A Phase-6 AGCHEM (*discovery*) Watershed Model:
to support ***climate change*** studies

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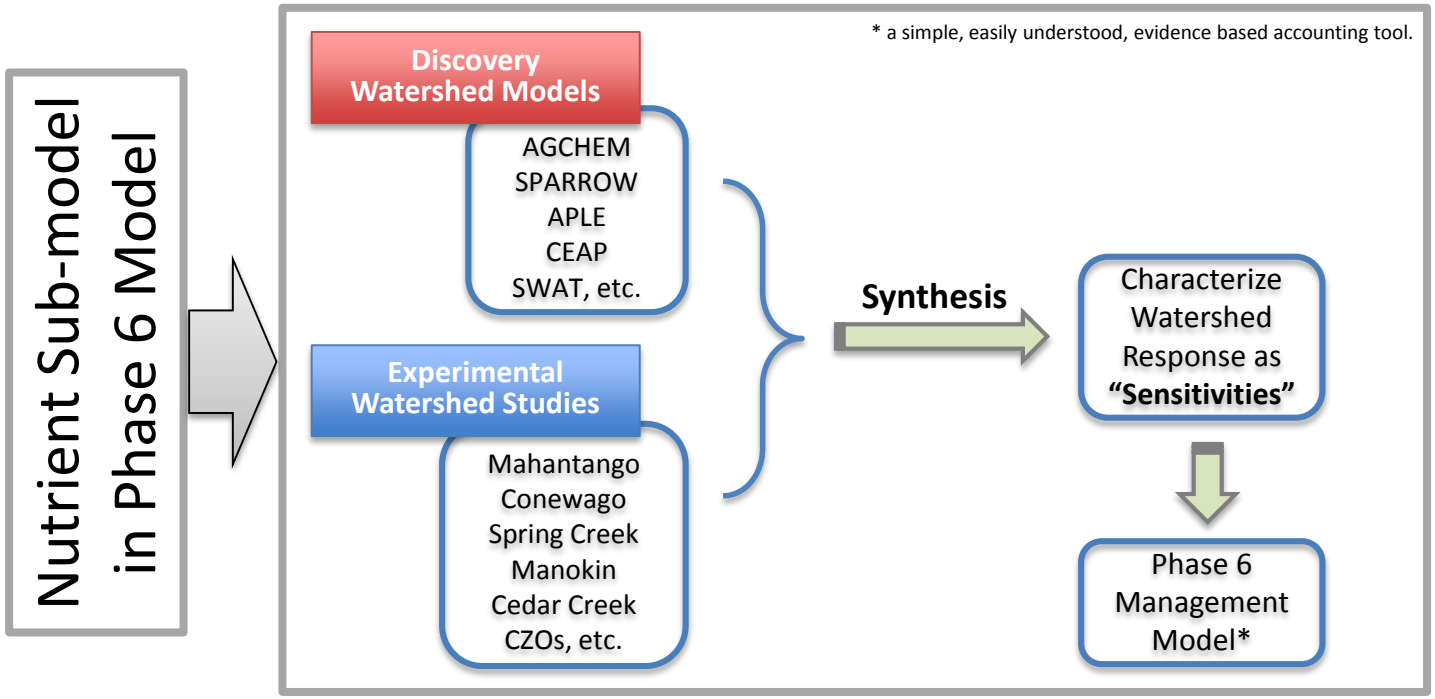
Motivation

- There is a need for a model, which can be used for supporting research such as climate change simulation that requires a watershed model in a *discovery* mode rather than an *accounting* mode.



Presentation Outline

- Background information on models (Phase-532, Phase-6, and Phase-6 AGCHEM)
- Simulation (baseline) Comparisons
  - Model vs. Model
  - Models vs. Observations
- Comparisons of projected changes (calibration vs. scenario)

1. Background Information on Models

XYZ precipitation

Other inputs

Phase 5.3.2
(AGCHEM based)

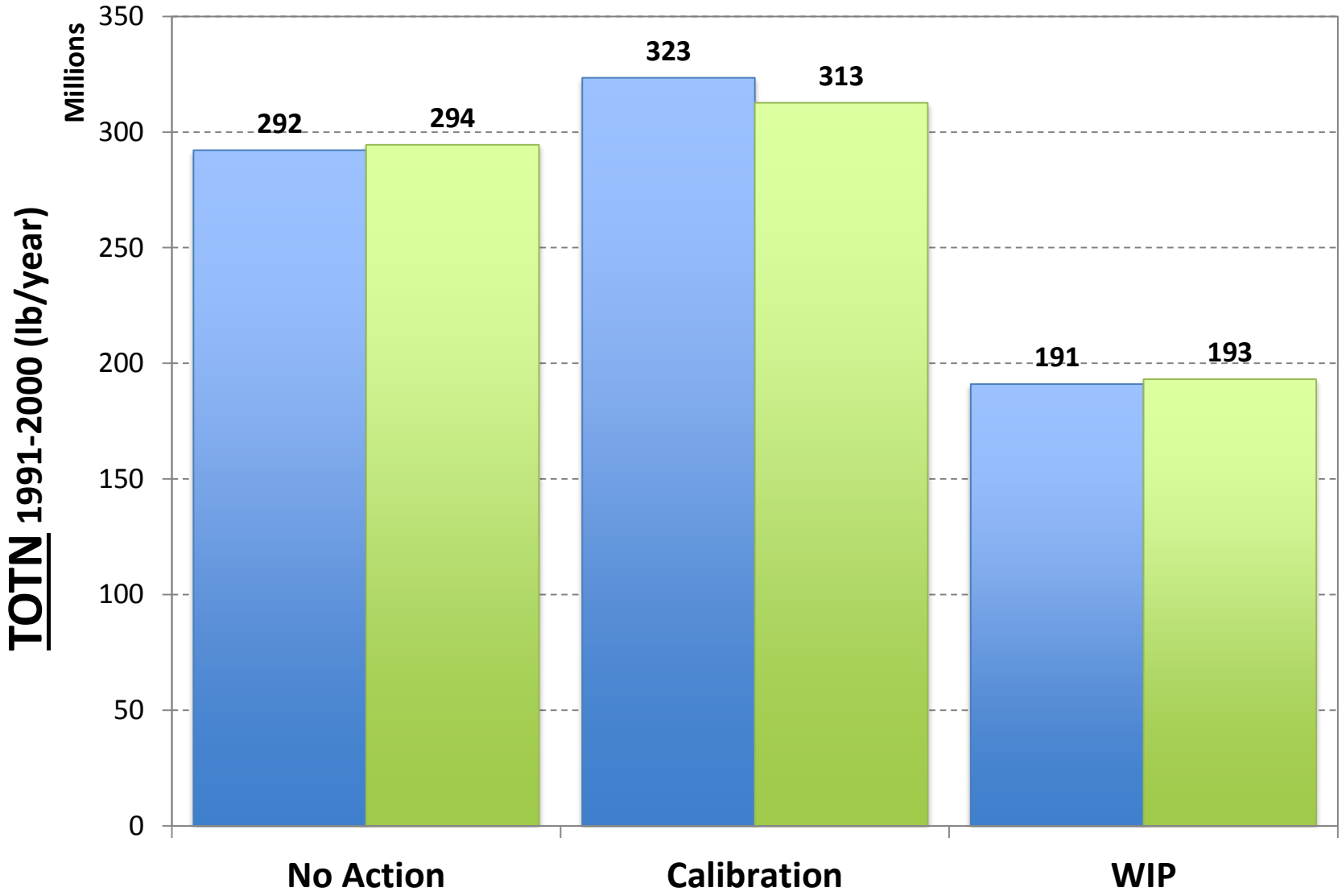
NLDAS-2 precipitation

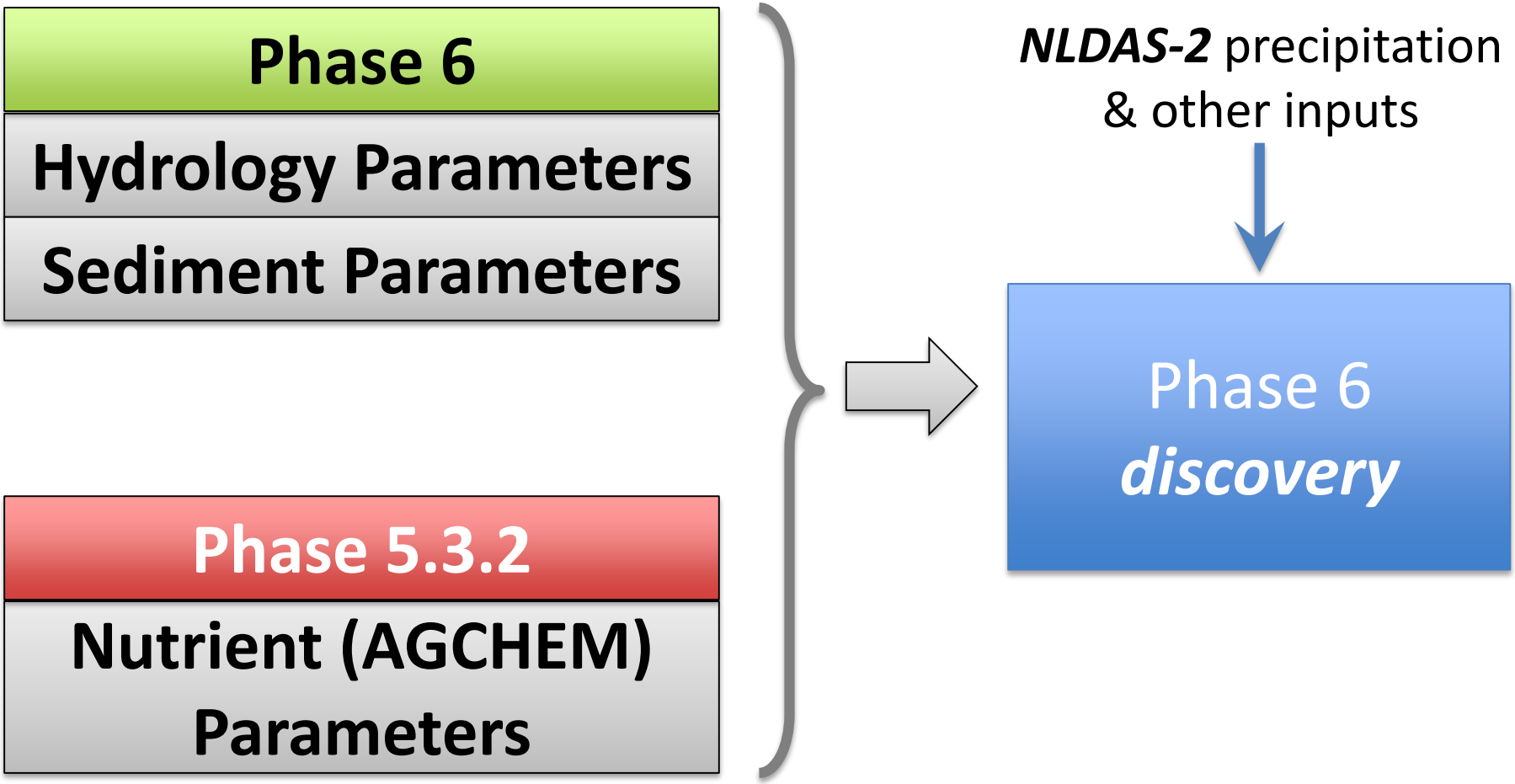
Other inputs

Phase 6*
(Synthesis of multiple lines of evidence)

* provisionally operational version

Key Management Scenarios: Phase 532 vs. Phase 6*




Phase 6
Hydrology Parameters
Sediment Parameters
Phase 5.3.2
Nutrient (AGCHEM) Parameters
NLDAS-2 precipitation & other inputs
Phase 6 discovery

What is the utility of this model?

