NIST Decision Tree Report

Summary

Include	Laboratory	Result	Uncertainty	DegreesOfFreedom
TRUE	IRMM	34.30	1.03	60
TRUE	KRISS	32.90	0.69	4
TRUE	NARL	34.53	0.83	18
TRUE	NIST	32.42	0.29	2
TRUE	NMIJ	31.90	0.40	13
TRUE	NRC	35.80	0.38	60

Date: 2023-08-16
Version Number: 1.0.2
Type of DoE: Degrees of Equivalence Ignoring Dark Uncertainty
Random Seed: 500
Selected Procedure: Hierarchical Gauss-Gauss
Consensus estimate: 33.64
Standard uncertainty: 0.5507
95% coverage interval: (32.55, 34.73)
Dark uncertainty (tau): 1.475
Tau posterior 0.025 and 0.975 quantiles: (0.8102,3.053)

Decision Tree Hypothesis test results

Cochran's test for Homogeneity:
p-value: $p < 0.001$
$Q = 68.22$ (Reference Distribution: Chi-Square with 5 Degrees of Freedom)
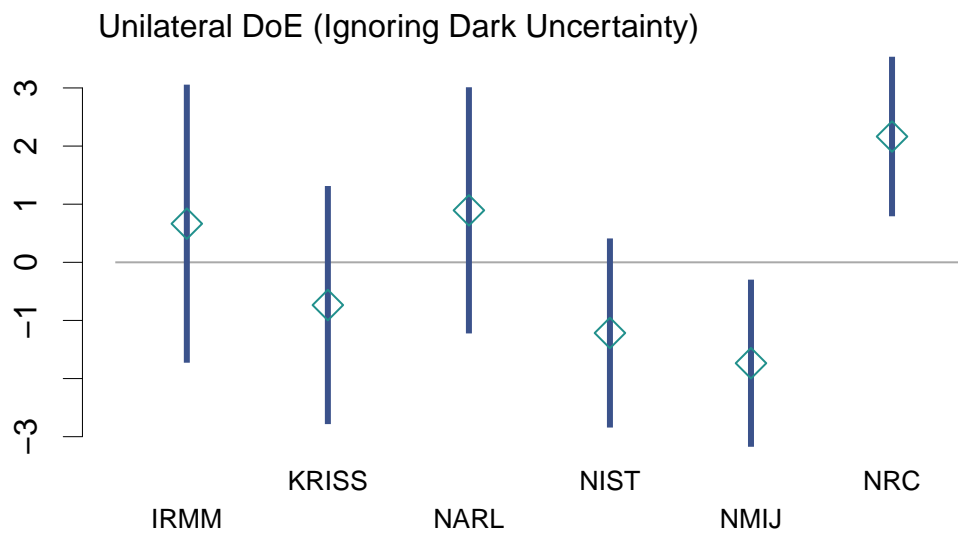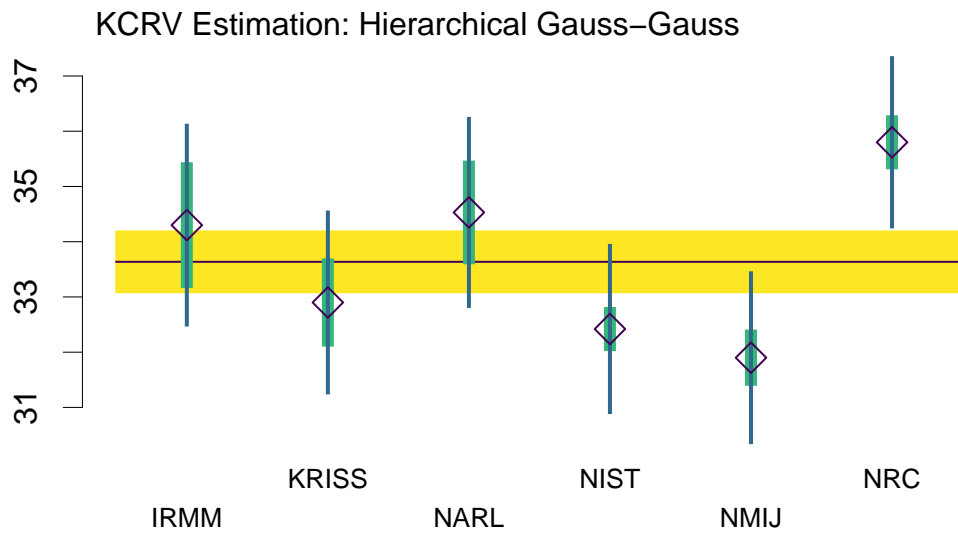tau est. $= 1.711$
tau/median(x) $= 0.05093$
tau/median(u) $= 3.14$

