COST-G

Combination Service for Time-variable Gravity Models

Combination Service for Time-variable Gravity Fields (COST-G): operations and new developments

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G3P

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STELLAR SPACE STUDIES

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LEGOS

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- Review of weighting scheme
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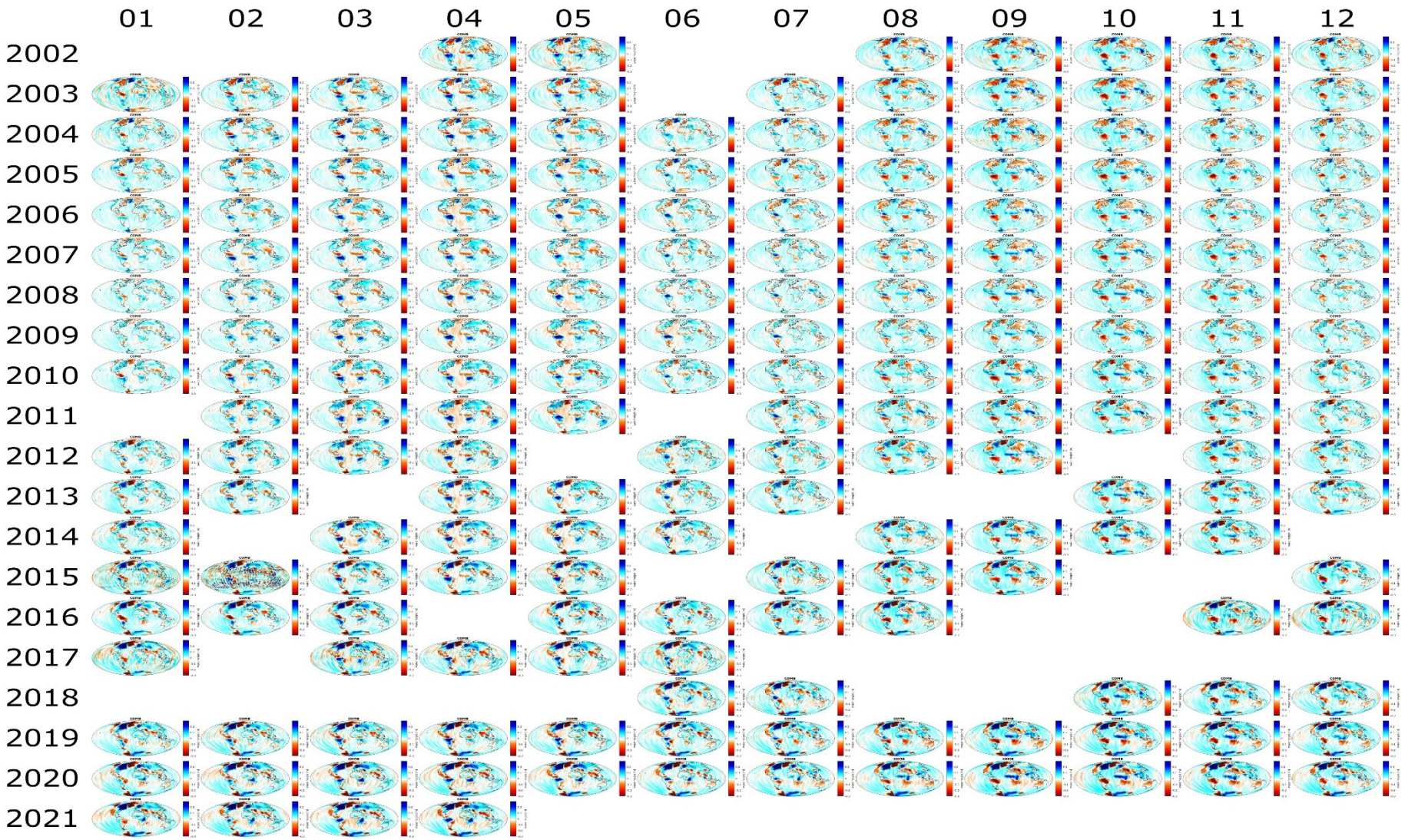
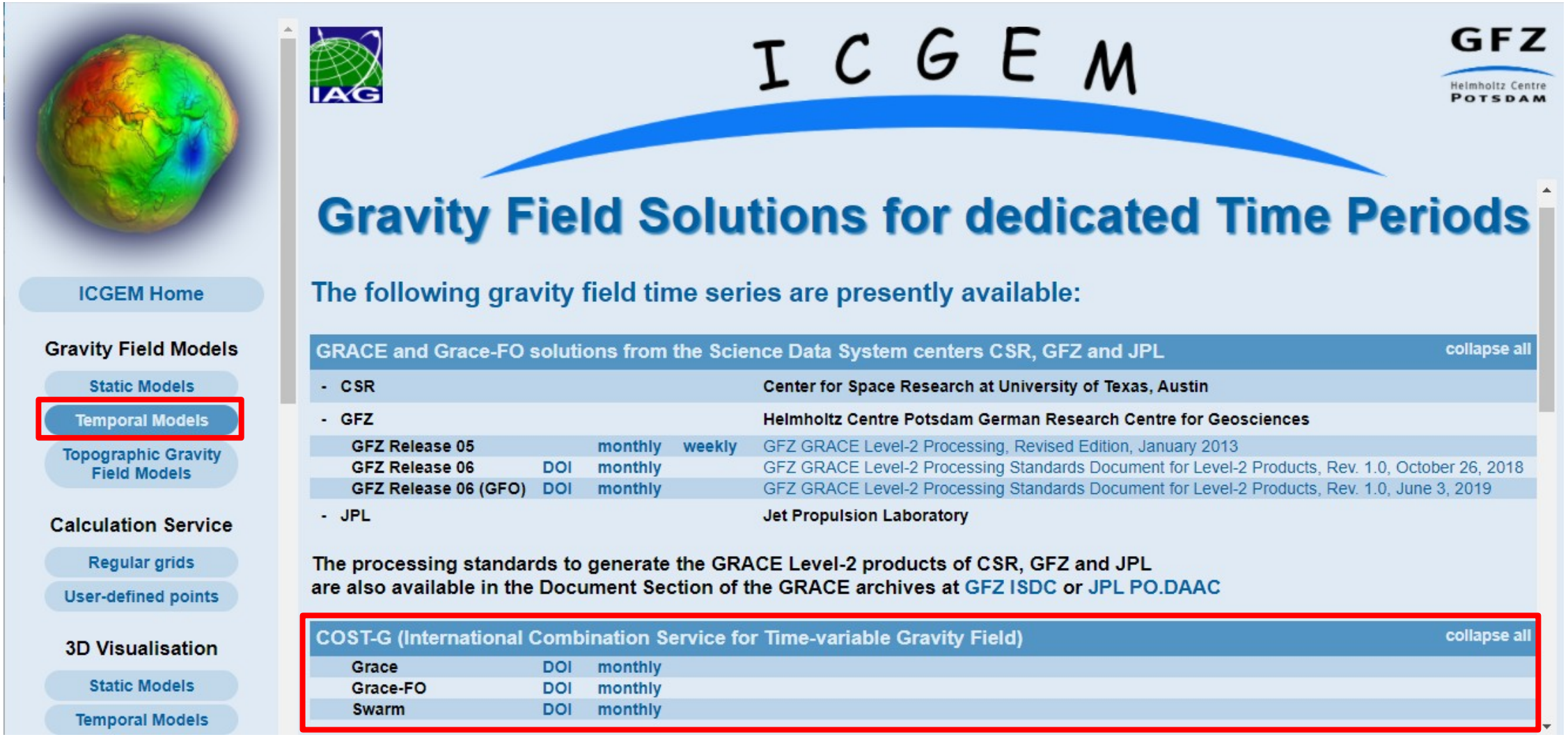
- COST-G extension to Chinese Analysis Centers

