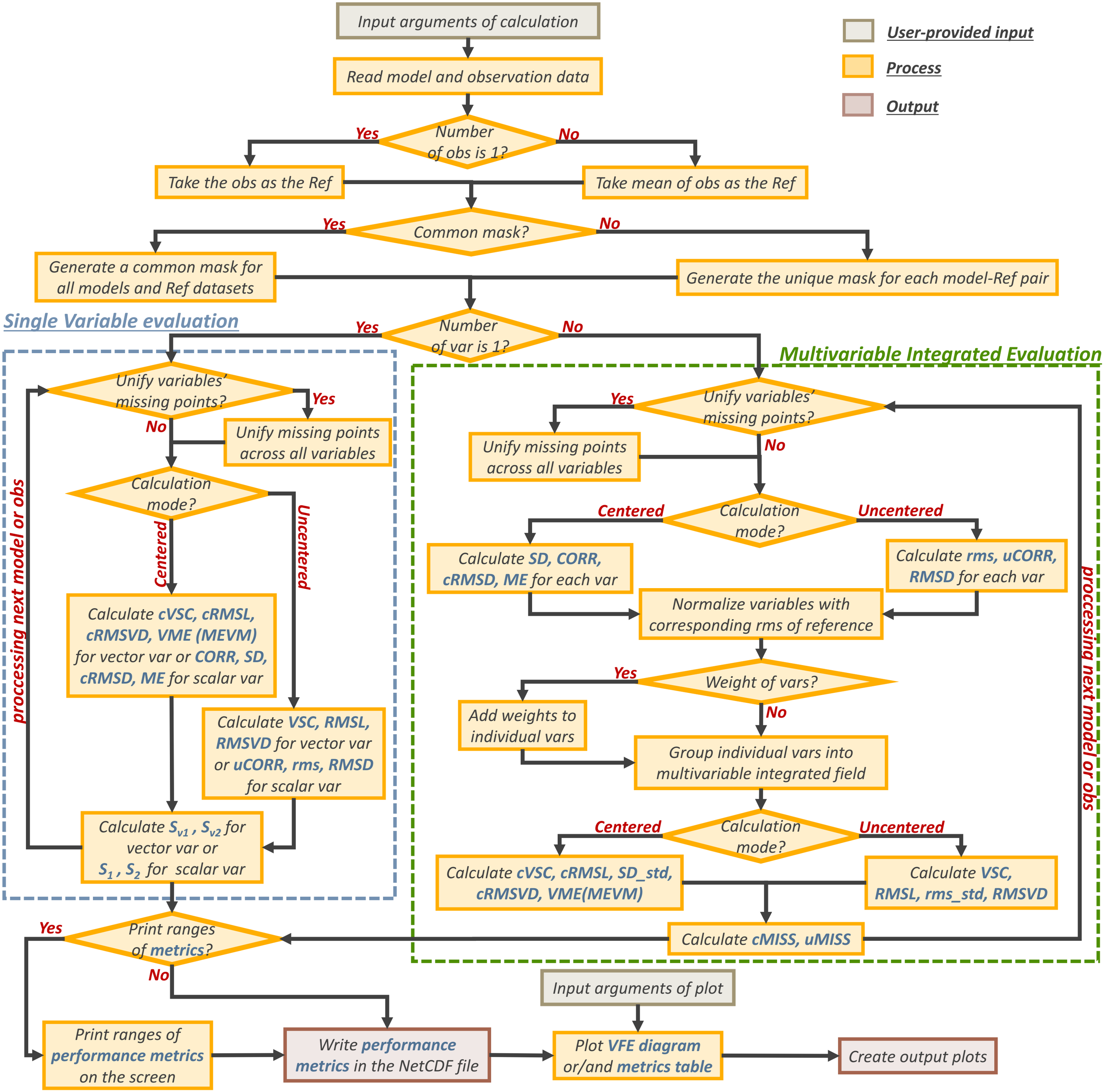
User-provided input
Process
Output
Input arguments of calculation
Read model and observation data
Number of obs is 1?
Yes
No
Take the obs as the Ref
Take mean of obs as the Ref
Common mask?
Yes
No
Generate a common mask for all models and Ref datasets
Generate the unique mask for each model-Ref pair
Single Variable evaluation
Number of var is 1?
Yes
No
Multivariable Integrated Evaluation
Unify variables' missing points?
Yes
No
Unify missing points across all variables
Calculation mode?
Centered
Uncentered
Calculate cVSC, cRMSL, cRMSVD, VME (MEVM) for vector var or CORR, SD, cRMSD, ME for scalar var
Calculate VSC, RMSL, RMSVD for vector var or uCORR, rms, RMSD for scalar var
Calculate S_{v1} , S_{v2} for vector var or S_1 , S_2 for scalar var
processing next model or obs
Unify variables' missing points?
Yes
No
Unify missing points across all variables
Calculation mode?
Centered
Uncentered
Calculate SD, CORR, cRMSD, ME for each var
Calculate rms, uCORR, RMSD for each var
Normalize variables with corresponding rms of reference
Weight of vars?
Yes
No
Add weights to individual vars
Group individual vars into multivariable integrated field
Calculation mode?
Centered
Uncentered
Calculate cVSC, cRMSL, SD_std, cRMSVD, VME(MEVM)
Calculate VSC, RMSL, rms_std, RMSVD
Calculate cMISS, uMISS
processing next model or obs
Print ranges of metrics?
Yes
No
Print ranges of performance metrics on the screen
Write performance metrics in the NetCDF file
Input arguments of plot
Plot VFE diagram or/and metrics table
Create output plots