- Use it for running climate change simulation.

- Use multiple climate change scenarios to develop multivariate regressions of marginal change in export to changes in precipitation, temperature, and potential evapotranspiration.

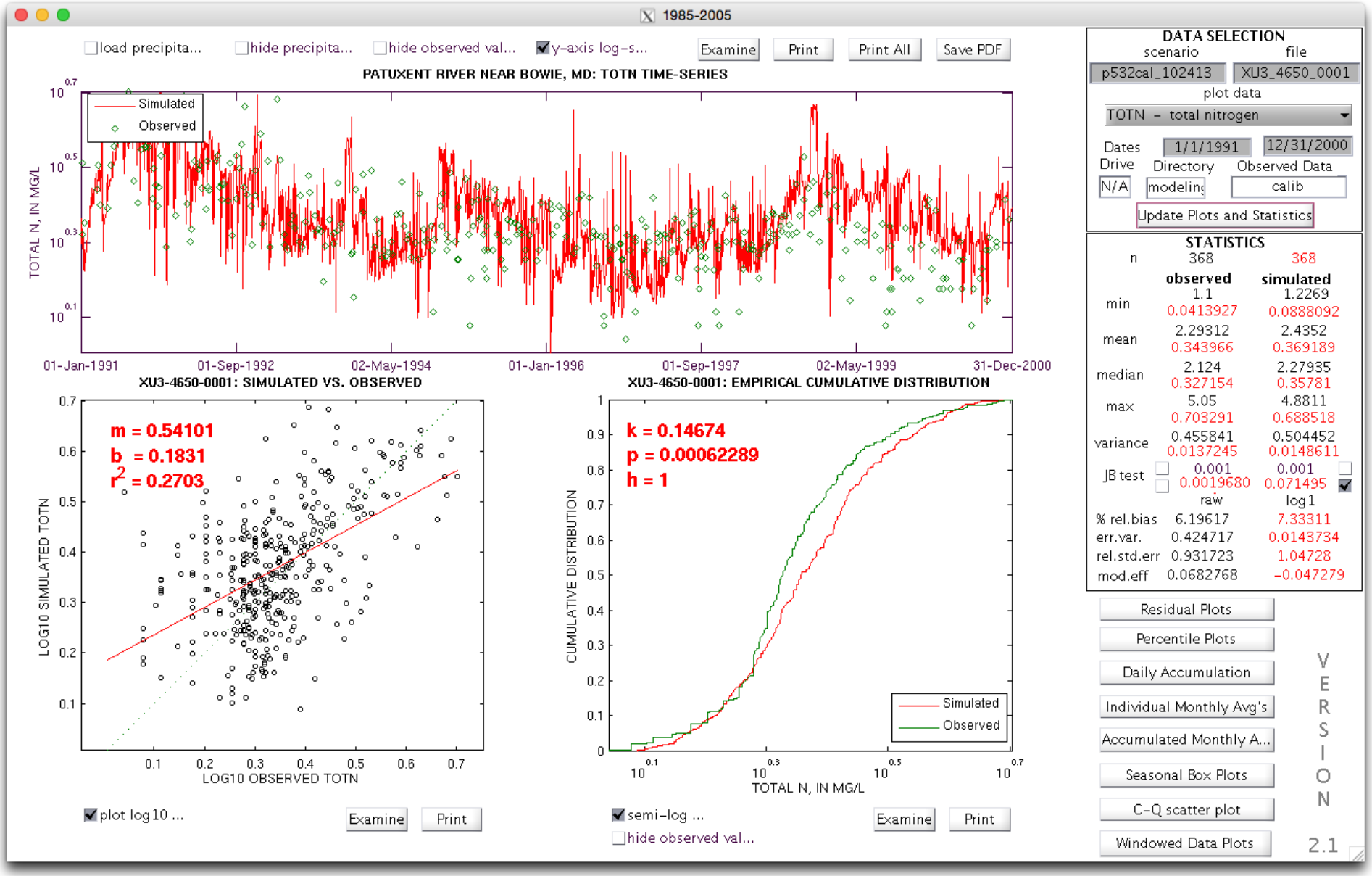
2.1. Model vs. Model Comparisons

Δ Phase 532 vs. Phase 6 AGCHEM

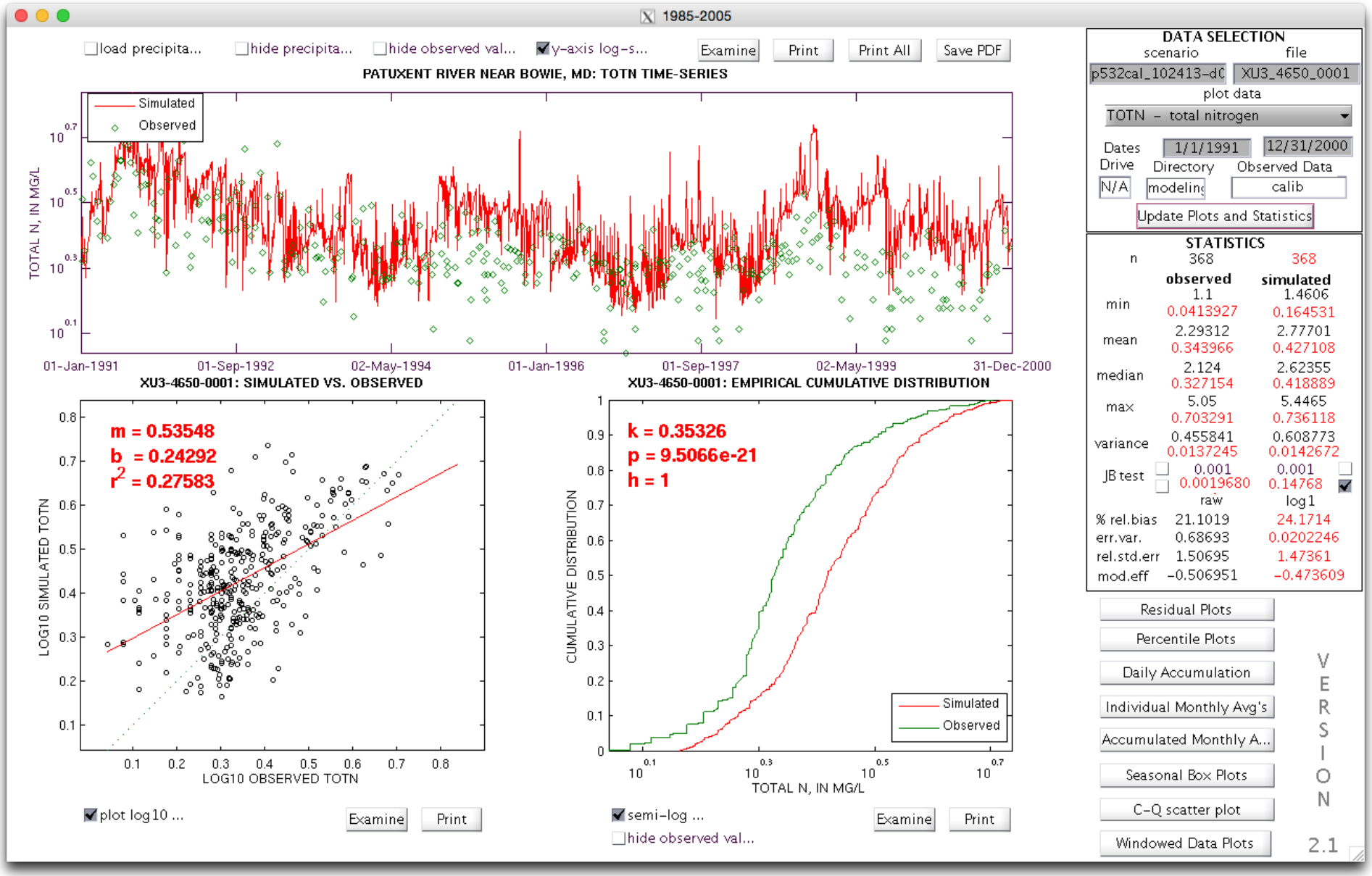
BASINS	FLOW	NH3X	NO23	ORGN	TOTN	PO4X	ORGP	TOTP	TSED
CB Watershed	-3%	6%	2%	1%	2%	1%	0%	0%	-17%
Susquehanna	-4%	15%	8%	2%	6%	4%	2%	4%	-5%
Potomac	-3%	2%	-1%	-2%	-1%	-6%	-4%	-5%	-30%
James	-4%	0%	-7%	-5%	-4%	-3%	-2%	-3%	-9%
Eastern Shore	3%	5%	-3%	1%	0%	8%	0%	6%	-14%
York	0%	4%	-7%	4%	-2%	15%	7%	**14%**	2%
Rappahannock	-3%	3%	-3%	0%	-2%	5%	2%	4%	**-40%**
Western Shore	2%	0%	1%	5%	2%	2%	2%	2%	4%
Patuxent	2%	7%	6%	8%	**7%**	5%	6%	5%	13%

