



HRVATSKA KONTROLA
ZRAČNE PLOVIDBE

PREDICTION PRECIPITATION TYPE FROM ALADIN

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■ Outline:

- Precipitation type in TAF
- Various forecast techniques
- Nomogram from soundings and model
- Aim
- Disadvantages
- Conclusion

■ Precipitation type in TAF

- In winter time, aeronautical forecasters have to predict not only occurrence but also type of precipitation (RA, FZRA, SN, SNRA, PL)
- Precipitation type indicates possibility of icing (PL, FZRA)
- Icing is one of very dangerous meteorological phenomenon in aviation
- Heavy snow and FZRA can suppress ground operation

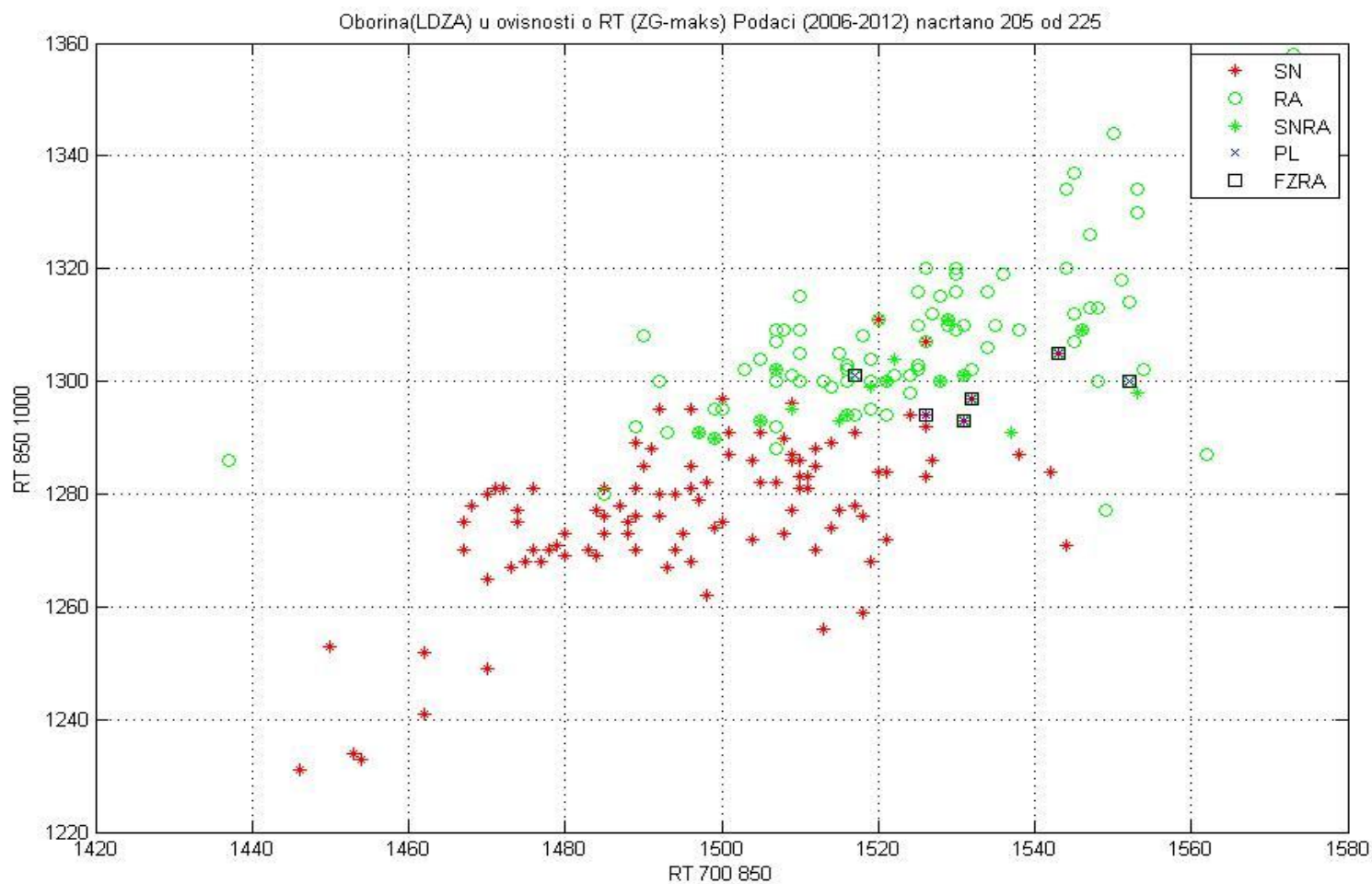
■ Various forecast techniques

- „Top-Down” method – thickness and temperature of the layer
- „Wet bulb temperature freezing height” method – $h(T_w=0)$
- Boyden technique – probability of SN using RT1000-850

