Slides for DC3 meeting

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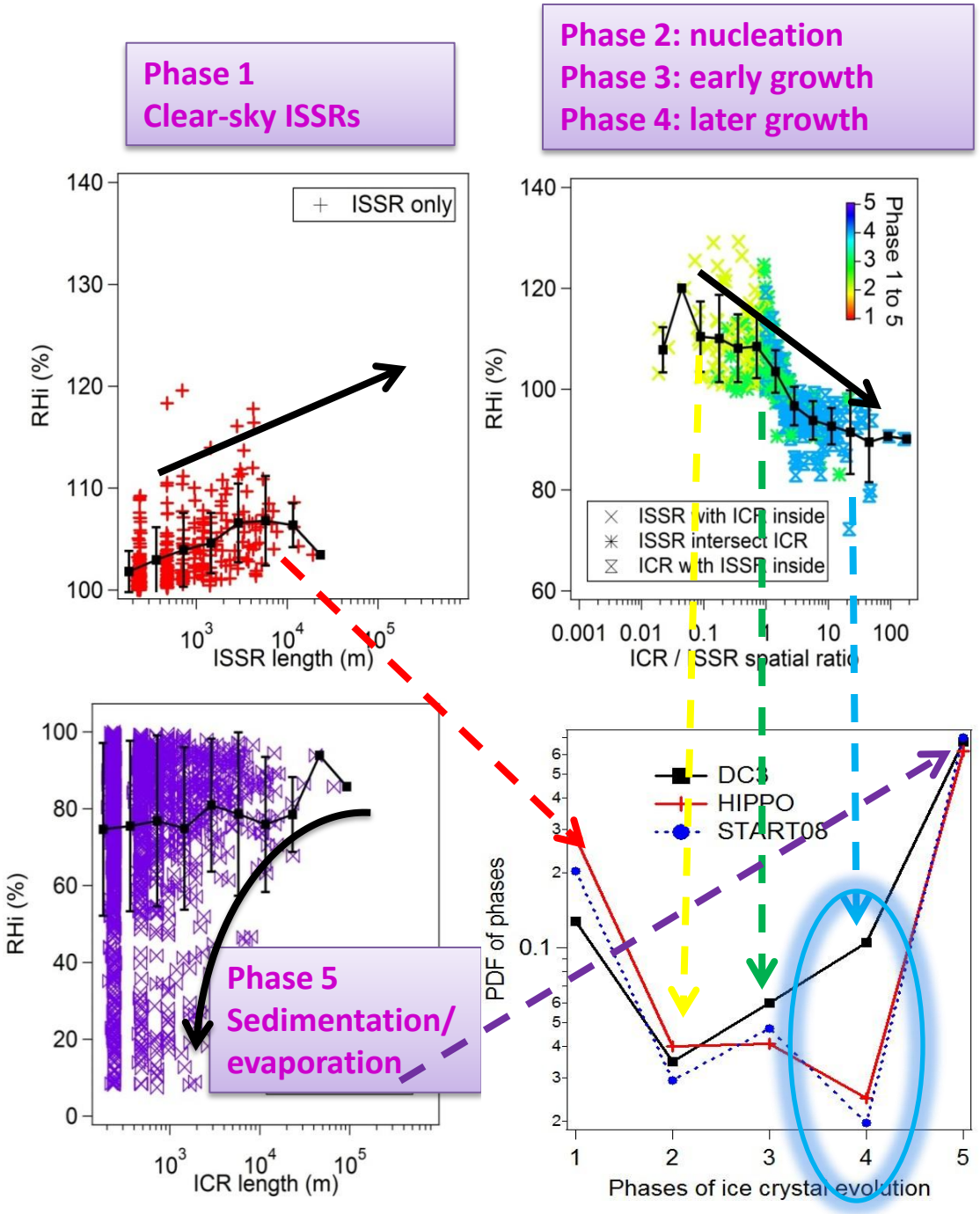
Lagrangian view ice crystal evolution in DC3