2.2. Models vs. Observations Comparisons

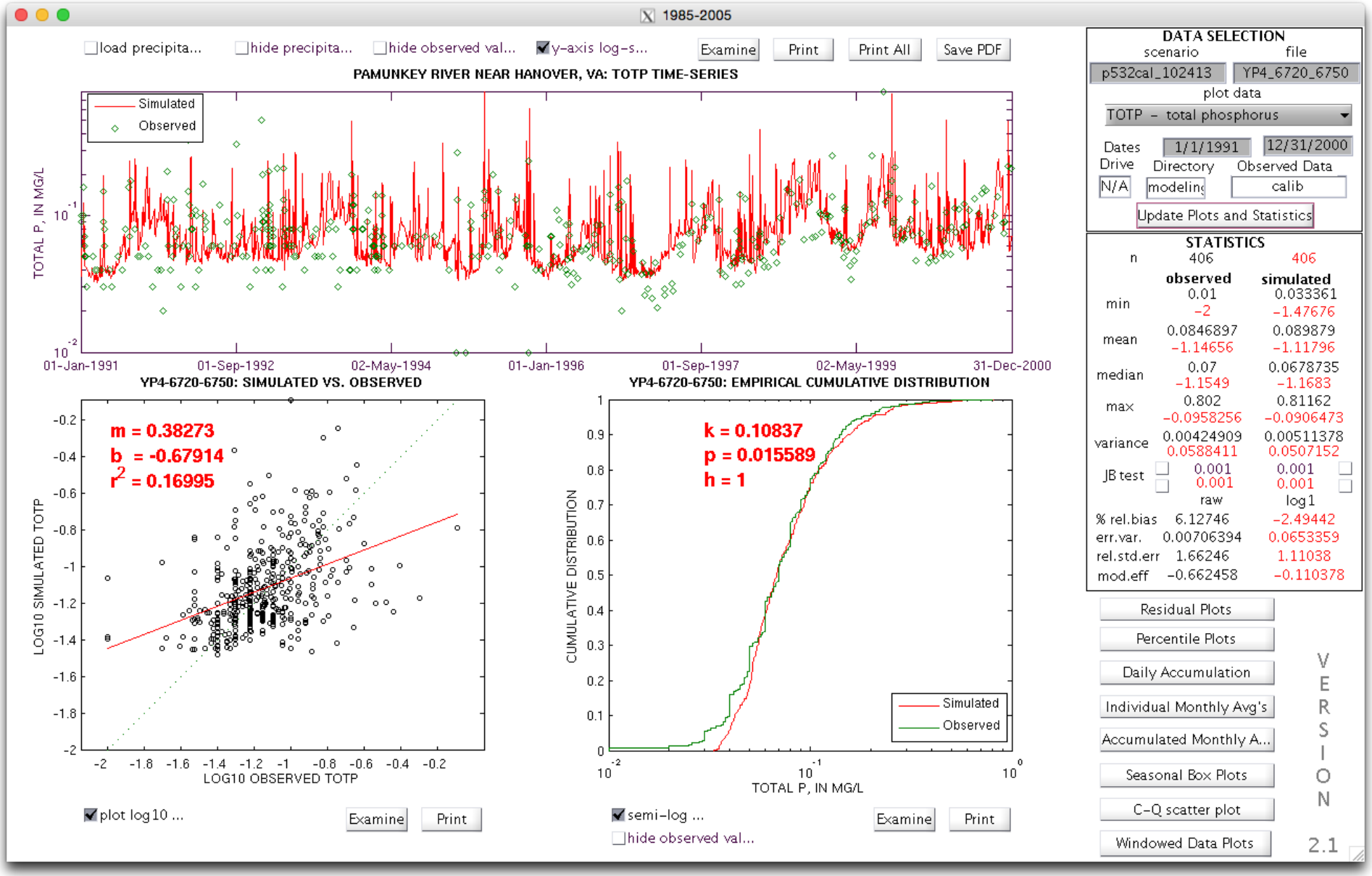
Phase 532, TOTN: Patuxent River at Bowie, MD



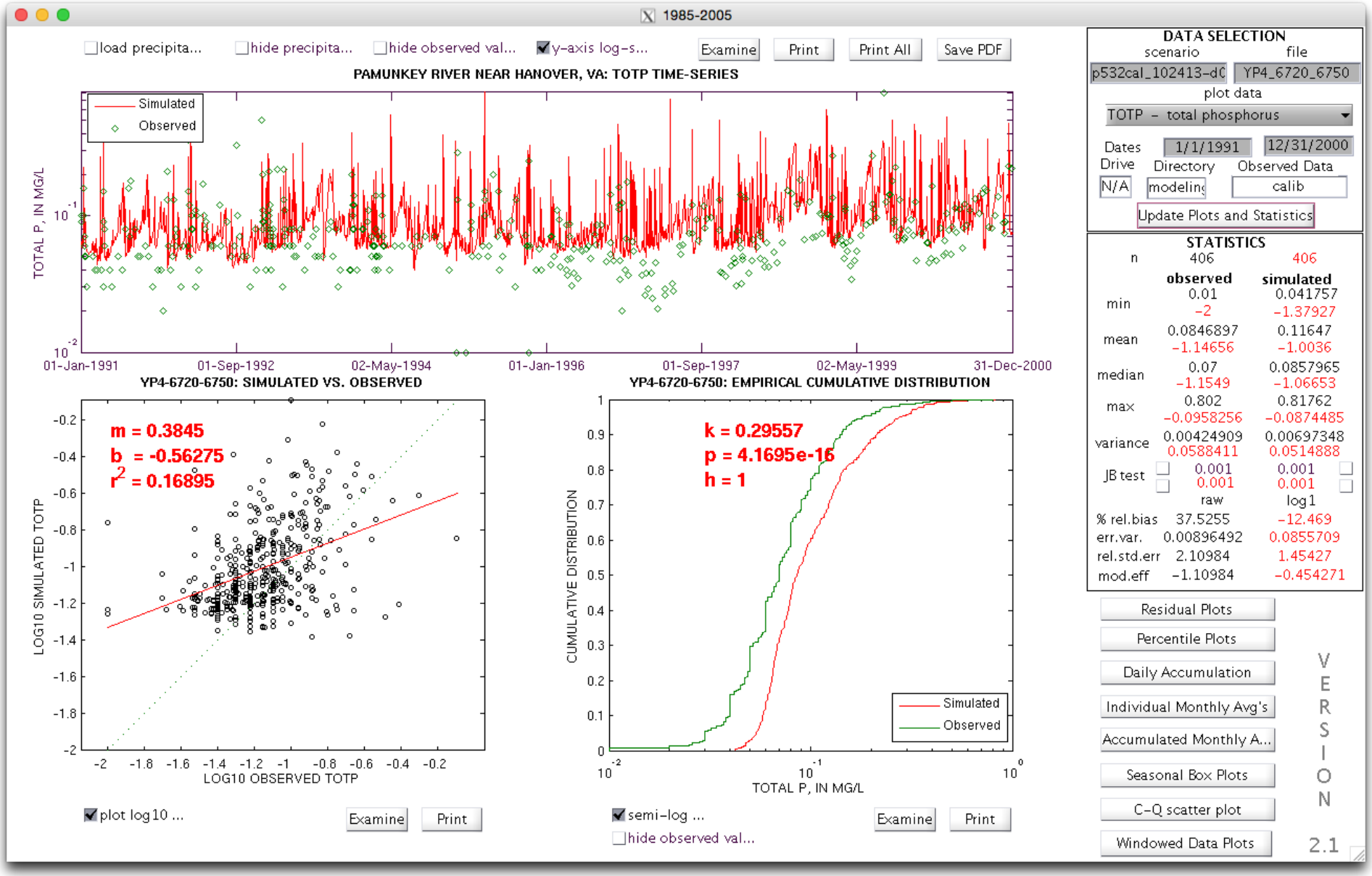
Phase 6 AGCHEM, TOTN: Patuxent River at Bowie, MD



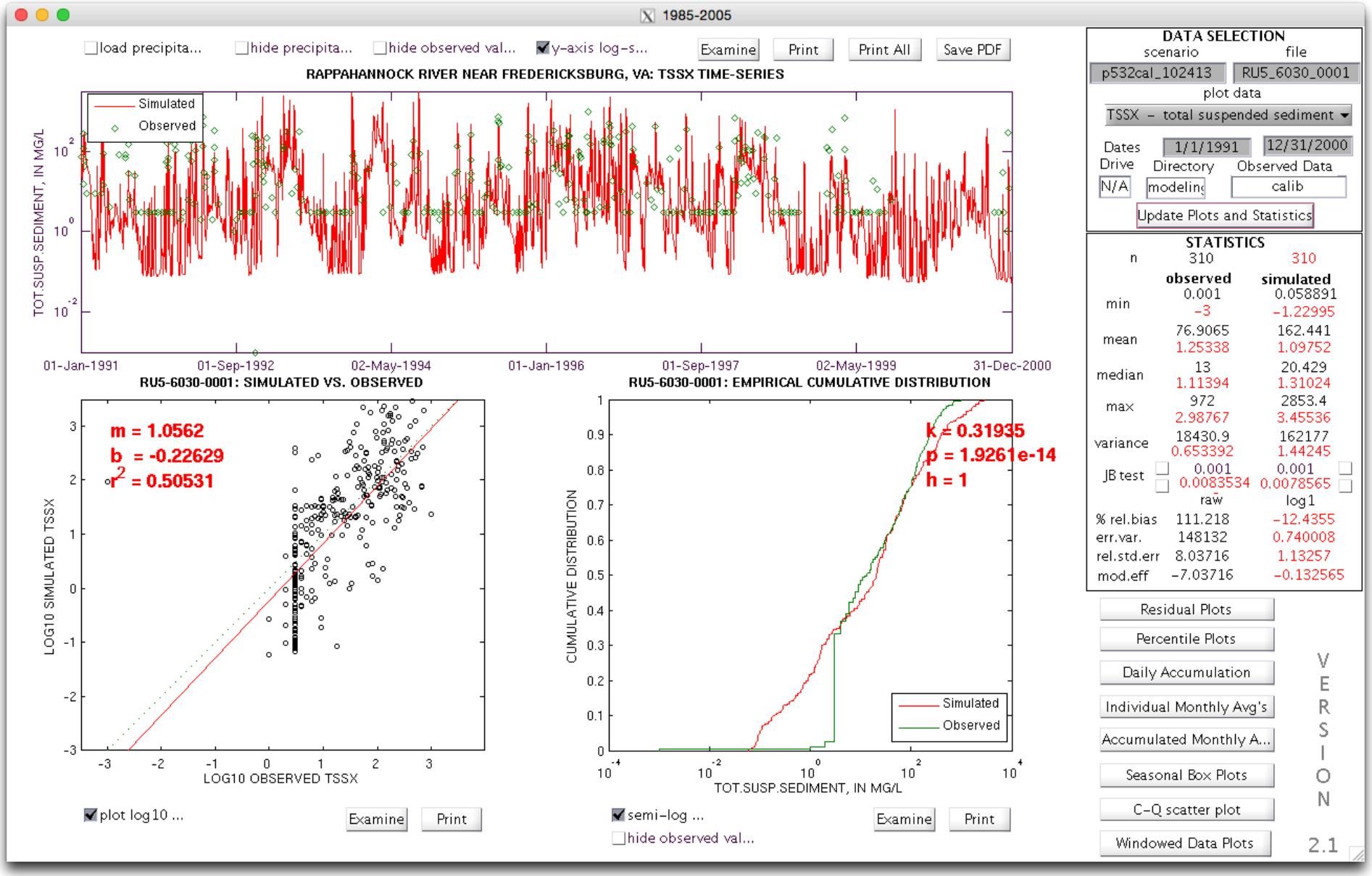
Phase 532, TOTP: Pamunkey River near Hanover, VA