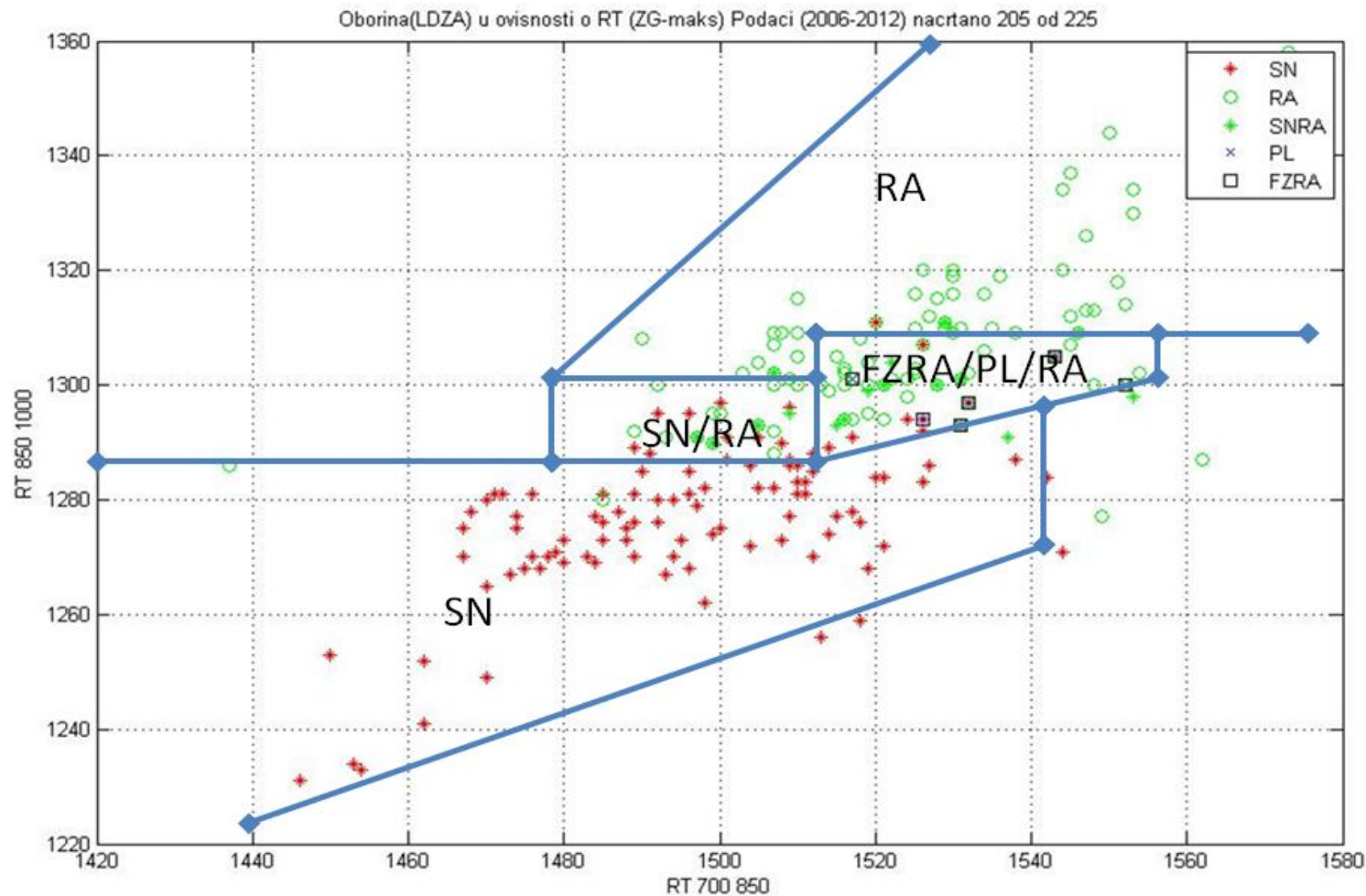
■ TREND technique

- Empirical technique
- Relates observed precipitation and vertical temperature profile (thickness) from soundings or model
- Partial Thickness Predominant P-type Nomogram
- Thickness (RT) proportional to the mean virtual temperature of the layer (describing thermal field through the layers of the troposphere)