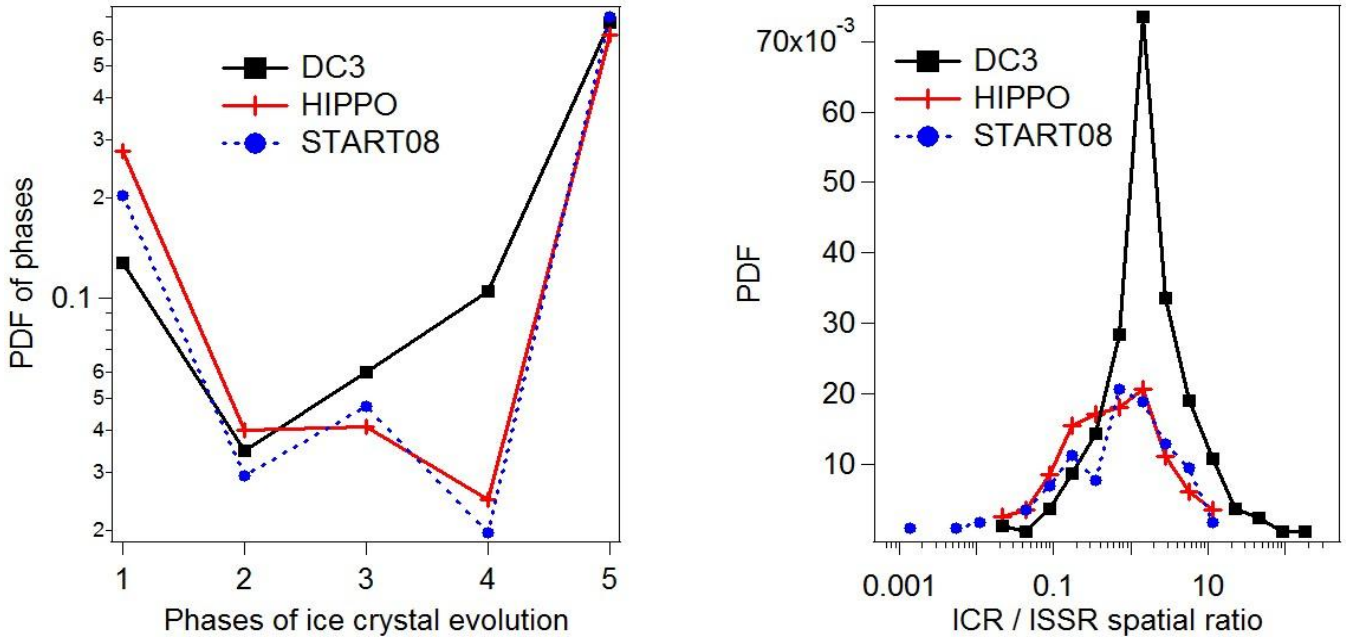
Method: using the spatial relationships between ice supersaturated regions (ISSRs) and ice crystal regions (ICRs) to separate five phases of ice crystal evolution

DC3 campaign: continued strong **uplift** maintained ISS inside ICRs compared with START08 and HIPPO.



Phase 1: Clear-sky ISSRs phase: birthplace of cirrus clouds.
Phase 2: Nucleation phase: ICRs start to form inside the ISSRs.
Phase 3: Early growth phase: ICRs and ISSRs are adjacent or they intersect each other. RHi decreases as ICR size expands.
Phase 4: Later growth phase: ICRs take over the space and ISSRs are imbedded in ICRs. The whole ICR+ISSR is no longer fully supersaturated.
Phase 5: Ice crystals evaporate and sediment. No more ISS. RHi decreases as ICR size shrinks. Note the wide distribution of RHi (from 100% to 10%) for aged ICRs.

Future work: comparisons of ice crystal evolution in different dynamical backgrounds



Deep Convective Clouds and Chemistry (DC3) campaign: outflow of deep convections. START08 and HIPPO Global less convective cirrus.

DC3 campaign: continued strong **uplift** maintaining ISS inside ICRs compared with START08 and HIPPO.