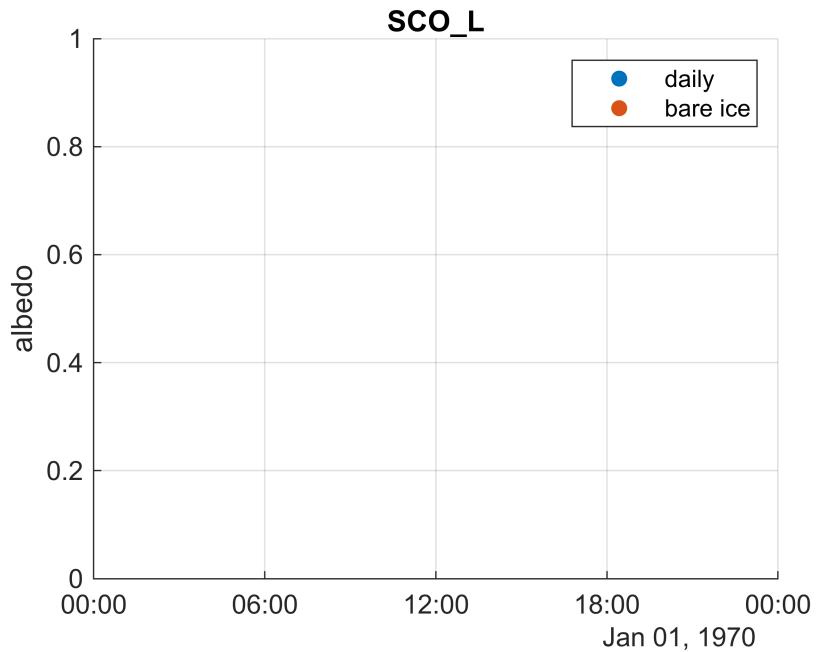
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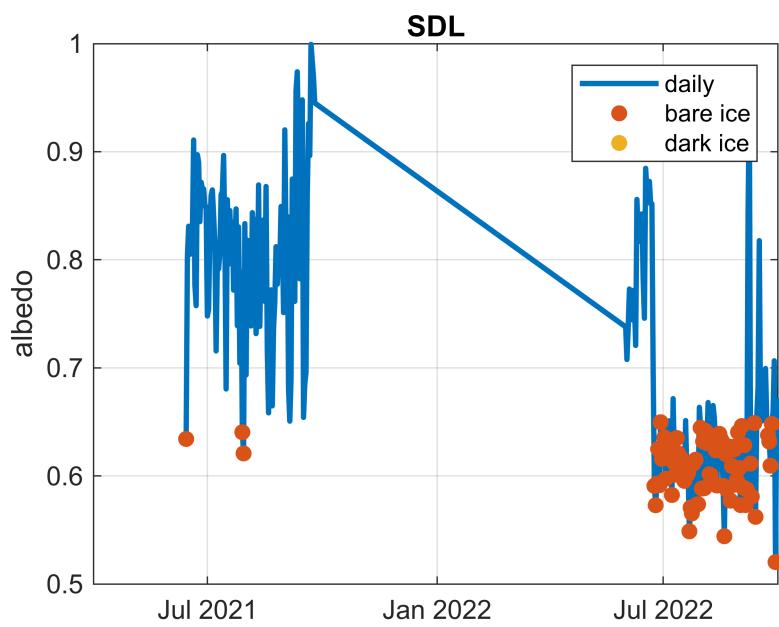
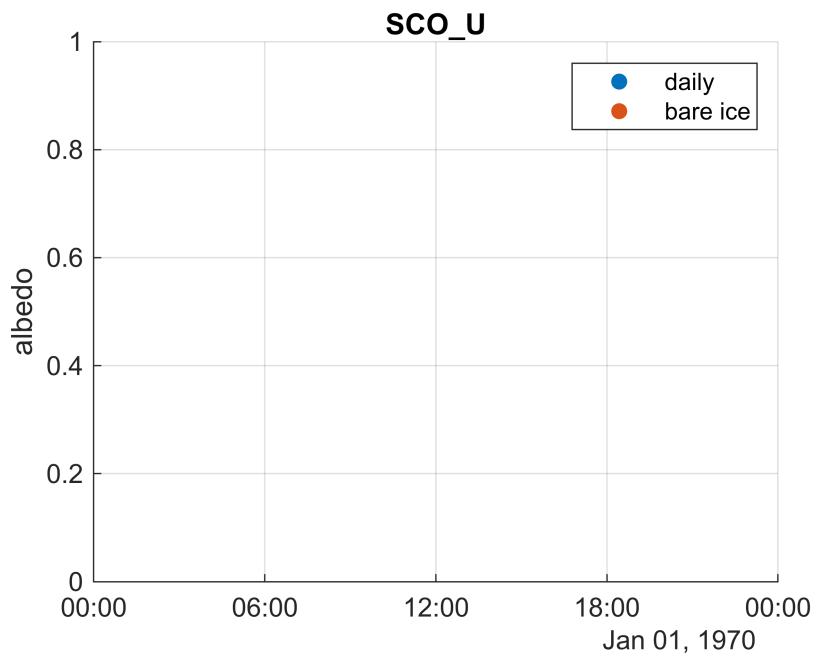


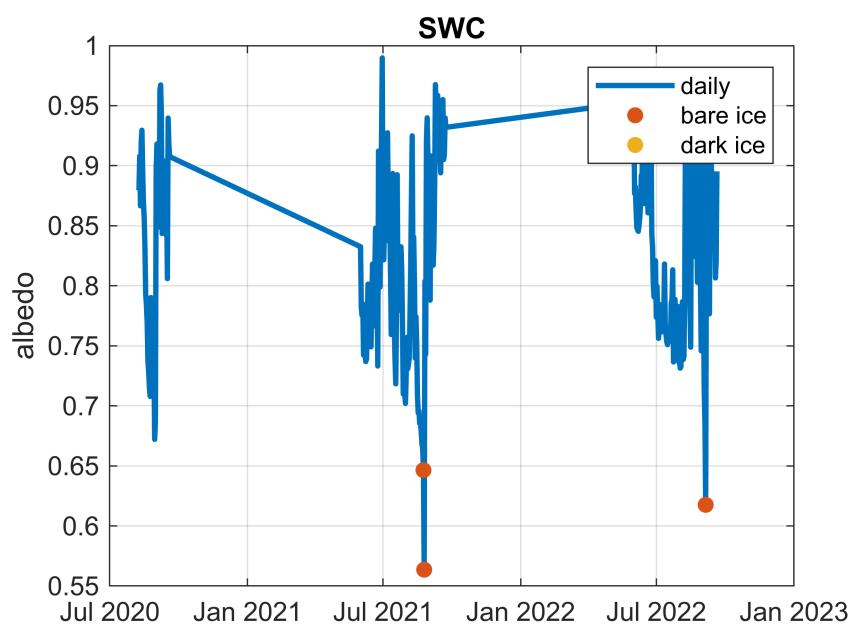
