EXERCISE N°3: classifying ICE3 subroutines for their use below APLMPHYS

You get a listing of ICE3-type isolated subroutines prepared to be called from the ACACON, ACCOLL or ACEVMEL environment (and not from APLMPHYS directly).

The task is double:
- For 'simple' cases (one to one bijection between the logic of ICE3 and that of APLMPHYS & co.) just telling where the routine should be called from:
    o ACACON (auto-conversion type process, i.e. from cloud species to falling species)?
    o ACCOLL (collection, i.e. the same transition as previously but triggered by the pre-existence of one 'collecting' precipitation flux, to which the 'collected' species will be aggregated)?
    o ACEVMEL (evaporation of falling species OR phase changes of the latter during the falling stage [here graupel ⇔ snow conversions will be considered as a phase change with zero latent heat])?
- For complex cases (see list of possible complexities below), identifying what is the problem and, if possible, suggesting how to cure it (algorithmically, we are not allowed to touch the 'science' of the code).

List of possible problems:
- APLMPHYS (and its 3 lower-level subroutines) privileges the identification of 'one origin, one target' processes, while ICE3 may be more liberal on that aspect;
- The ICE3 routines may regroup processes that the classification between ACACON, ACCOLL and ACEVMEL would force to split;
- The APLMPHYS-type processes are all of 'stand-alone type', which might not always be the case in ICE3;
- The ICE3 logic is purely sequential, something that may contradict the mix of sequential (between ACACON, ACCOLL and ACEVMEL) and parallel (inside each of them) solution of APLMPHYS;
- The process logic might not be the same at all in both cases, for the few process (remember that APLMPHYS only has a diagnostic handling of graupel) which currently have identical roles (and I/O) on each side.

Good search !!!

Additionally, for advanced specialists, suggestions are welcome on how to create a 'fake', i.e. an extension of the current ALARO-0 solution, keeping its sprit but offering an equivalent to each of the ICE3 processes. Those equivalents may be of three types:
- prognostic translation of the current diagnostic graupel computation;
- copy-paste of one ICE3 code piece;
- something in-between yet to invent.
Of course the interesting part of this work is mostly to identify the candidates to the third category and to make proposals for them.

The 'strategy.doc' file indicates how all the above can be harmonised (it is here for information, not for direct guideline).