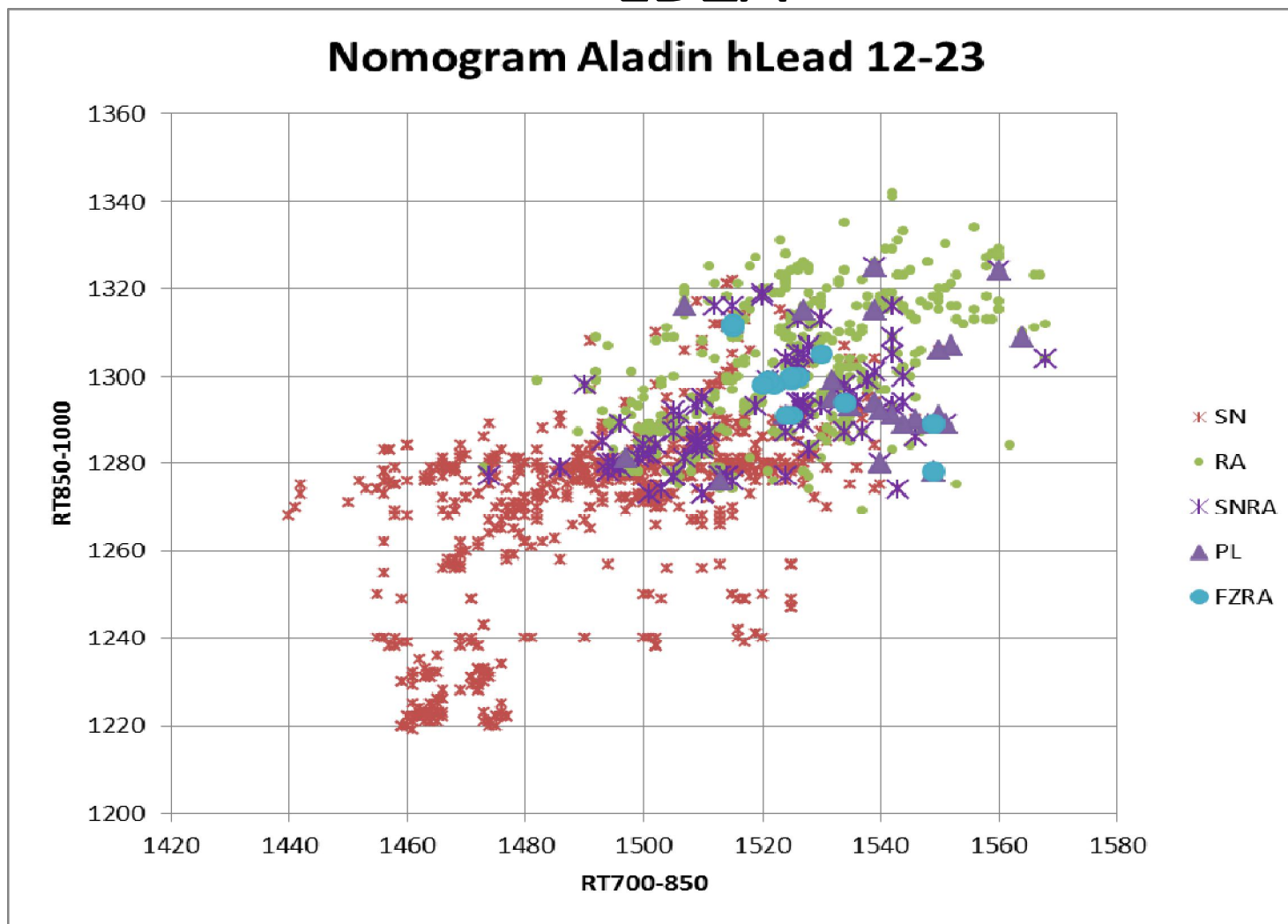
Nomogram RT1000-850 i RT850-700h soundings Maksimir station