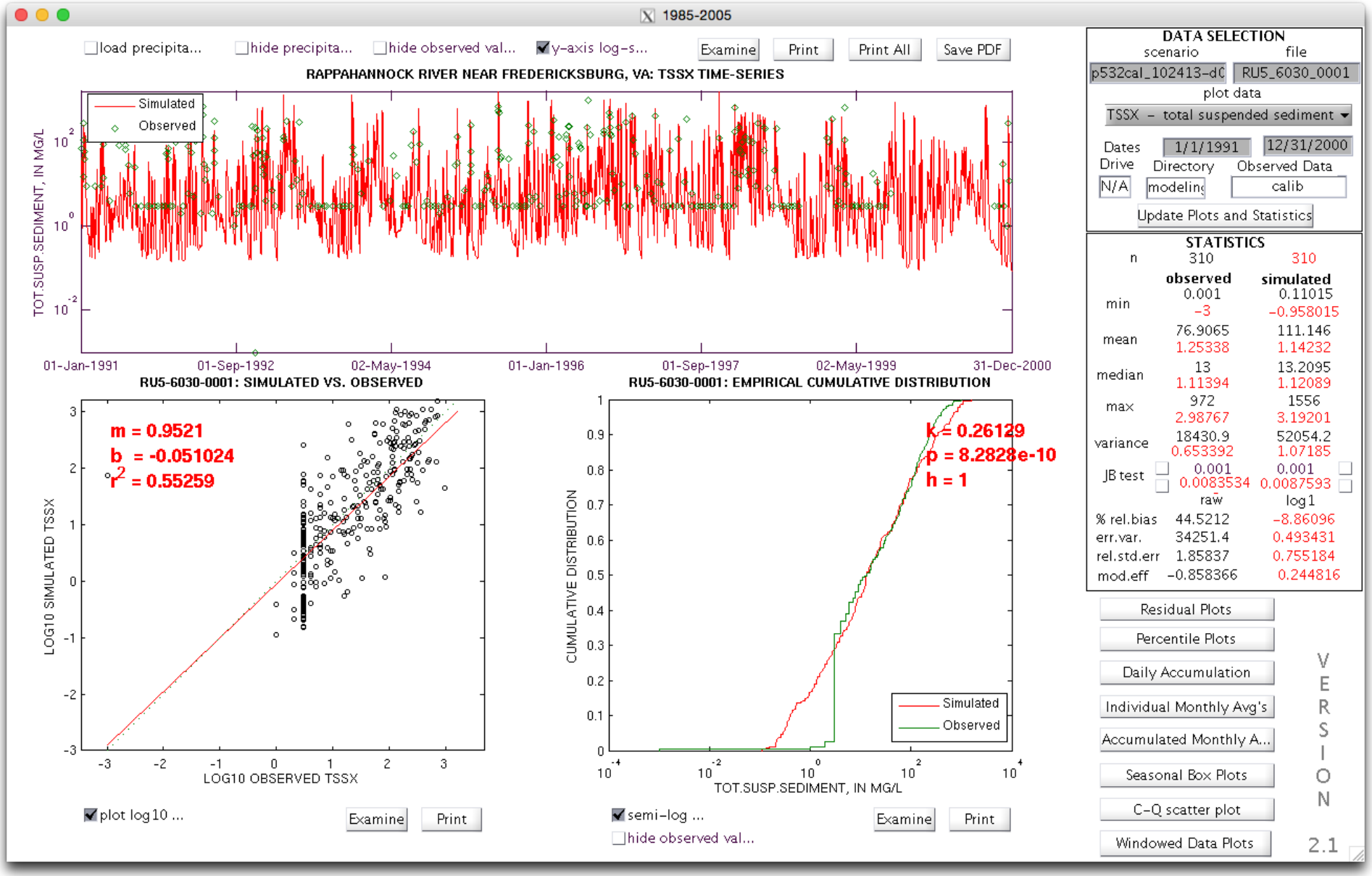
Phase 6 AGCHEM, TOTP: Pamunkey River near Hanover, VA



Phase 532, TSSX: Rappahannock River near Fredericksburg, VA



Phase 6 AGCHEM, TSSX: Rappahannock River near Fredericksburg, VA



3. Model Projected Changes (Calibration vs. Scenario)

Δ Phase 532 Calibration vs. WIP Scenario

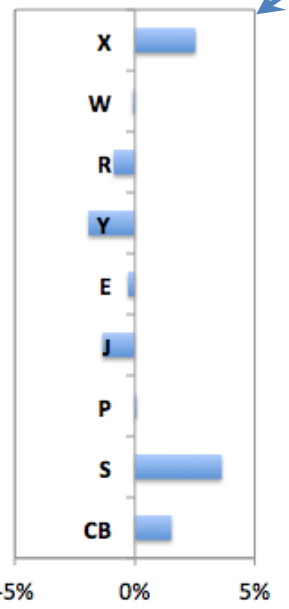
BASINS	FLOW	NH3X	NO23	ORGN	TOTN	PO4X	ORGP	TOTP	TSED
CB Watershed	2%	-63%	-36%	-37%	-41%	-30%	-41%	-33%	-32%
Susquehanna	1%	-52%	-39%	-40%	-41%	-26%	-42%	-30%	-35%
Potomac	3%	-62%	-42%	-32%	-42%	-29%	-36%	-31%	-30%
James	5%	-82%	-6%	-28%	-39%	-33%	-50%	-36%	-40%
Eastern Shore	1%	-43%	-40%	-38%	-40%	-32%	-47%	-36%	-41%
York	0%	-52%	-15%	-36%	-28%	-12%	-16%	-12%	-33%
Rappahannock	1%	-52%	-29%	-26%	-30%	-36%	-30%	-35%	-14%
Western Shore	3%	-77%	-40%	-50%	-54%	-48%	-55%	-50%	-50%
Patuxent	6%	-31%	-25%	-28%	-27%	-38%	-4%	-33%	-44%

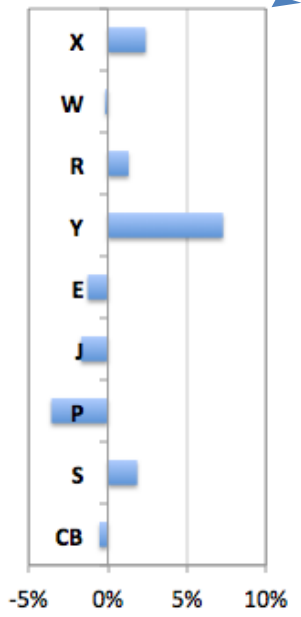
Δ Phase 6 AGCHEM vs. WIP Scenario

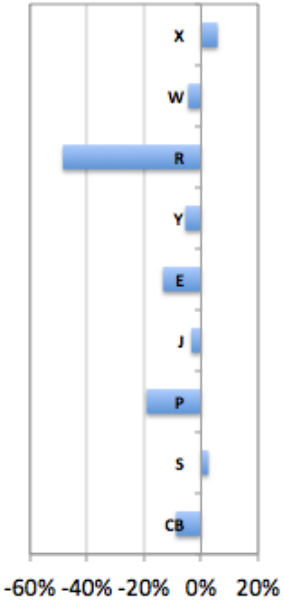
BASINS	FLOW	NH3X	NO23	ORGN	TOTN	PO4X	ORGP	TOTP	TSED
CB Watershed	2%	-62%	-38%	-39%	-42%	-30%	-40%	-32%	-24%
Susquehanna	1%	-52%	-43%	-45%	-45%	-28%	-42%	-32%	-38%
Potomac	3%	-60%	-43%	-32%	-42%	-25%	-32%	-27%	-11%
James	5%	-82%	-2%	-26%	-37%	-31%	-48%	-35%	-37%
Eastern Shore	1%	-43%	-40%	-37%	-39%	-31%	-46%	-35%	-28%
York	1%	-50%	-12%	-33%	-26%	-20%	-20%	-20%	-27%
Rappahannock	1%	-51%	-28%	-25%	-29%	-37%	-29%	-36%	35%
Western Shore	3%	-77%	-41%	-49%	-54%	-47%	-54%	-50%	-45%
Patuxent	6%	-34%	-28%	-31%	-29%	-41%	-7%	-36%	-50%

Differences in predicted change

BASINS	FLOW	NH3X	NO23	ORGN	TOTN	PO4X	ORGP	TOTP	TSED
CB Watershed	0%	-1%	2%	2%	2%	0%	-1%	-1%	-9%
Susquehanna	0%	0%	4%	4%	4%	2%	1%	2%	3%
Potomac	0%	-1%	0%	0%	0%	-4%	-4%	-4%	-19%
James	0%	-1%	-4%	-2%	-1%	-2%	-2%	-2%	-3%
Eastern Shore	0%	0%	0%	-1%	0%	-1%	-1%	-1%	-13%
York	0%	-2%	-3%	-3%	-2%	8%	4%	7%	-6%
Rappahannock	0%	-1%	-1%	-1%	-1%	2%	-1%	1%	-48%
Western Shore	0%	0%	0%	-1%	0%	0%	0%	0%	-4%
Patuxent	0%	2%	3%	2%	3%	2%	3%	2%	6%







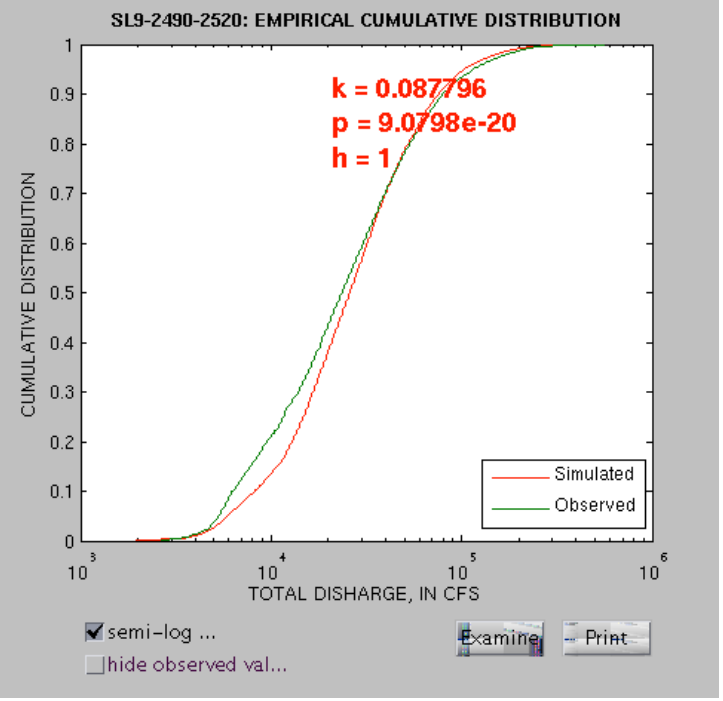
Given small differences in projected changes in N & P, Phase-6 AGCHEM can be used as a discovery model to provide estimates of change.

Future Work

- Validate this analysis with a simulation of climate change scenario.
  - *Yactayo* will be putting together a 2050 scenario where NLDAS-2 data will be used as base forcing.

- 2016: Develop linkages (read sensitivity) between discovery models and the Phase 6 watershed model for accounting climate change.

