A plea for parameter traceability

Based on discussions and shared frustrations with: Juliane Otto, James Ryder, Yi-Ying Chen, Kim Naudts, Aude Valade, Jonathan Barichivich, Natasha MacBean, Anne Sofie Lanso, Guillaume Marie, Matthew McGrath, Jina Jeong, Philippe Peylin & Sebastiaan Luyssaert

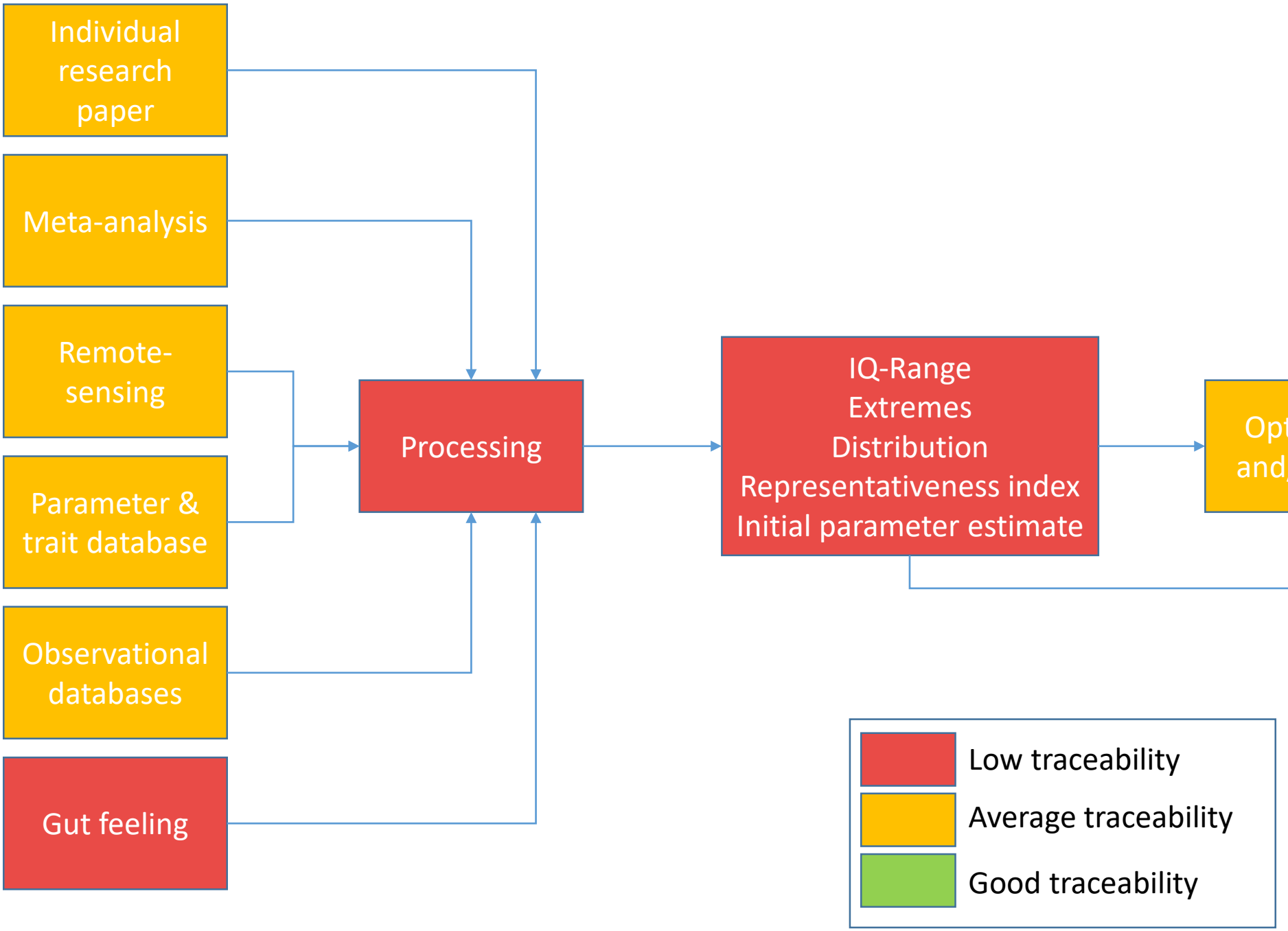
Where do we get the model parameters from?