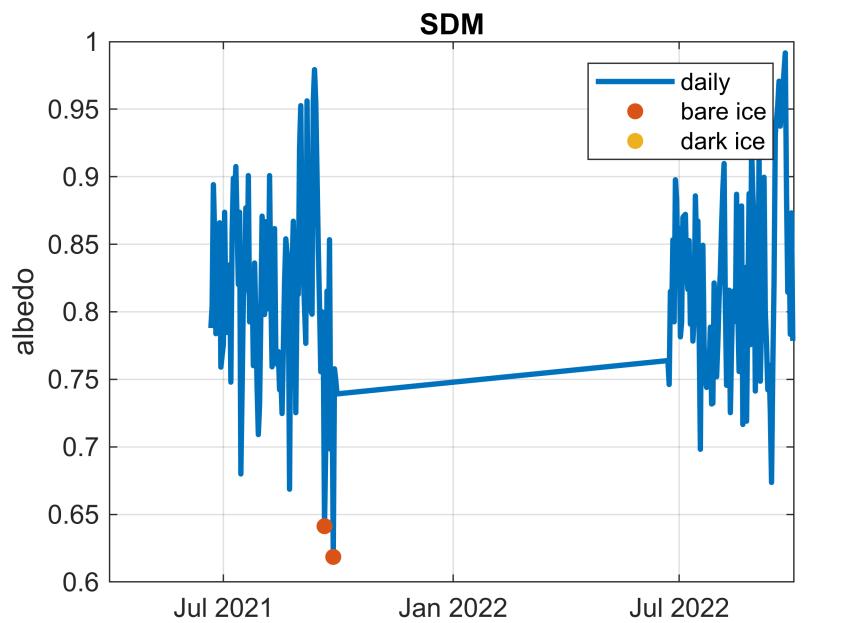


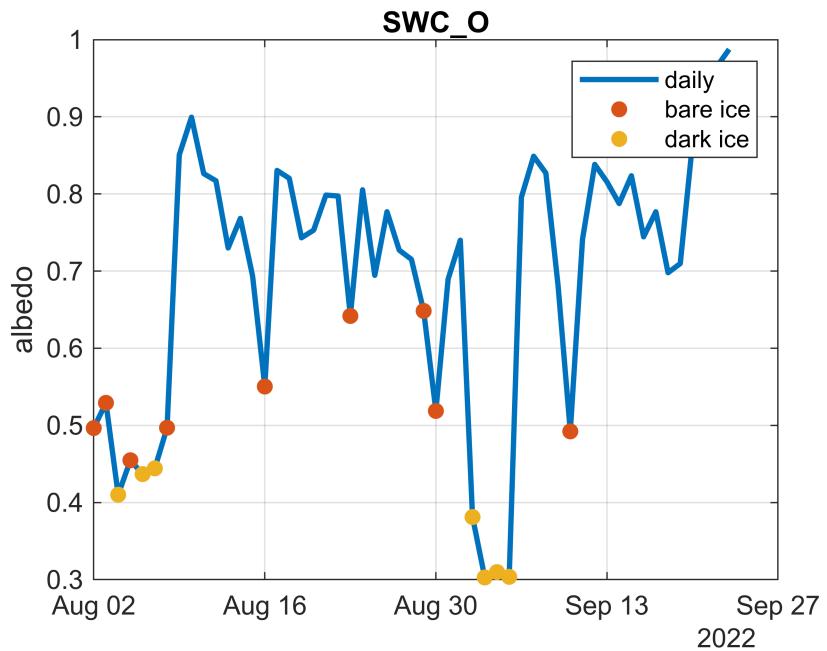
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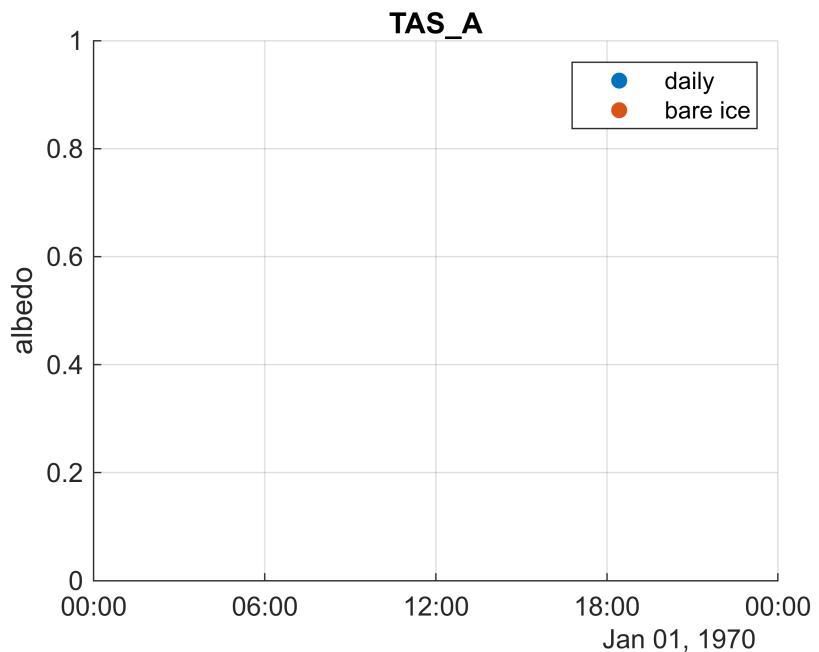