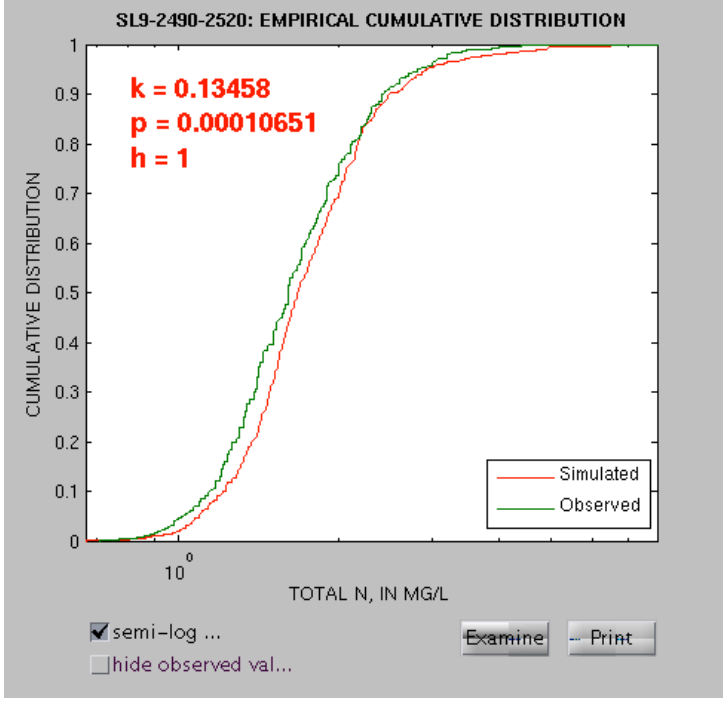
Models vs. Observations: Susquehanna at Marietta