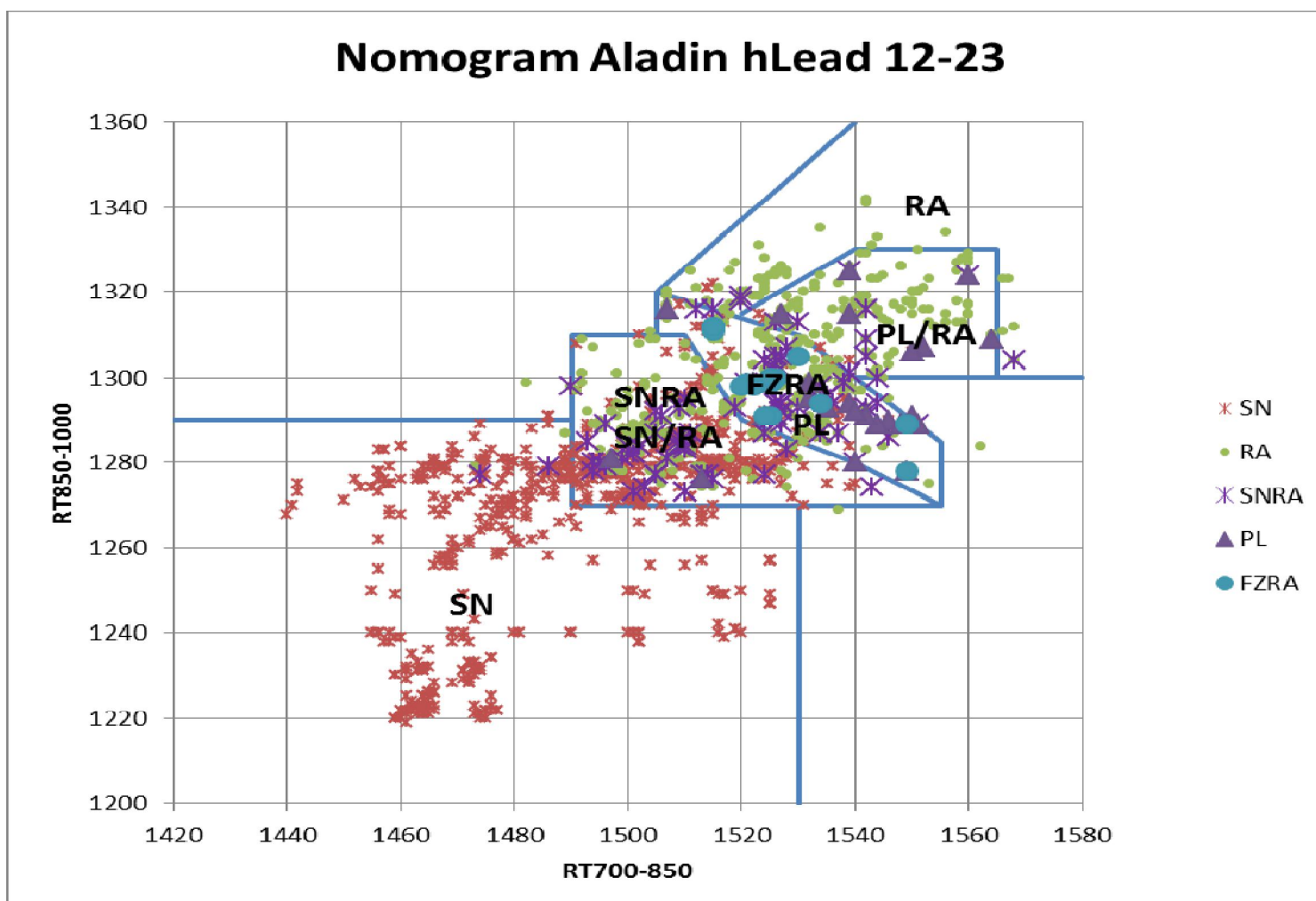
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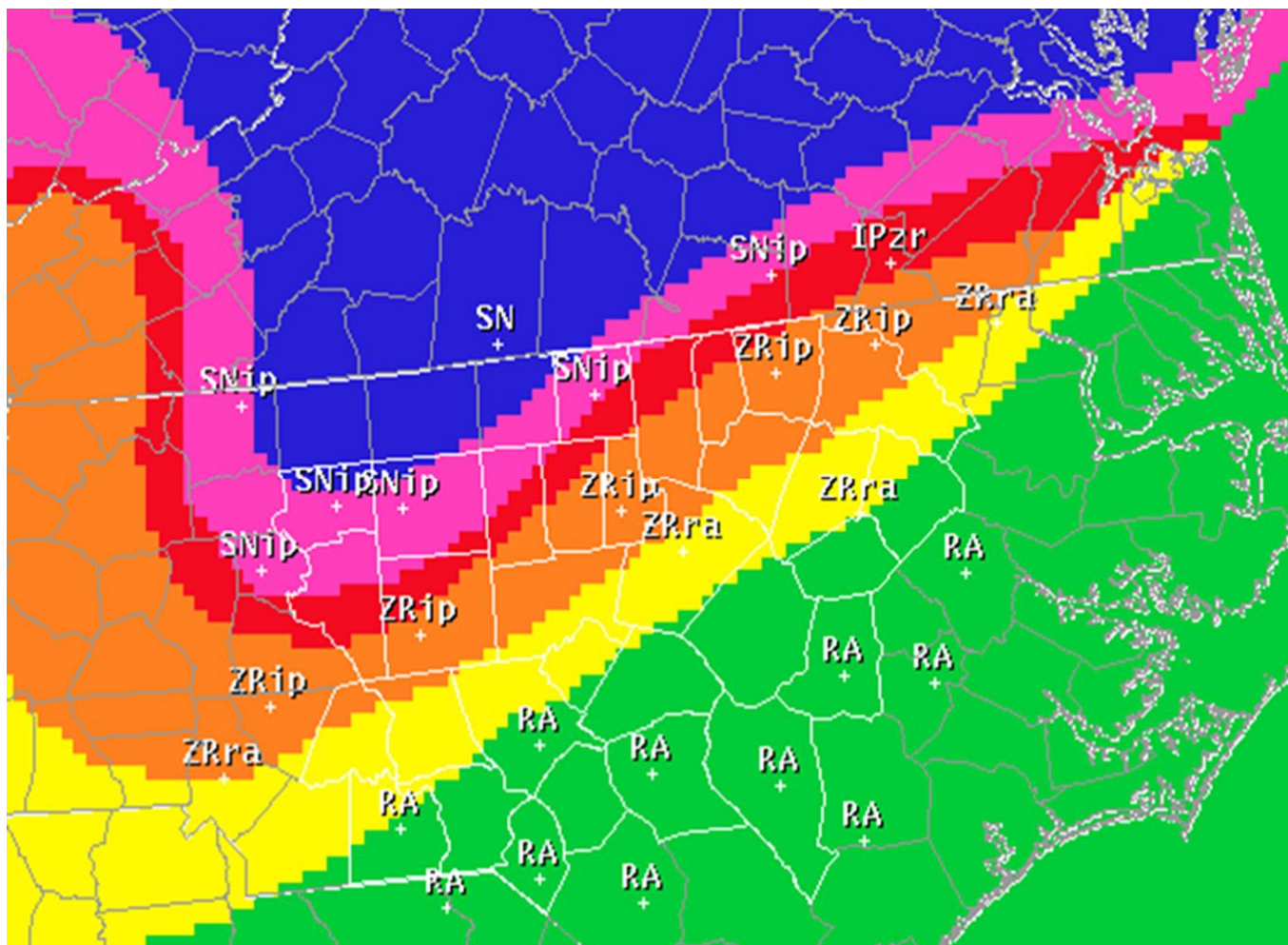
ALADIN RT1000-850 i RT850-700h LDZA



ALADIN RT1000-850 i RT850-700h LDZA



■ AIM:2d maps of winter precipitation



■ Disadvantages:

- Interpolation of 1000hPa (when surface pressure is below)
- Only for locations lower than 500m MSL
- mean virtual temperature of the layer can be the same for different vertical temperature profile of the layer

■ Conclusion:

- RT output from ALADIN can be used through TREND technique for prediction precipitation type (very important in aviation forecast – ICING,FZRA,SN)
- In operational use good visualization



Thank you😊