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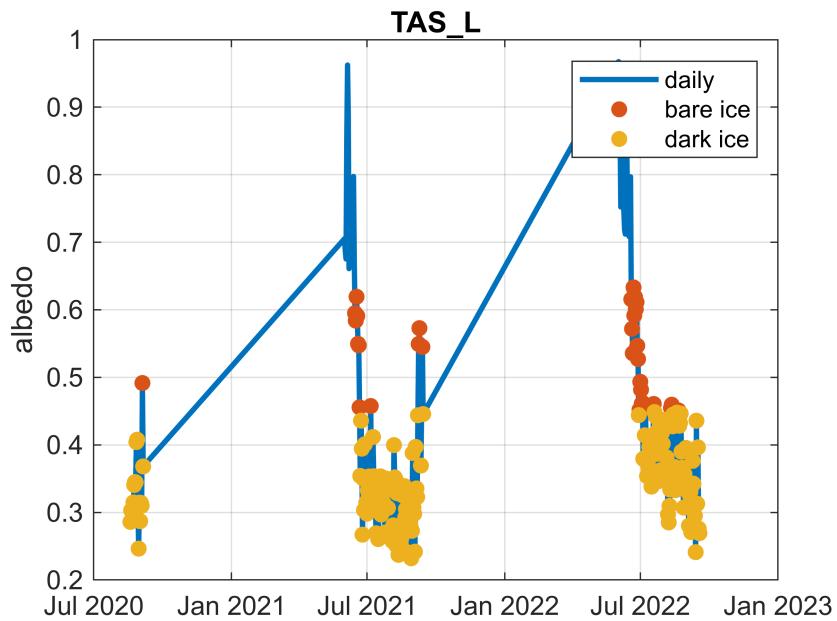




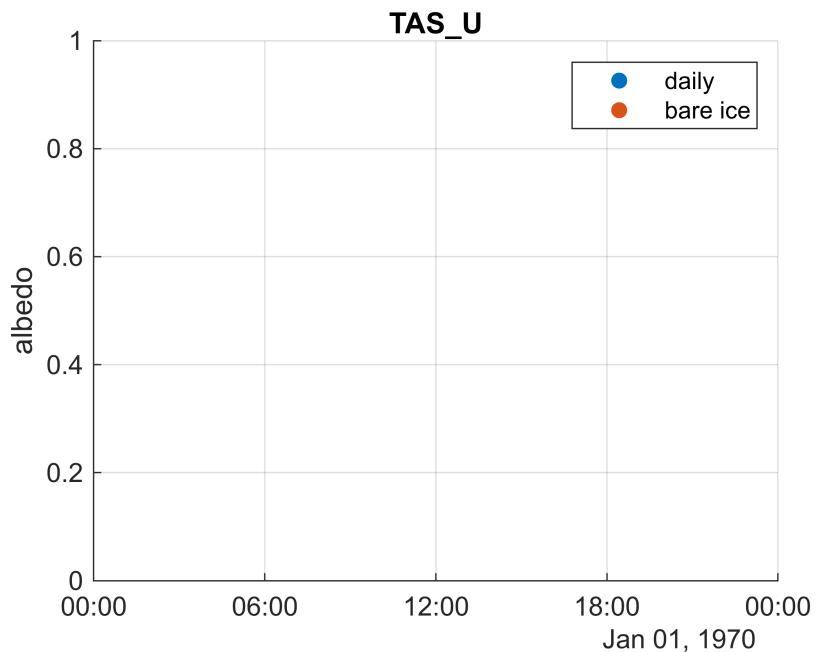


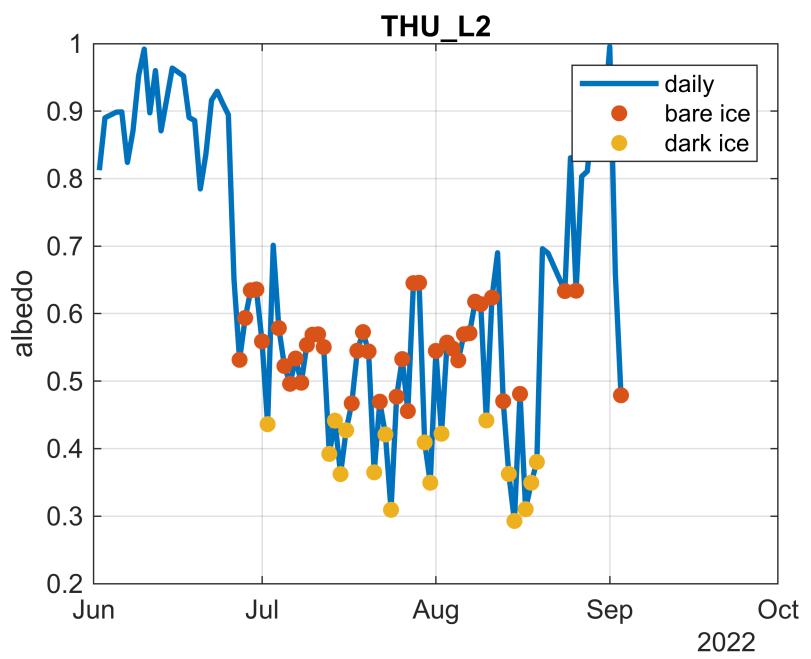
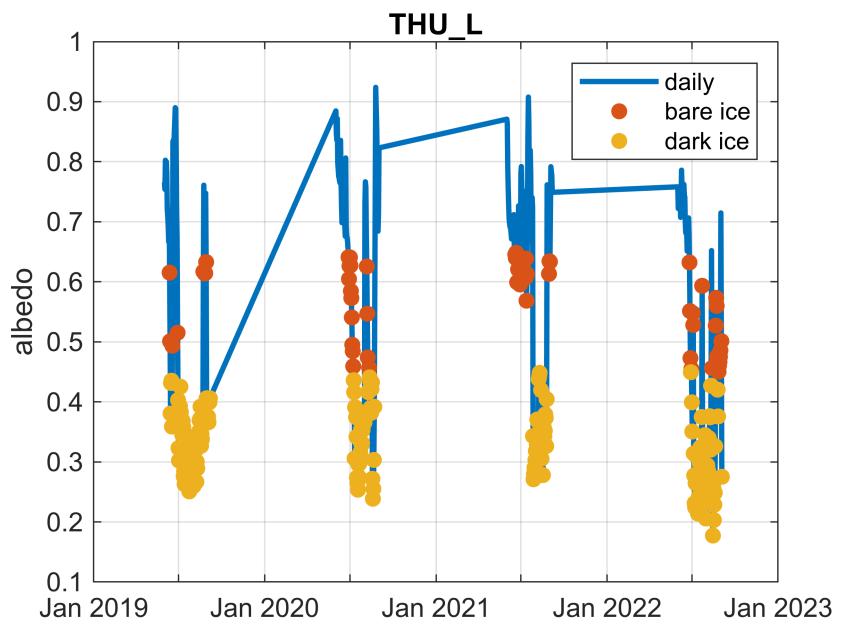
