

IRS MAG Action M5.A9bis

IRS MAG 7th meeting,
EUMETSAT, Darmstadt 16-17 May 2019

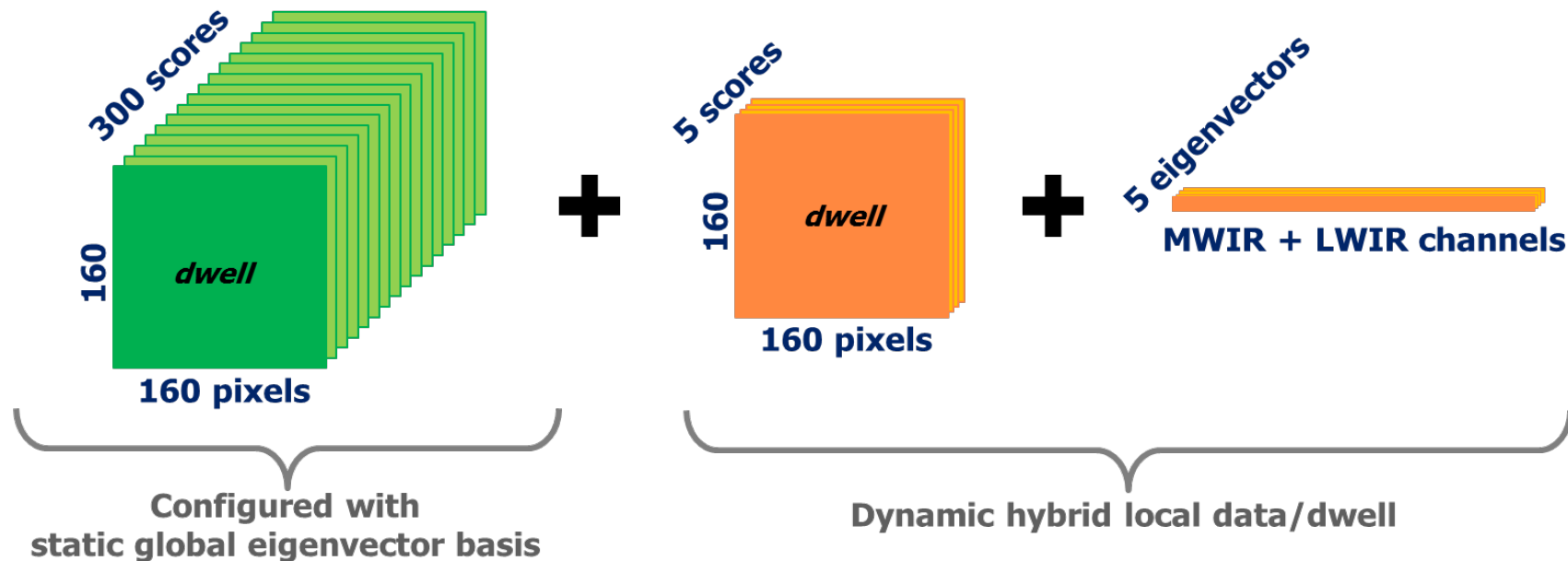
*Thomas AUGUST
with inputs from RSP and USC teams*



M5.A9bis: Proposal of an update procedure for the IRS eigenvectors

Background

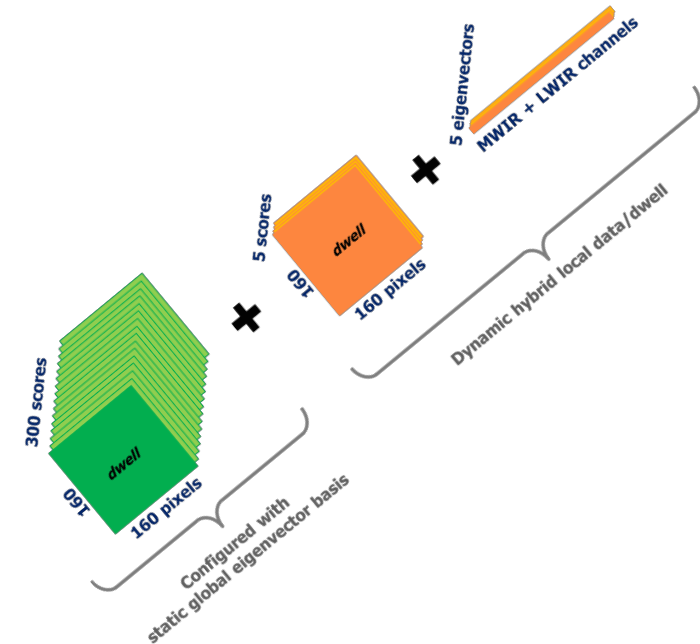
- IRS L1b to be disseminated as PC scores in NRT
- IRS PC products consist of:
 - ✓ scores along static global eigenvectors (core basis)
 - ✓ a limited set of eigenvectors and scores of the residuals computed for each dwell (global-local hybrid approach)



M5.A9bis: Proposal of an update procedure for the IRS eigenvectors

Background

- IRS L1b to be disseminated as PC scores in NRT
- IRS PC products consist of:
 - ✓ scores along static global eigenvectors (core basis)
 - ✓ a limited set of eigenvectors and scores of the residuals computed for each dwell (global-local hybrid approach)
- NRT operational users require advance notice of changes to the core basis to adapt their systems
- Topic discussed at ITSC-21 (Darmstadt) in the NWP group, for IASI operations and in anticipation of MTG-IRS
 - ✓ this proposal builds on these discussions and conclusions



M5.A9bis: Proposal of an update procedure for the IRS eigenvectors

Motivation for updating the PC basis

- Updates to the static core basis are needed to include new spectral signatures not present in the training base
 - e.g. from rare events like unusual volcanic eruptions and wild fires
 - or to capture the effect of rising amounts of green-house gases...
- The applicability of the core eigenvector basis will be continuously monitored.

Way forward proposal

- Such a change would be managed like any other changes to operational products, including:
 - ✓ relevant notification period
 - ✓ the provision of test data
- Assuming the change is not driven by the resolution of an urgent anomaly and taking into account the feed-back from ITSC-21 on this topic (action DA/NWP20-13):
 - ✓ 3-month ahead warning
 - ✓ test data = a couple of consecutive days of PC products + the new set of eigenvectors used for their generation.

Update frequency

- As discussed and supported during the ITSC-21 and during MAG 4th and 5th meetings, the PC-hybrid approach should mitigate the requirement for *ad hoc* updates of the PC basis vectors.
 - Instead, **planned regular updates are foreseen**, for instance **on annual basis upon need**.

Questions, Comments?