COST-G: Website

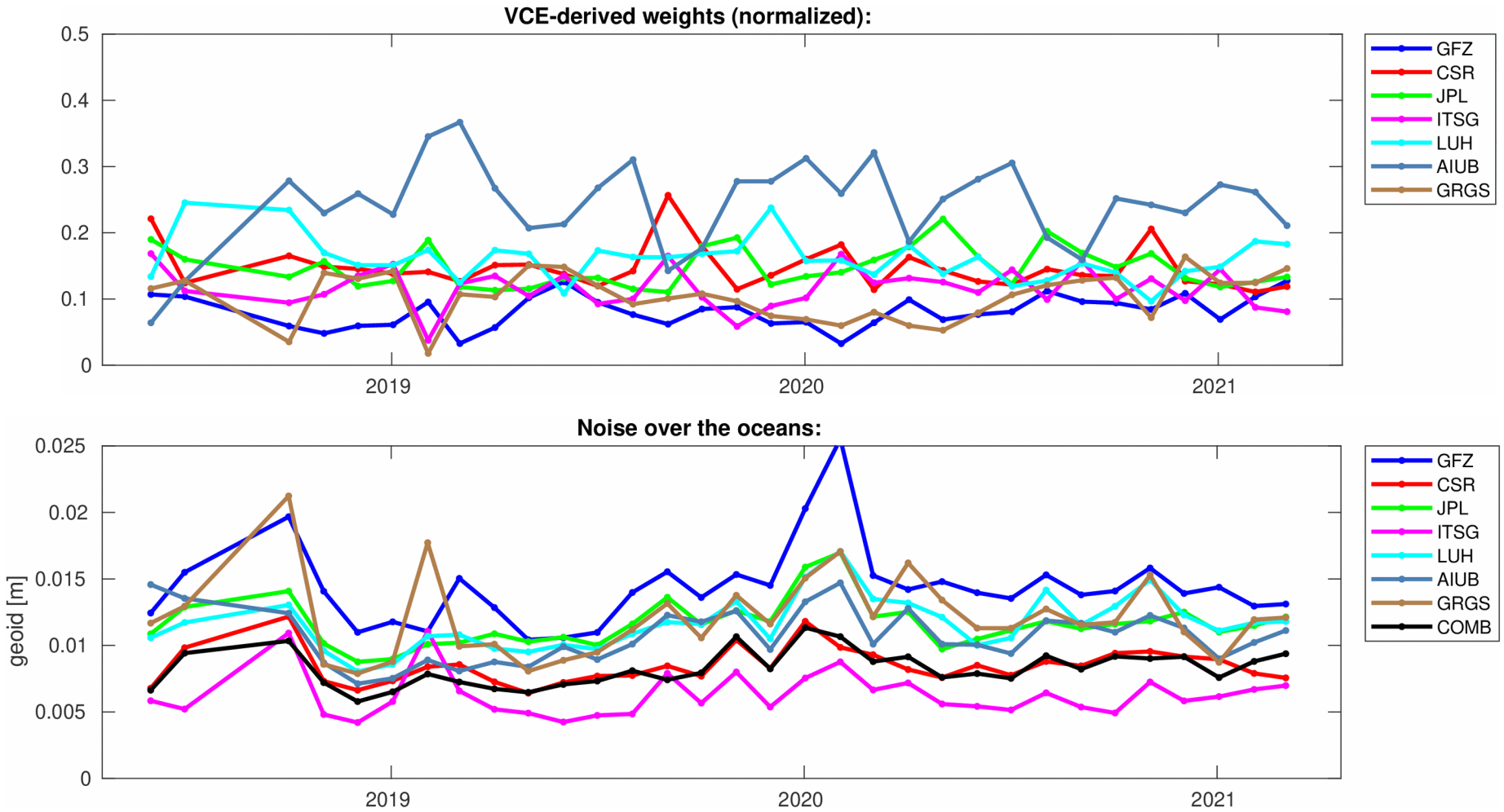
COST-G: Products (GRACE/GRACE-FO)