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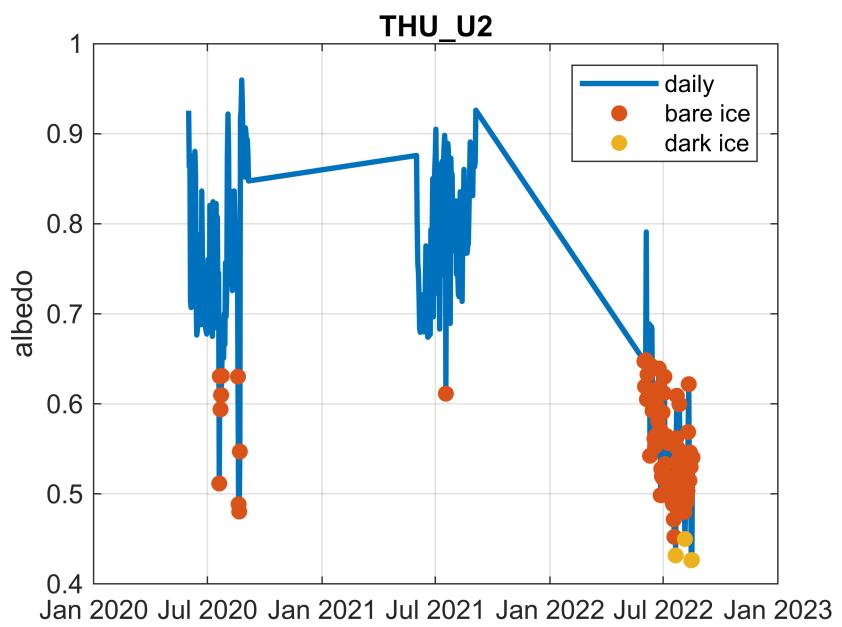
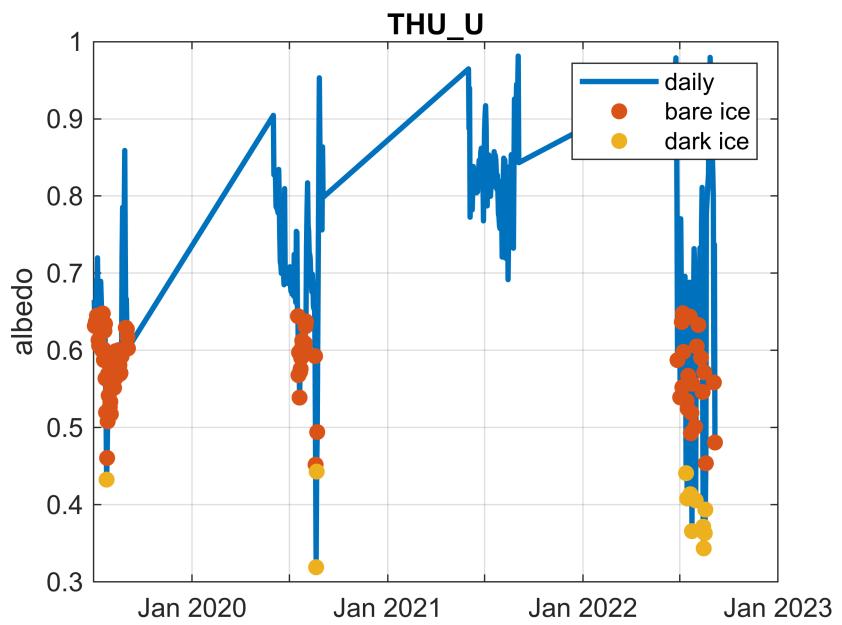


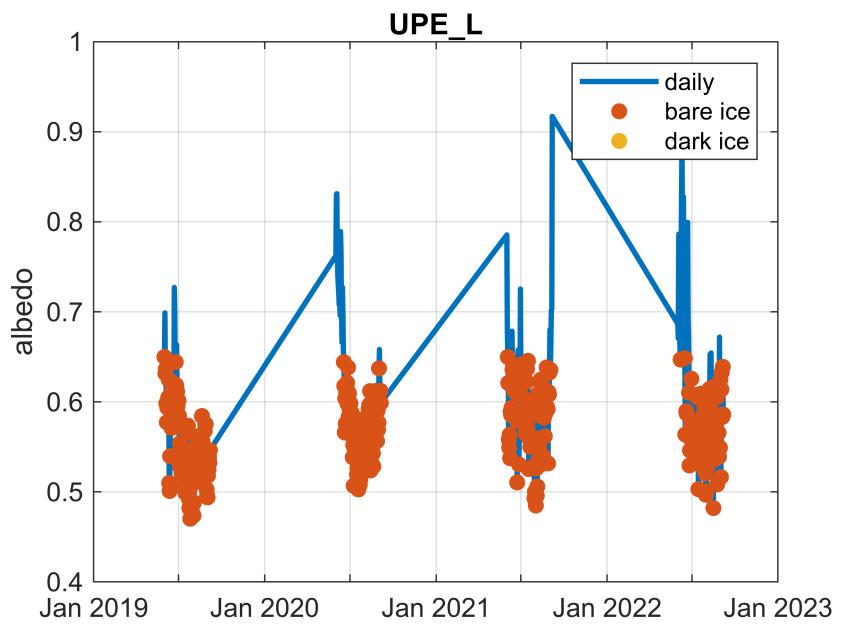
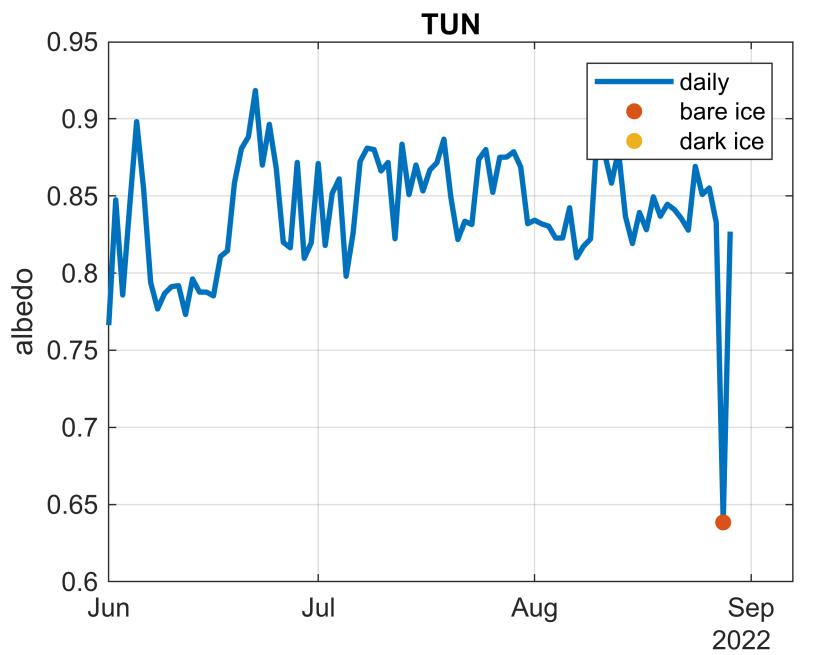