Shapiro-Wilk test for Normality: $p = 0.5301$

Miao-Gel-Gastwirth test of Symmetry: $p = 0.9418$

Plots

KCRV Estimation: Hierarchical Gauss–Gauss

Unilateral DoE (Ignoring Dark Uncertainty)

DoE Table

	Lab	DoE.x	DoE.U95	DoE.Lwr	DoE.Upr
IRMM	IRMM	0.6642	2.341	-1.6760	3.0050
KRISS	KRISS	-0.7358	1.996	-2.7320	1.2610
NARL	NARL	0.8942	2.066	-1.1720	2.9600
NIST	NIST	-1.2160	1.575	-2.7910	0.3591
NMIJ	NMIJ	-1.7360	1.386	-3.1220	-0.3496
NRC	NRC	2.1640	1.321	0.8435	3.4850

Lab Uncertainties Table

lab	x	u	nu	ut
IRMM	34.30	1.03	60	1.7993
KRISS	32.90	0.69	4	1.6287
NARL	34.53	0.83	18	1.6928
NIST	32.42	0.29	2	1.5036
NMIJ	31.90	0.40	13	1.5286
NRC	35.80	0.38	60	1.5235

lab	D	uDR	UDR	LwrR	UprR	uDI	UDI	LwrI	UprI
IRMM	0.6642	2.0630	4.0697	-3.4054	4.7339	1.1749	2.3423	-1.6780	3.0065
KRISS	-0.7358	1.9608	3.8964	-4.6321	3.1606	1.0101	2.0113	-2.7471	1.2755
NARL	0.8942	1.9910	4.0199	-3.1257	4.9141	1.0129	2.0445	-1.1503	2.9387
NIST	-1.2158	1.8521	3.7573	-4.9730	2.5415	0.7647	1.4915	-2.7072	0.2757
NMIJ	-1.7358	1.8141	3.5726	-5.3084	1.8368	0.6948	1.3595	-3.0953	-0.3763
NRC	2.1642	1.8451	3.6937	-1.5295	5.8579	0.6758	1.3531	0.8111	3.5173

MCMC Sampler Diagnostics Table (if applicable)

If one of the Bayesian models is run (Hierarchical Gauss-Gauss, Hierarchical Laplace-Gauss, or Hierarchical Skew-Student-t), then diagnostics for the MCMC sampler will be given below. As a general recommendation, if any of the R-hat values are greater than 1.05, then the sampler may not have reached equilibrium, and the "Total Number of MCMC Steps" should be increased, and the run repeated. The "Number of MCMC Warm-Up Steps" should be about half of the "Total Number of MCMC Steps." The "Effective Sample Size" (n.eff) is approximately the size of the MCMC sample that the results are based on.

	Rhat	n.eff
deviance	1.002	2200
lambda[1]	1.002	2700
lambda[2]	1.001	5000
lambda[3]	1.002	2300
lambda[4]	1.001	5000
lambda[5]	1.001	5000
lambda[6]	1.001	5000
mu	1.001	2900
sigma[1]	1.001	5000

	Rhat	n.eff
sigma[2]	1.002	2900
sigma[3]	1.001	5000
sigma[4]	1.002	2600
sigma[5]	1.001	5000
sigma[6]	1.002	1600
tau	1.002	2400