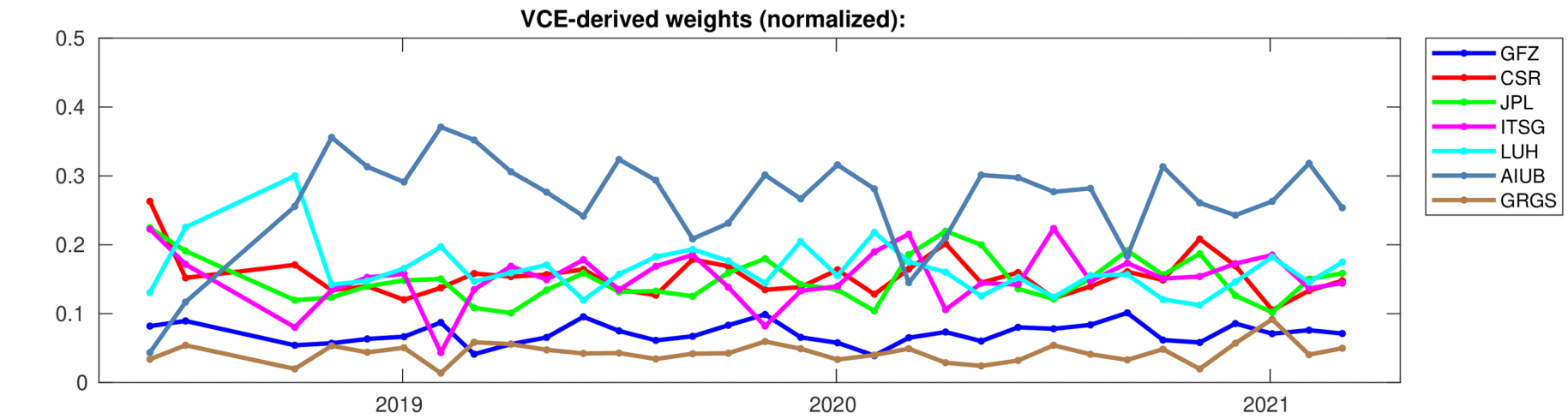
COST-G products: Level-2 (spherical harmonic)