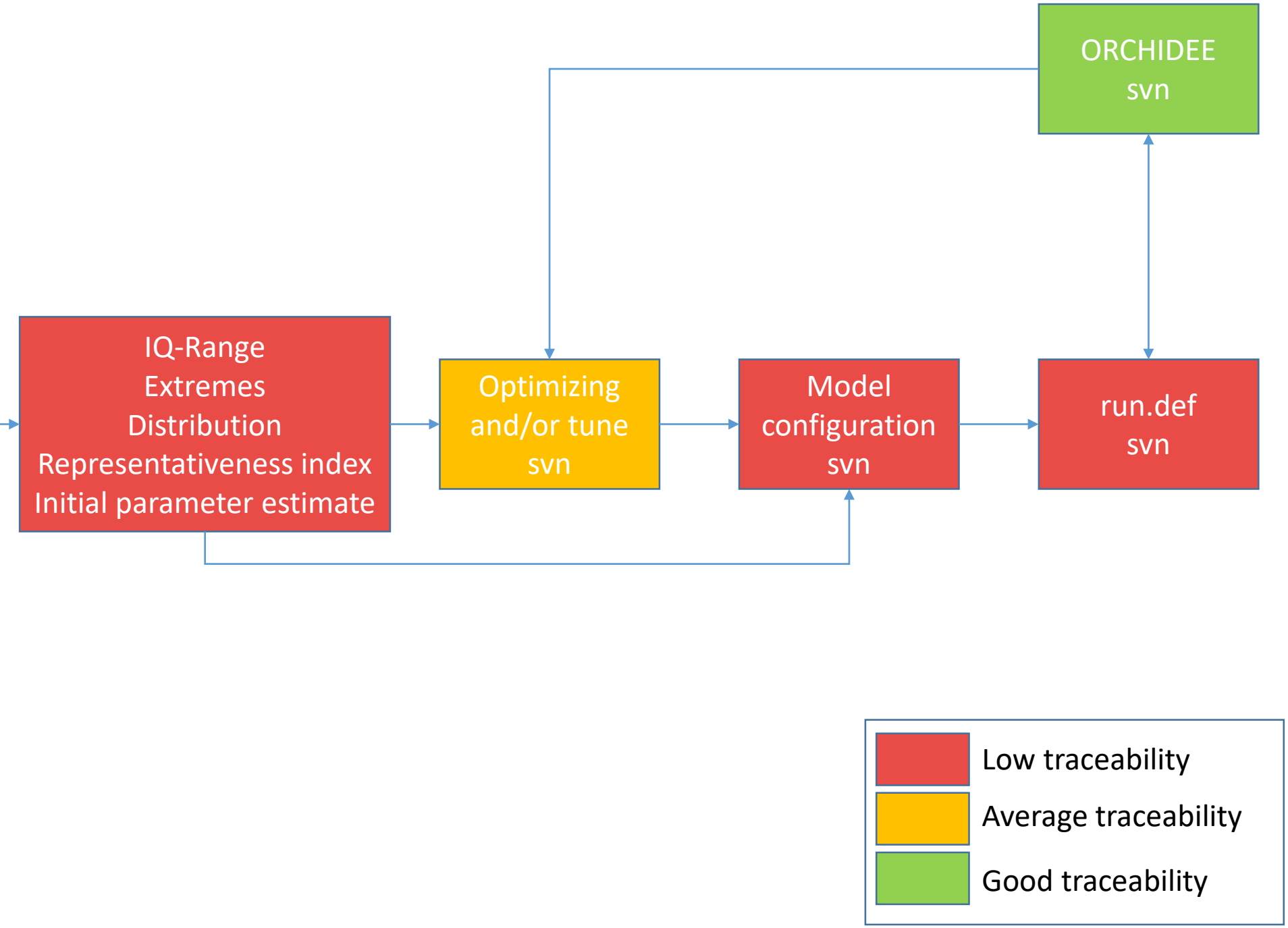
What makes us use a specific parameter value?