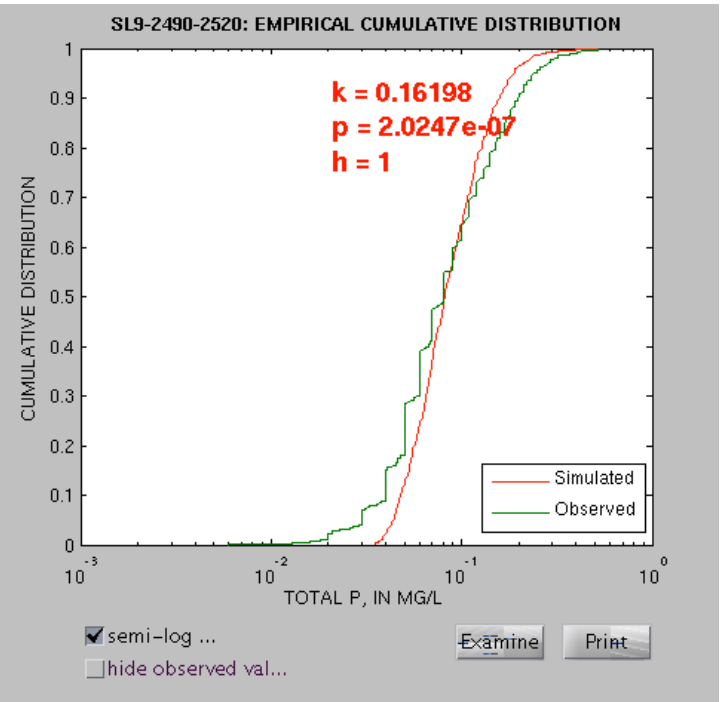


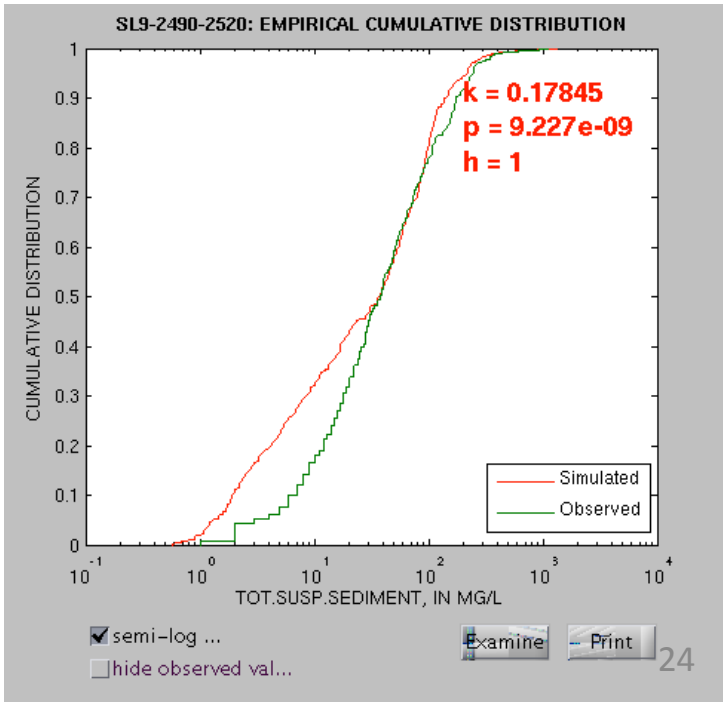
Phase 532

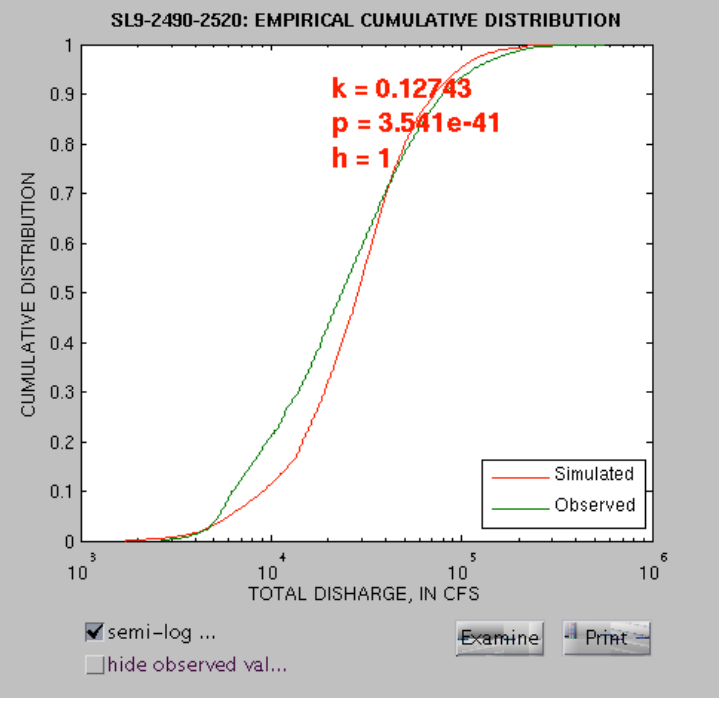
SL9_2490_2520

Susquehanna at Marietta



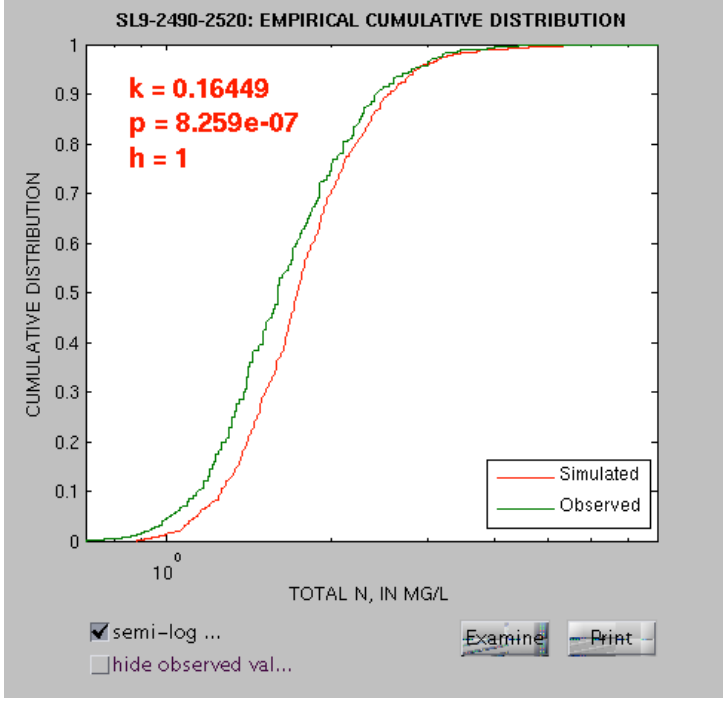


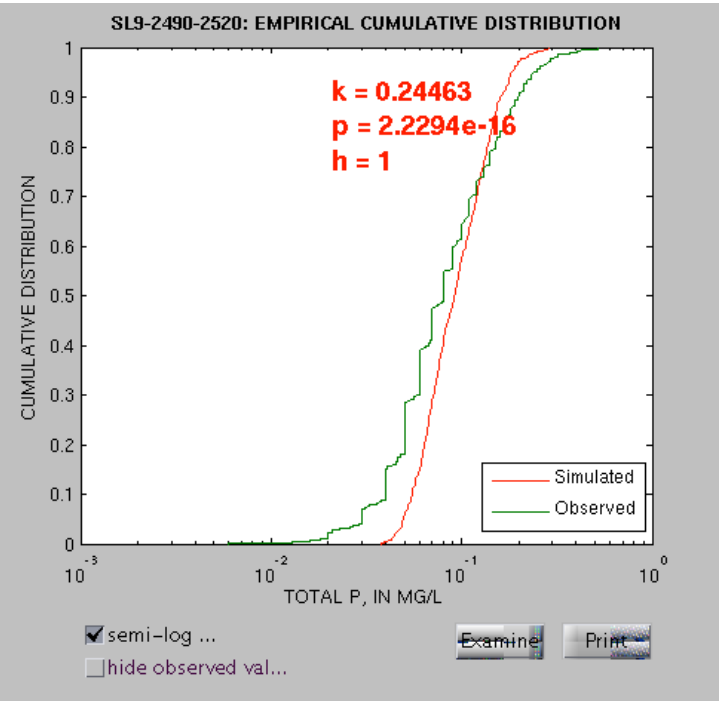




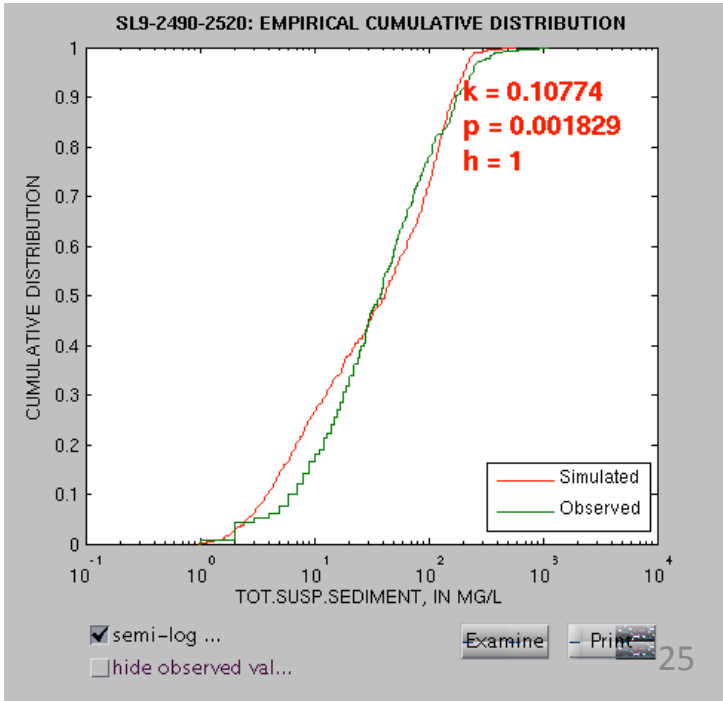
Phase 6 AGCHEM

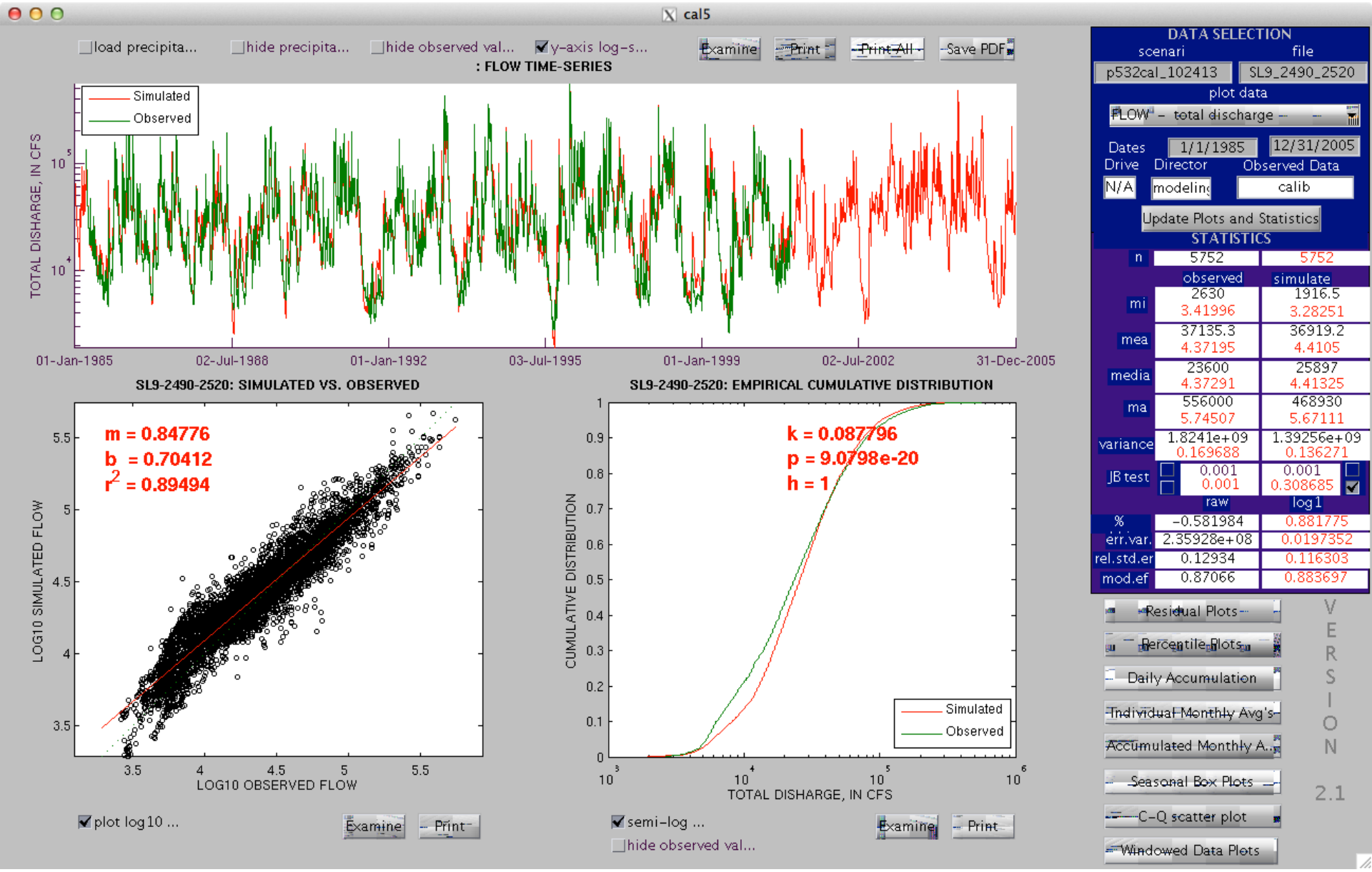
SL9_2490_2520

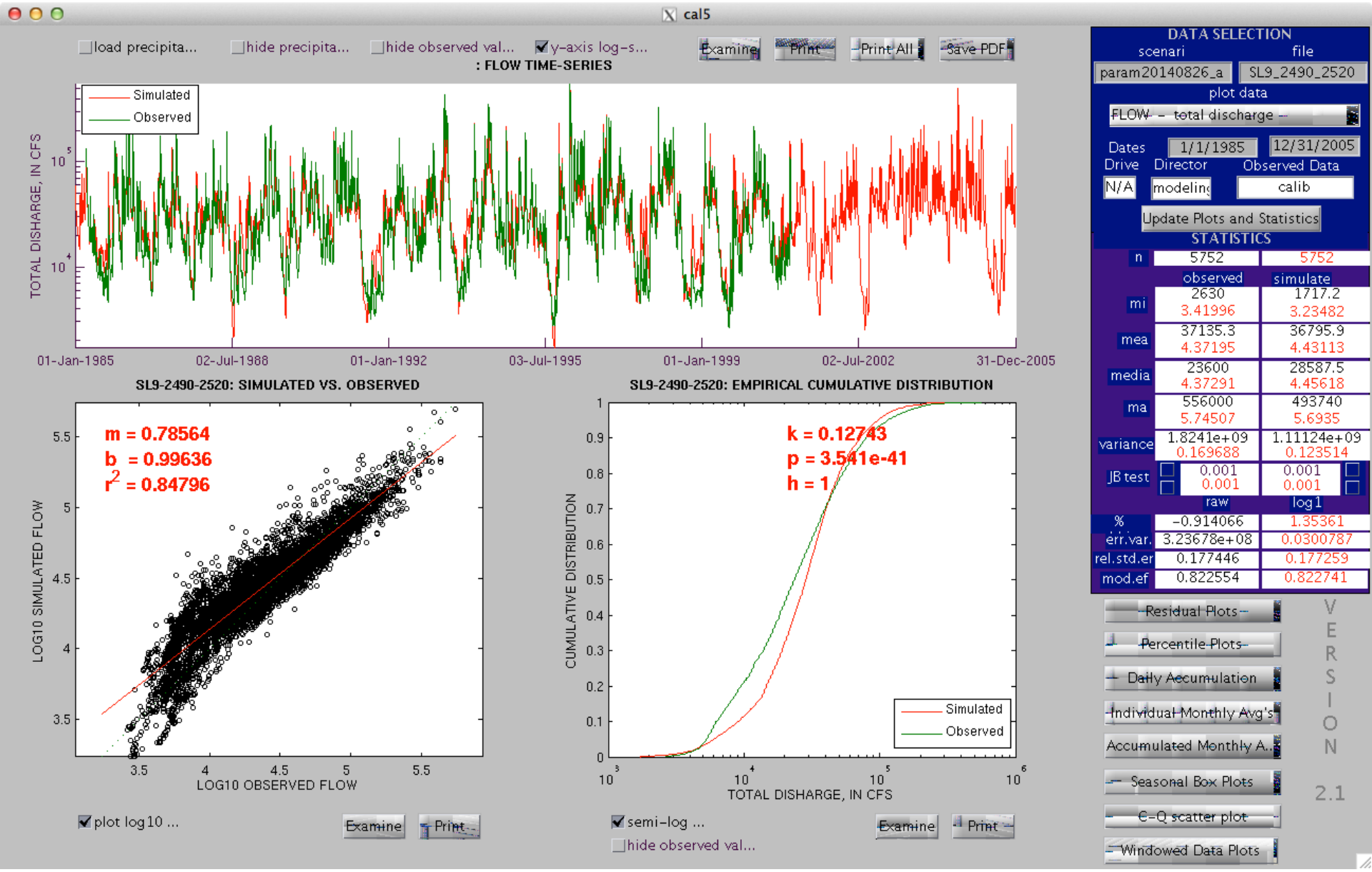




Susquehanna at Marietta




cal5
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: FLOW TIME-SERIES
Simulated
Observed
TOTAL DISHARGE, IN CFS
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2490-2520: SIMULATED VS. OBSERVED
m = 0.84776
b = 0.70412
r2 = 0.89494
LOG10 SIMULATED FLOW
LOG10 OBSERVED FLOW
plot log10 ...
Examine
Print
SL9-2490-2520: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.087796
p = 9.0798e-20
h = 1
CUMULATIVE DISTRIBUTION
TOTAL DISHARGE, IN CFS
Simulated
Observed
semi-log ...
hide observed val...
Examine
Print
DATA SELECTION
scenari
file
p532cal_102413
SL9_2490_2520
plot data
FLOW - total discharge --
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modelinc
calib
Update Plots and Statistics
STATISTICS
n 5752 5752
observed simulate
mi 2630 1916.5
3.41996 3.28251
mea 37135.3 36919.2
4.37195 4.4105
media 23600 25897
4.37291 4.41325
ma 556000 468930
5.74507 5.67111
variance 1.8241e+09 1.39256e+09
0.169688 0.136271
JB test 0.001 0.001
0.001 0.308685
raw log1
% err.var. -0.581984 0.881775
2.35928e+08 0.0197352
rel.std.er 0.12934 0.116303