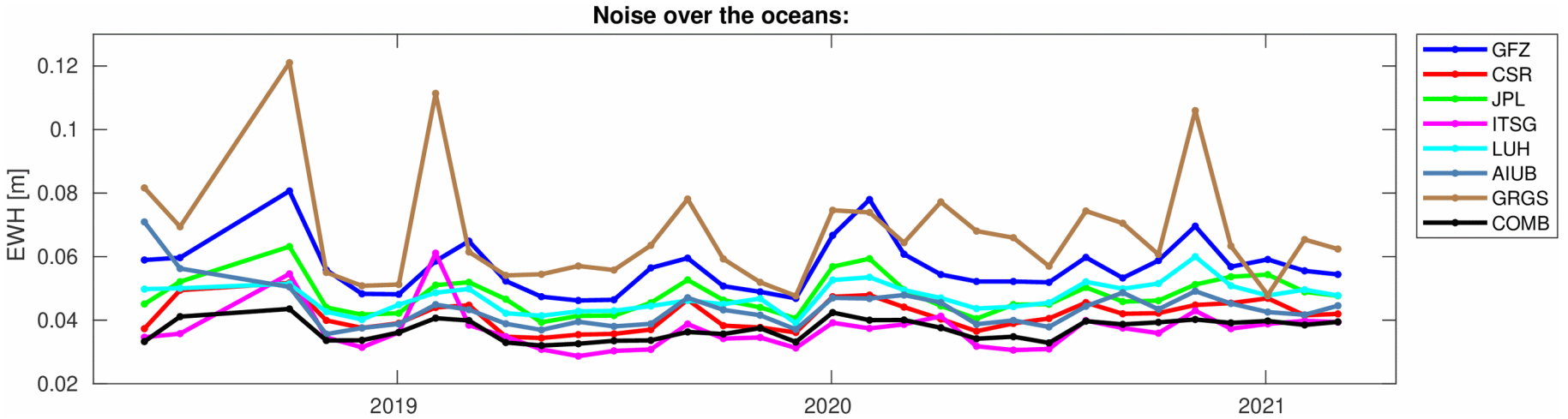


GRACE-FO weighting scheme: geoid height, unfiltered



GRACE-FO weighting scheme: EWH, 300 km Gauss filtered

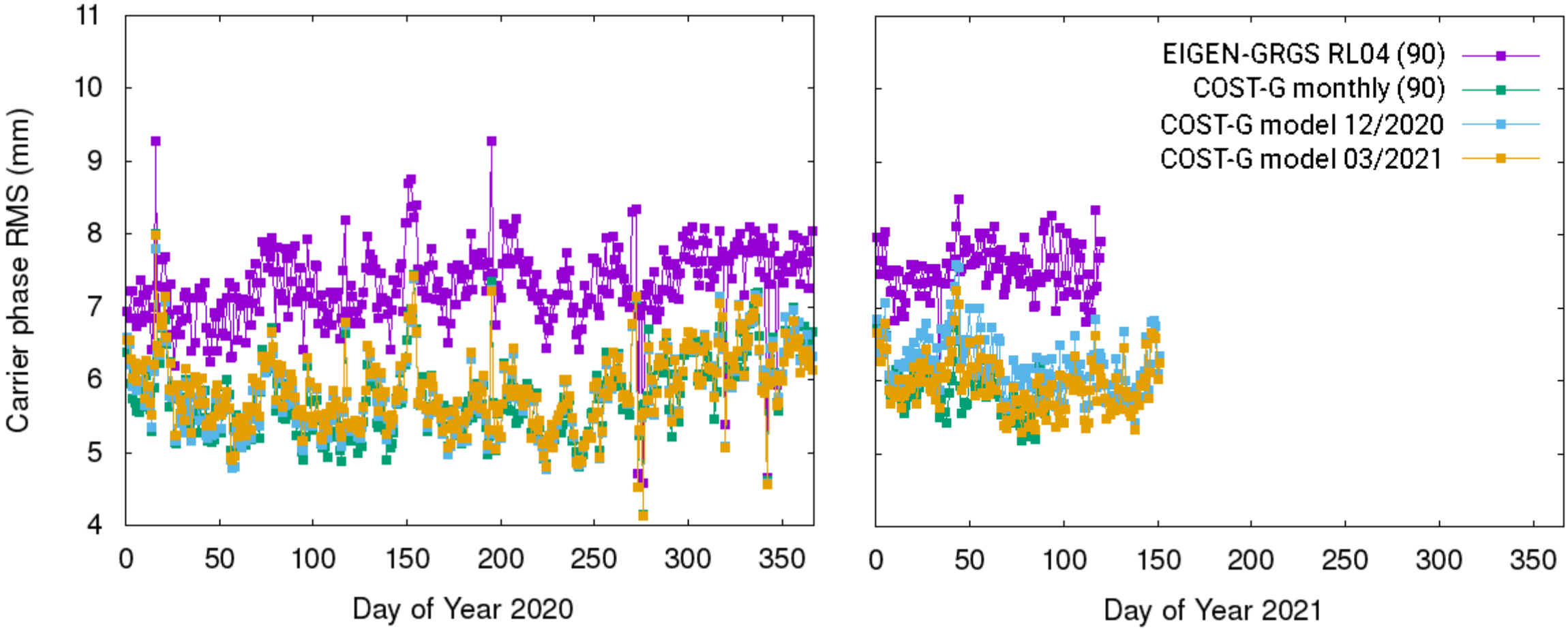




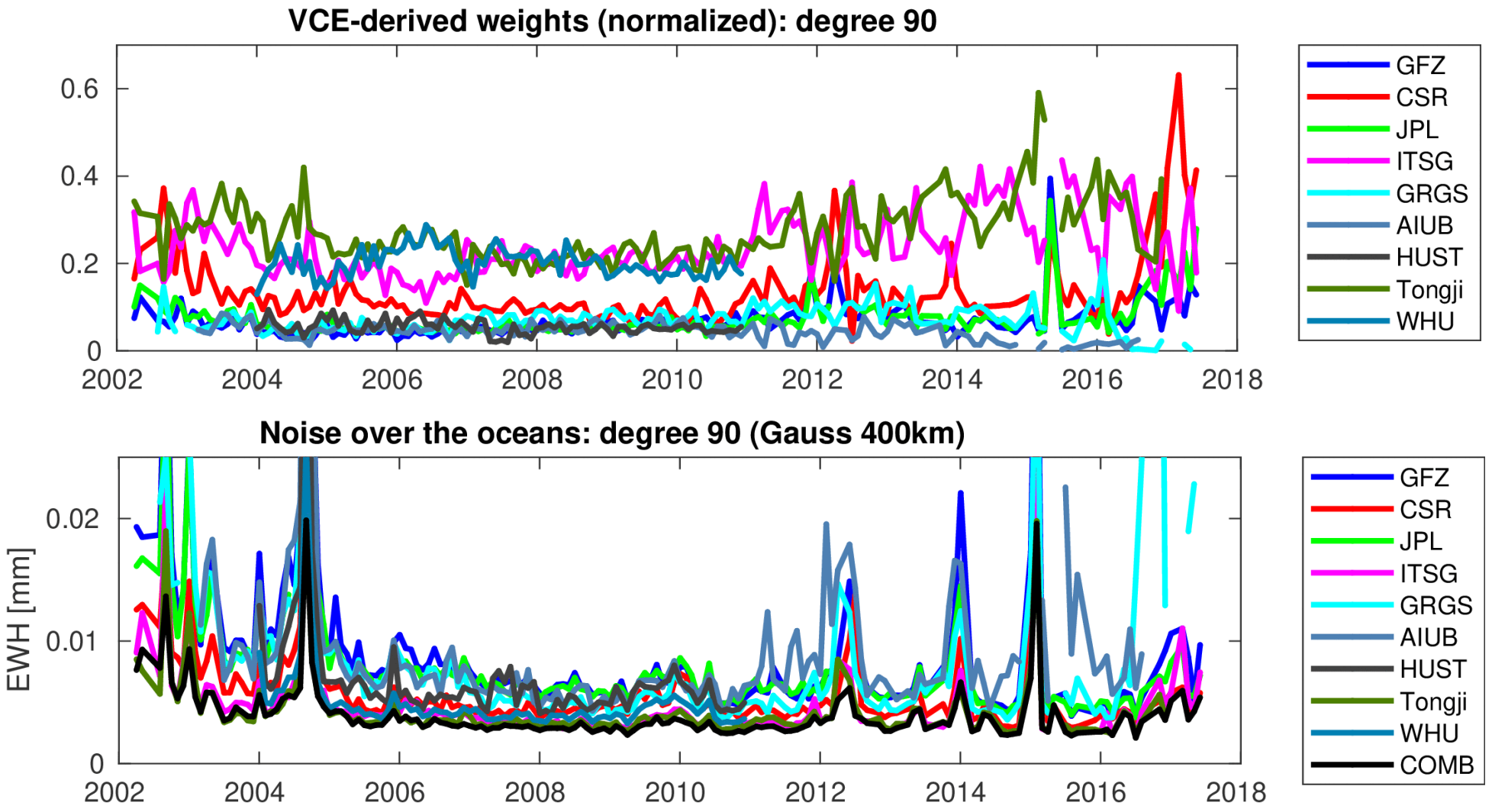
Relative weights are more consistent with noise assessment when based on 300 km Gauss filtered EWH.

Predictions for Altimetry Precise Orbit Determination

- COST-G monthly fields and deterministic models outperform standard EIGEN-GRGS RL04
- COST-G predictions based on deterministic models allow for high-quality altimeter POD



Extension to Chinese Analysis Centers (GRACE)



Validation: GOCE orbit fit

- GRACE solutions up to d/o 90 filled up with GOCE-DIR-6 up to d/o 240:
- The table shows RMS of orbit fits (cm) for the different test cases (3D residuals. mean values from the 30 individual arcs in question)

Gravity model	Month			
	2009/11	2009/12	2010/10	2010/11
GFZ_RL06	**7.41**	**6.86**	**6.21**	**6.16**
AIUB_RL02	**8.71**	**8.56**	**7.39**	**7.21**
CSR_RL06	**6.89**	**9.10**	**6.65**	**6.20**
GRGS_RL04	**5.89**	**7.30**	**5.48**	**5.83**
ITSG_2018_tide_free	**5.53**	**5.13**	**4.19**	**4.54**
HUST-Grace2019	**7.93**	**7.92**	**6.98**	**7.59**
Tongji-Grace2018	**5.15**	**5.51**	**4.33**	**4.37**
WHU_RL02	**6.90**	**7.58**	**4.81**	**5.03**
COSTG_RL01	**5.03**	**5.54**	**4.52**	**4.72**
COSTG incl. Chinese	**5.08**	**5.33**	**4.37**	**4.55**

Best cases are high-lighted

Combined gravity fields benefit from inclusion of Chinese analysis centers in 3 of 4 cases!