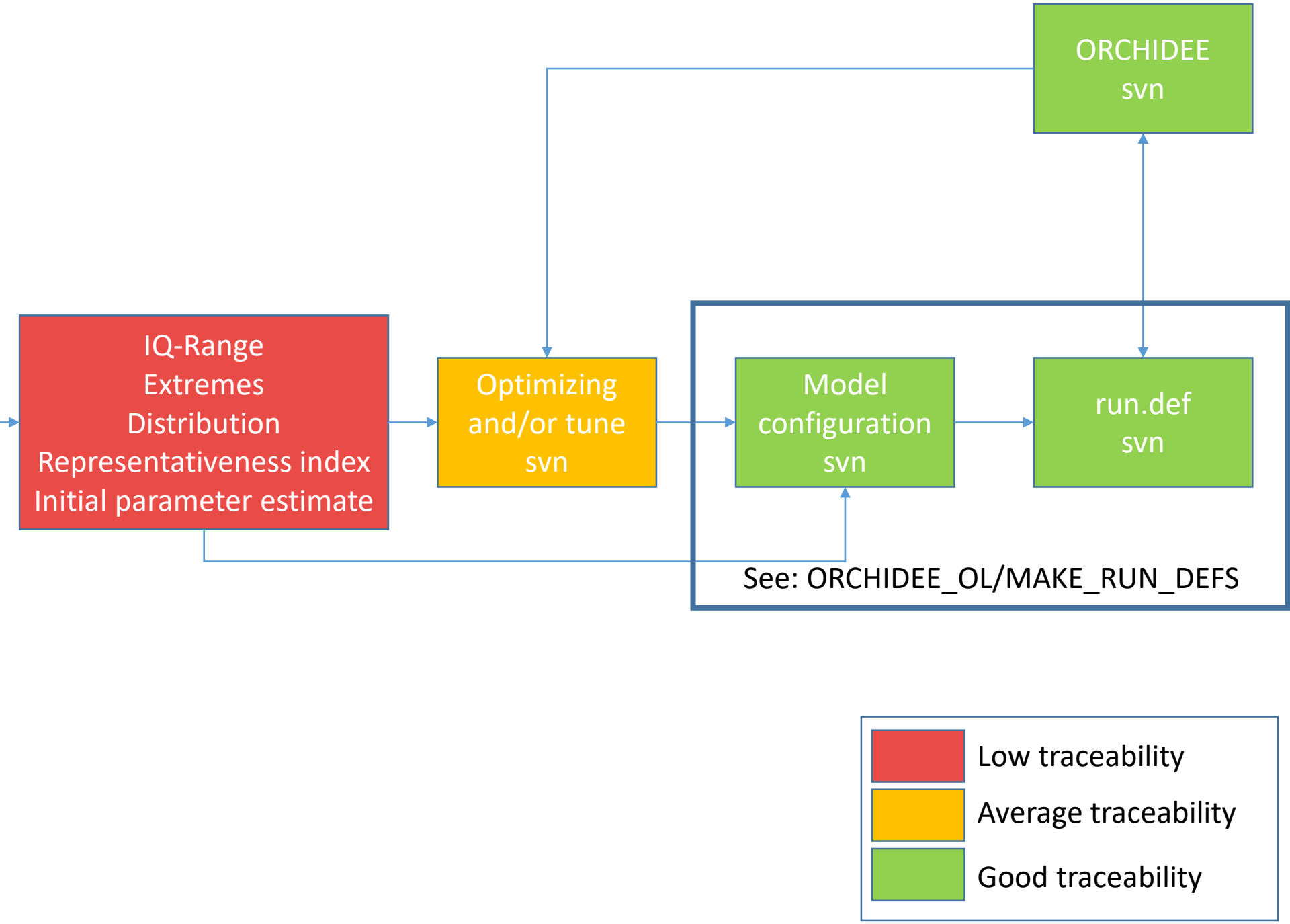
Why was the value changed from one model version to another?

Which parameter values were used in specific publications?

Which parameter values were used in specific MIPs?


Individual research paper
Meta-analysis
Remote-sensing
Parameter & trait database
Observational databases
Gut feeling
Processing
IQ-Range
Extremes
Distribution
Representativeness index
Initial parameter estimate
Low traceability
Average traceability
Good traceability