mod.ef 0.87066 0.883697
Residual Plots
Percentile Plots
Daily Accumulation
Individual Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
C-Q scatter plot
Windowed Data Plots
VERSION 2.1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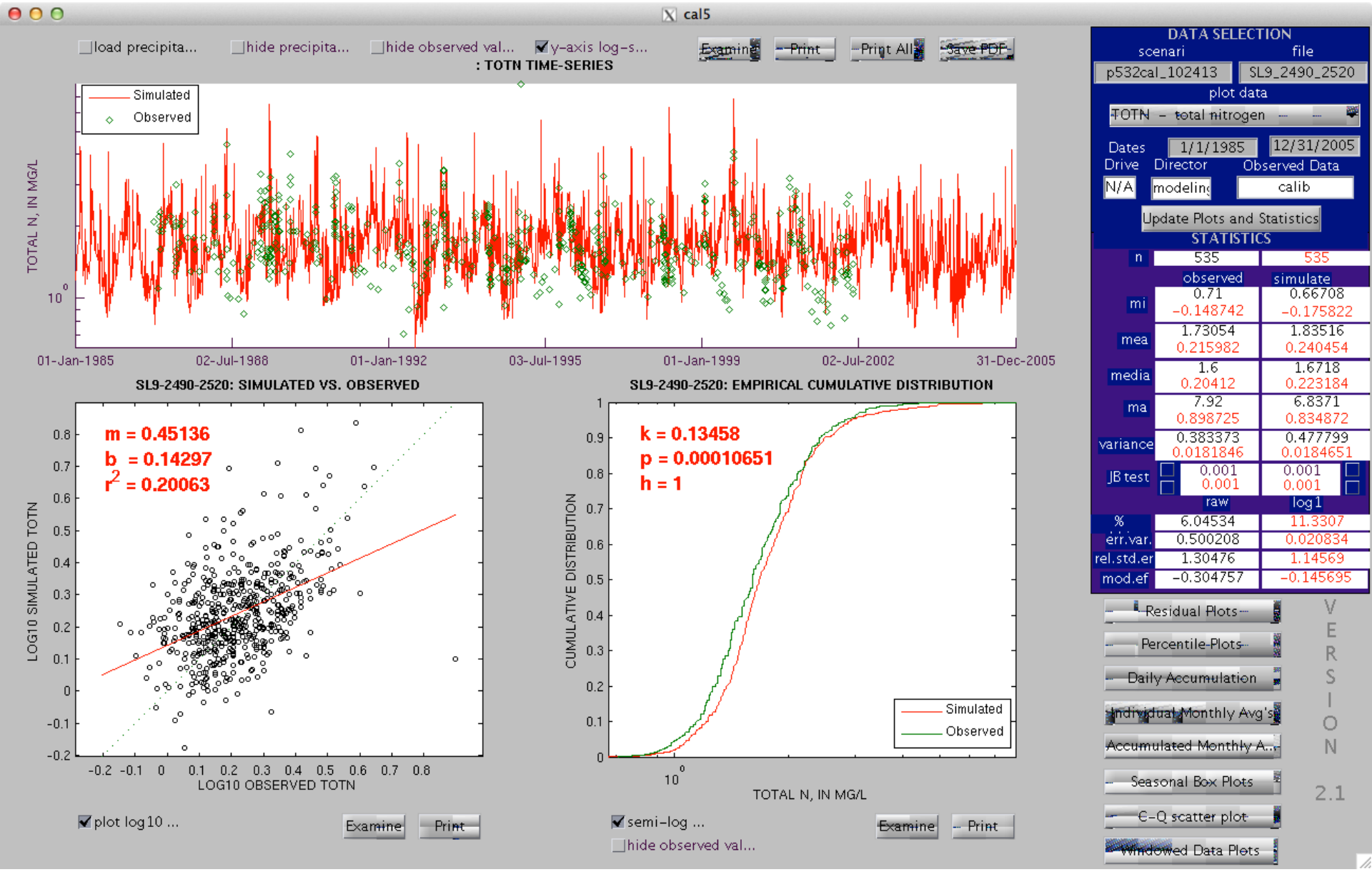
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: FLOW TIME-SERIES
Simulated
Observed
TOTAL DISHARGE, IN CFS
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2490-2520: SIMULATED VS. OBSERVED
m = 0.78564
b = 0.99636
r2 = 0.84796
LOG10 SIMULATED FLOW
LOG10 OBSERVED FLOW
plot log10 ...
Examine
Print
SL9-2490-2520: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.12743
p = 3.541e-41
h = 1
CUMULATIVE DISTRIBUTION
TOTAL DISHARGE, IN CFS
Simulated
Observed
semi-log ...
hide observed val...
Examine
Print
DATA SELECTION
scenari
file
param20140826_a
SL9_2490_2520
plot data
FLOW - total discharge -
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modelin
calib
Update Plots and Statistics
STATISTICS
n 5752 5752
observed simulate
mi 2630 1717.2
3.41996 3.23482
mea 37135.3 36795.9
4.37195 4.43113
media 23600 28587.5
4.37291 4.45618
ma 556000 493740
5.74507 5.6935
variance 1.8241e+09 1.11124e+09
0.169688 0.123514
JB test 0.001 0.001
0.001 0.001
raw log1
% -0.914066 1.35361
err.var. 3.23678e+08 0.0300787
rel.std.er 0.177446 0.177259
mod.ef 0.822554 0.822741
Residual Plots
Percentile Plots
Daily Accumulation
Individual Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
C-Q scatter plot
Windowed Data Plots
VERSION 2.1


