Prediction of stochastic models at 48^2, Gaussian filter, upper fluid layer

Model mean $\mathrm{E}(\widetilde{S}|\overline{q})$

Model std $\mathrm{Std}(\widetilde{S}|\overline{q})$

True residual $r = S - \mathrm{E}(\widetilde{S}|\overline{q})$

Simulated residual $\widetilde{r} = \widetilde{S} - \mathrm{E}(\widetilde{S}|\overline{q})$

Subgrid forcing S

GZ

GAN

VAE

Boxed values:
- $4.3 \times 10^{-12}\ s^{-2}$
- $1.4 \times 10^{-12}\ s^{-2}$
- $1.5 \times 10^{-12}\ s^{-2}$
- $1.4 \times 10^{-12}\ s^{-2}$
- $4.7 \times 10^{-12}\ s^{-2}$
- $4.1 \times 10^{-12}\ s^{-2}$
- $1.8 \times 10^{-12}\ s^{-2}$
- $2 \times 10^{-12}\ s^{-2}$
- $1.6 \times 10^{-12}\ s^{-2}$
- $4 \times 10^{-12}\ s^{-2}$
- $1.1 \times 10^{-12}\ s^{-2}$
- $1.7 \times 10^{-12}\ s^{-2}$
- $1.1 \times 10^{-12}\ s^{-2}$

Colorbars:
- $-3\ -2\ -1\ 0\ 1\ 2\ 3$ — rms units (see box)
- $0\ 1\ 2$ — rms units
- $-3\ -2\ -1\ 0\ 1\ 2\ 3$ — rms units