ORCHIDEE
svn
IQ-Range
Extremes
Distribution
Representativeness index
Initial parameter estimate
Optimizing
and/or tune
svn
Model
configuration
svn
run.def
svn
Low traceability
Average traceability
Good traceability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svn
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See: ORCHIDEE_OL/MAKE_RUN_DEFS
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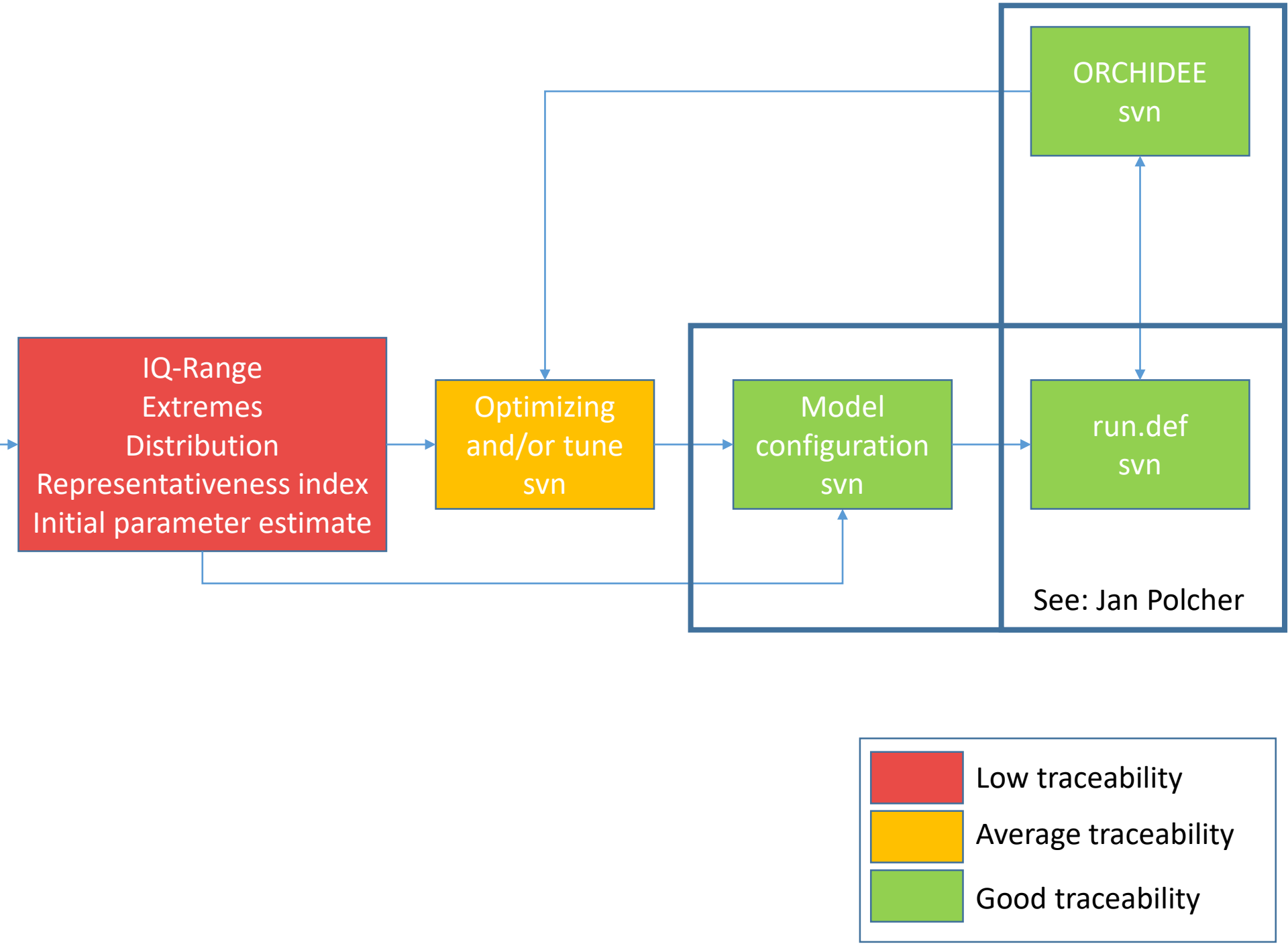
Average traceability
Good traceability


ORCHIDEE
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See: Jan Polcher
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THROUGHFALL

ECOLOGY -> MOST of the OBSERVATIONS
Throughfall = 70%
Stemflow = 10%
Interception = 20%
Calculating throughfall from prescribed parameters
Precipsol = (throughfall+stemflow)*precipitation
Vevapwet = (1-throughfall-stemflow)*precipitation

ORCHIDEE:
Calculating throughfall as a function of the canopy structure -> no need to prescribe it
(1) No interaction with the canopy (passing through the gaps) -> (veget_max-veget)*precip
(2) Interacts with the canopy -> veget*precip
(3) Interception -> vevapwet
(4) Precipsol = (1) + (2) – (3; depending on sign convention)