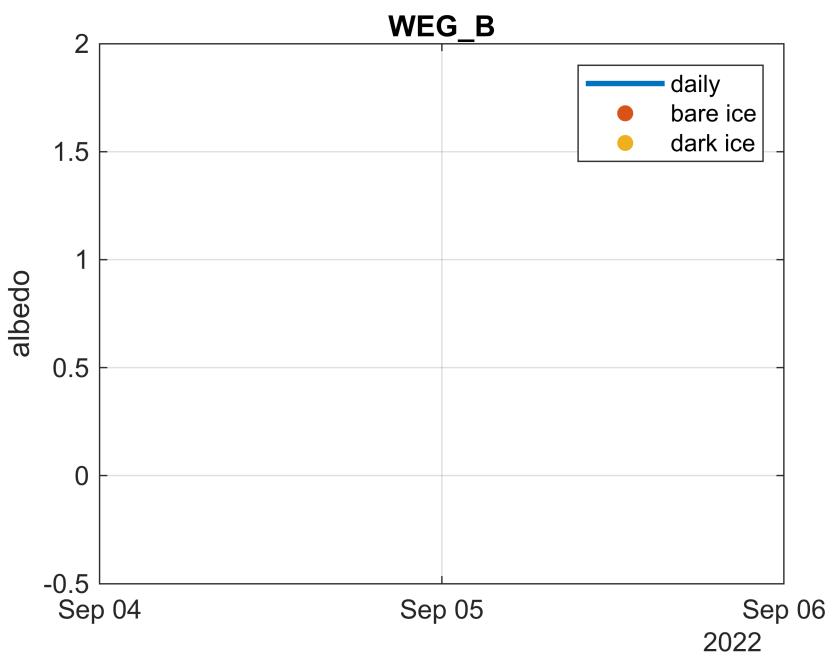
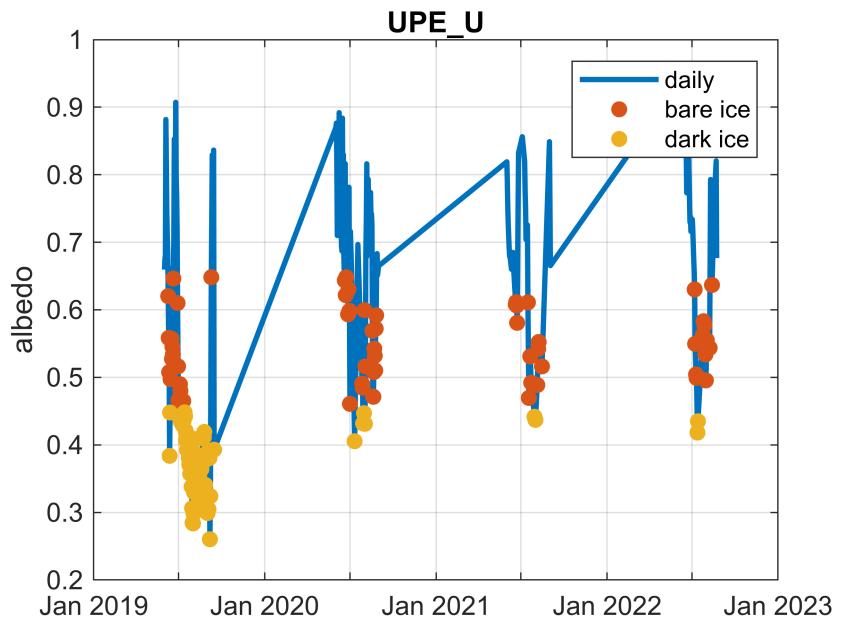
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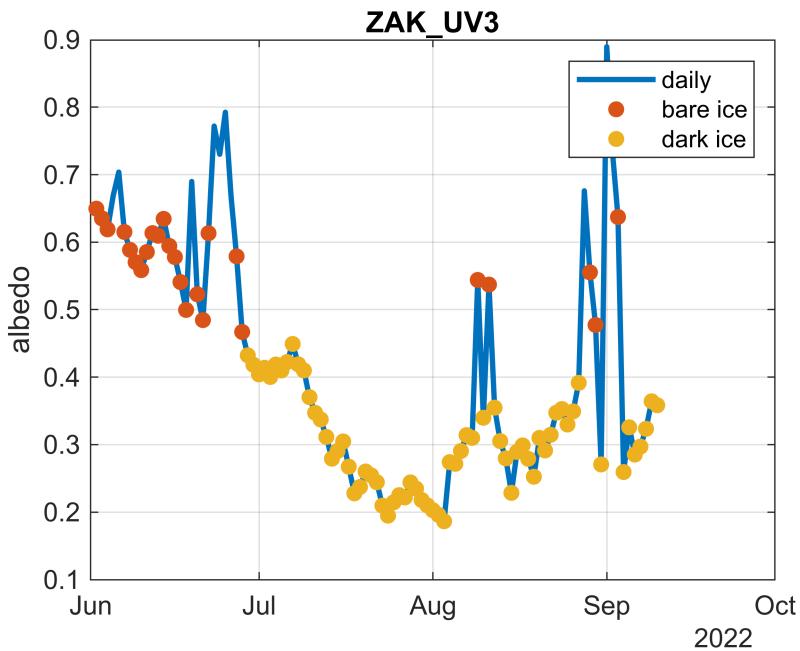












## test

```

df = df(df.aws=="kan_m", :);
[df.y, df.m, df.d] = ymd(df.time);
index = df.m>5 & df.m<10;
df = df(index, :);

df = df(df.y==2019, :);
df = groupsummary(df, ["y", "m", "d"], "mean", "albedo");
df.time = datetime(df.y, df.m, df.d);

figure;
plot(df.time, df.mean_albedo, LineWidth=2);
grid on

```

## darkening speed

```

index = find(df.mean_albedo<0.45);
figure;
plot(df.time, df.mean_albedo, LineWidth=2);
hold on
grid on
scatter(df.time(index), df.mean_albedo(index), 'filled')
hold off

```

## duration

```
duration_bareice = numel(find(df.mean_albedo < 0.65));
```

```
duration_darkice = numel(find(df.mean_albedo < 0.45));
```