cal5
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: TOTN TIME-SERIES
Simulated
Observed
TOTAL N, IN MG/L
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2490-2520: SIMULATED VS. OBSERVED
m = 0.45136
b = 0.14297
r2 = 0.20063
LOG10 SIMULATED TOTN
LOG10 OBSERVED TOTN
plot log10 ...
Examine
Print
SL9-2490-2520: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.13458
p = 0.00010651
h = 1
CUMULATIVE DISTRIBUTION
Simulated
Observed
TOTAL N, IN MG/L
semi-log ...
hide observed val...
Examine
Print
DATA SELECTION
scenari
file
p532cal_102413
SL9_2490_2520
plot data
TOTN - total nitrogen
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modeling
calib
Update Plots and Statistics
STATISTICS
n
535
535
observed
simulate
mi
0.71
-0.148742
0.66708
-0.175822
mea
1.73054
0.215982
1.83516
0.240454
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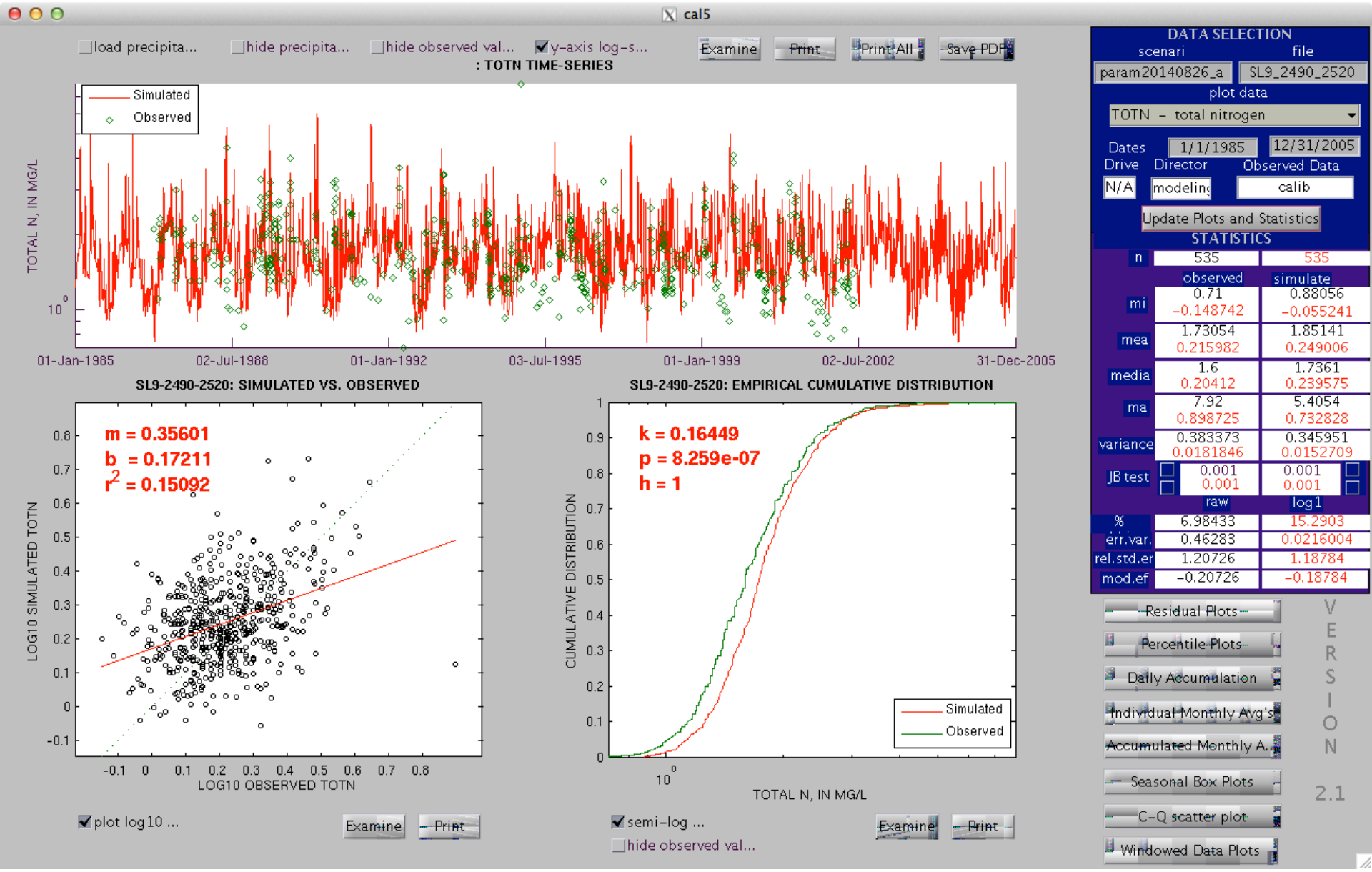
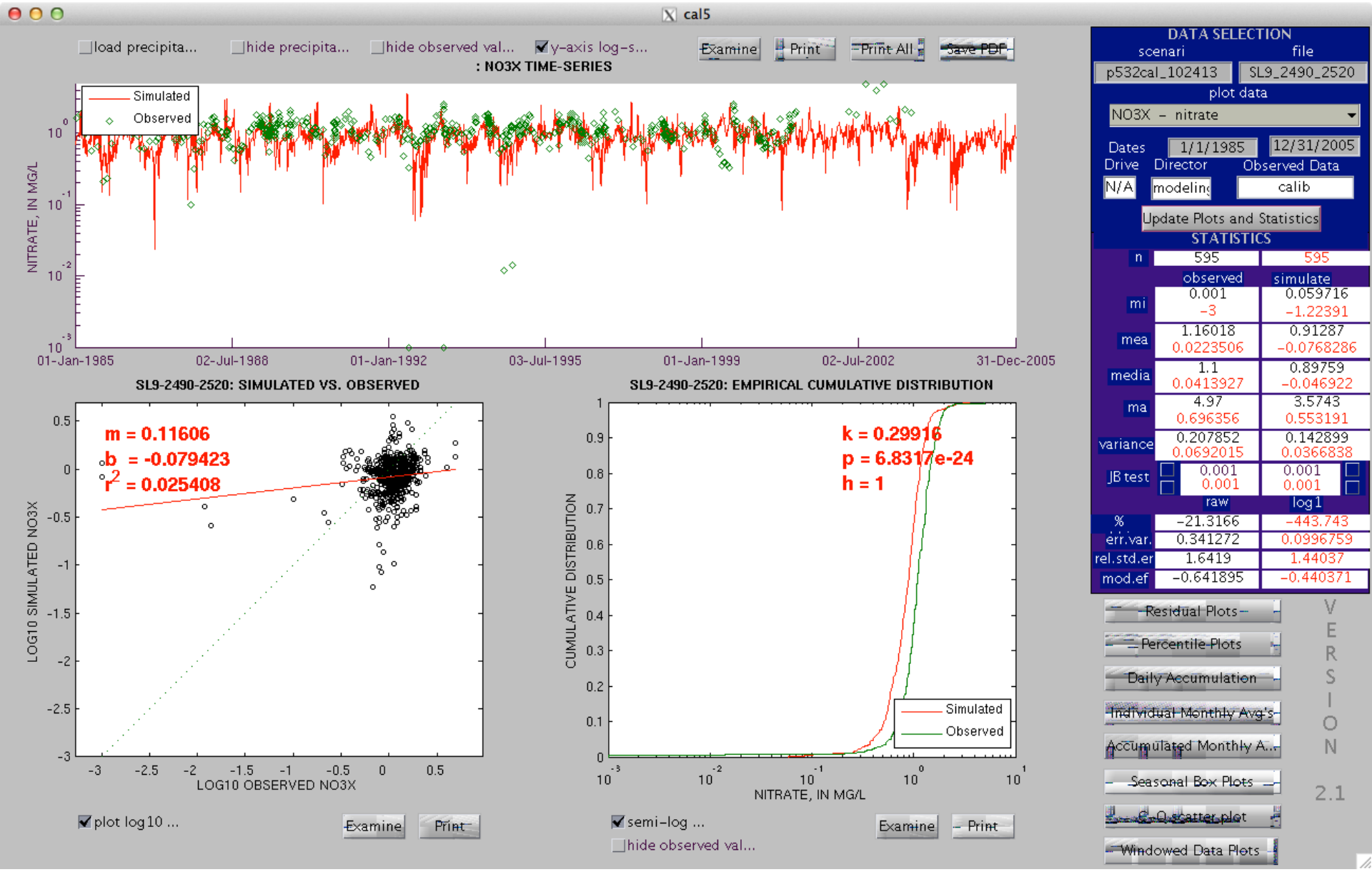
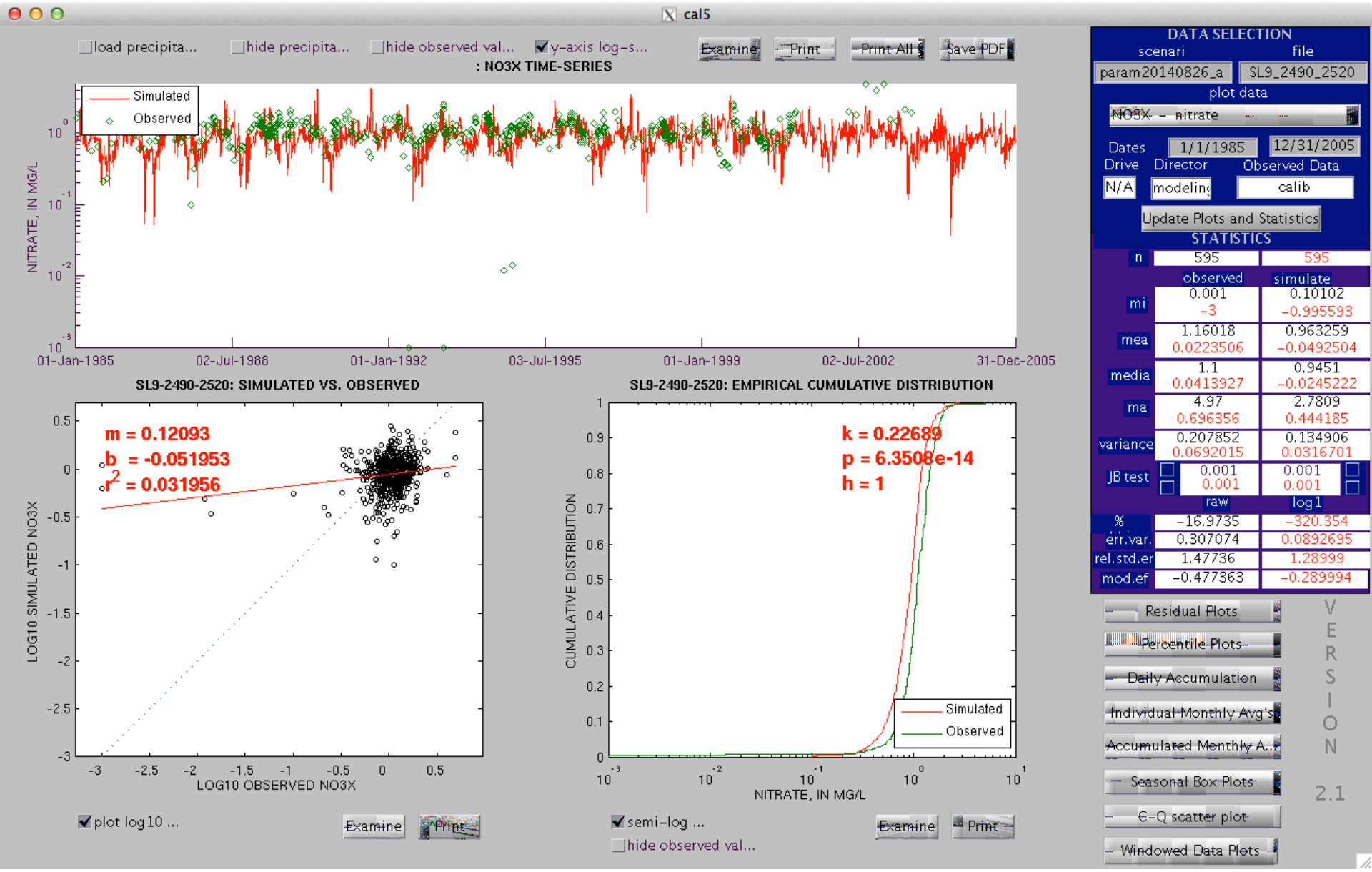
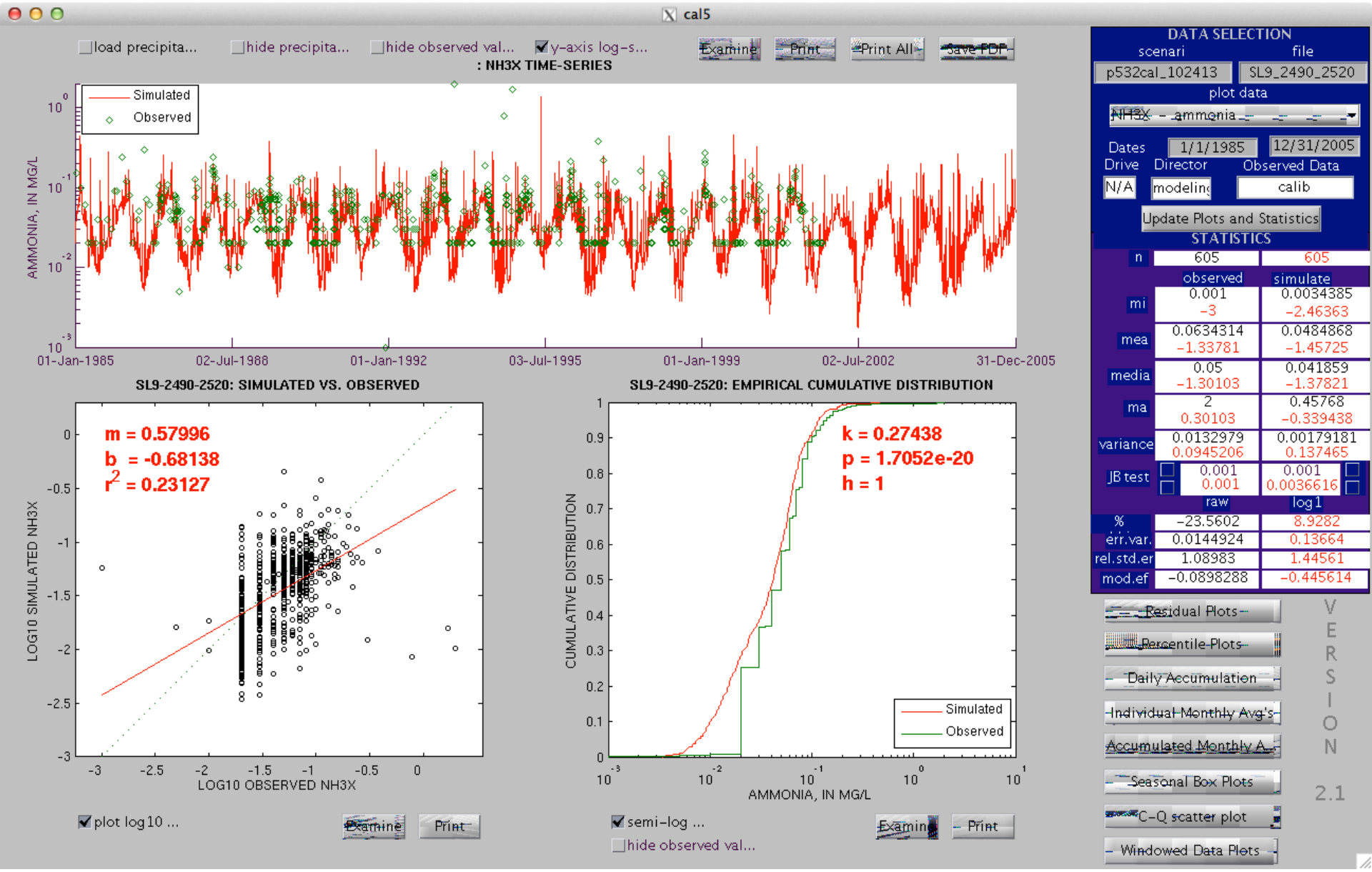
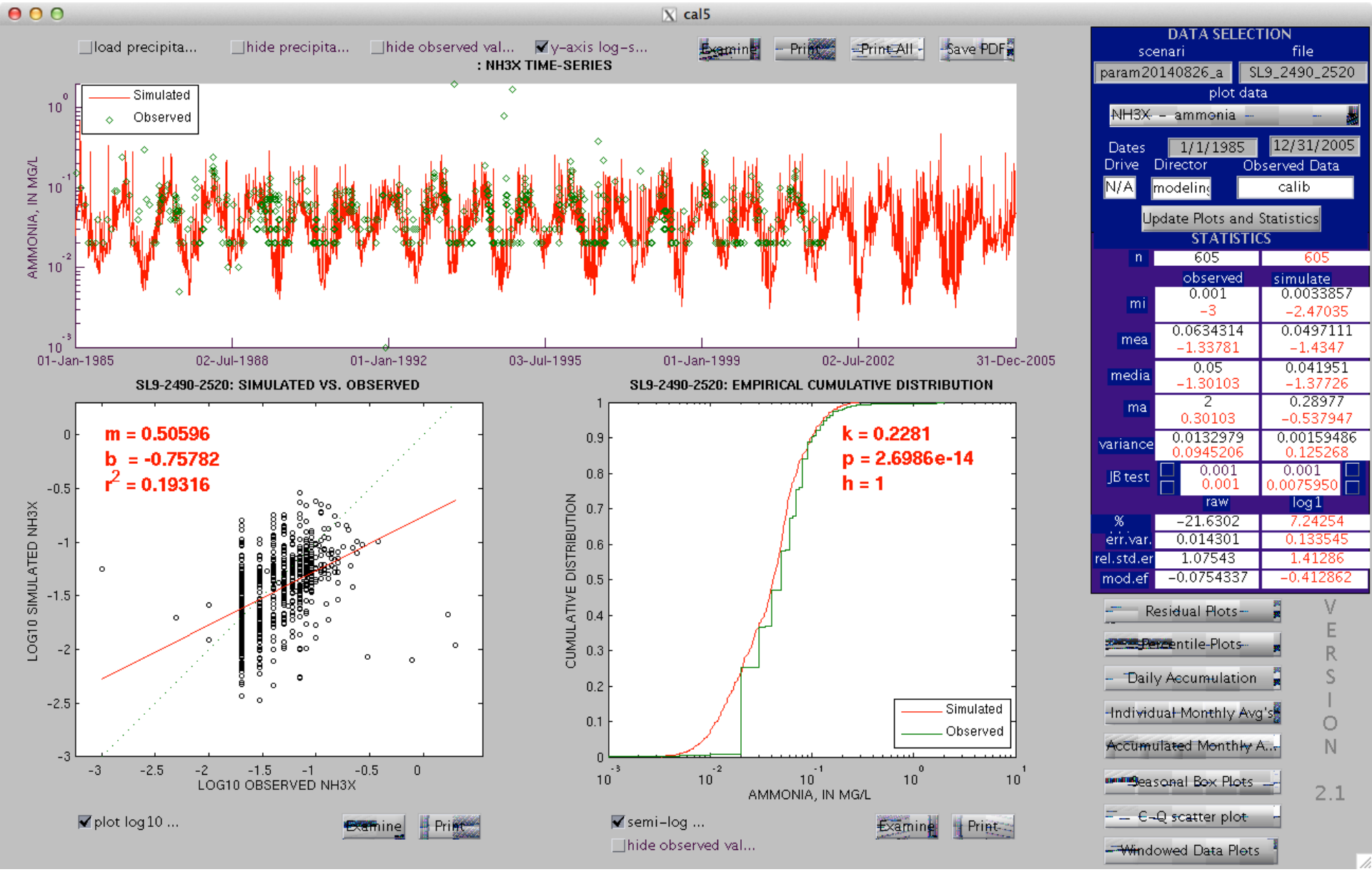
1.6
0.20412
1.6718
0.223184
ma
7.92
0.898725
6.8371
0.834872
variance
0.383373
0.0181846
0.477799
0.0184651
JB test
0.001
0.001
0.001
0.001
raw
log1
%
6.04534
11.3307
err.var.
0.500208
0.020834
rel.std.er
1.30476
1.14569
mod.ef
-0.304757
-0.145695
Residual Plots
Percentile Plots
Daily Accumulation
Individual Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
C-Q scatter plot
Windowed Data Plots
VERSION 2.1

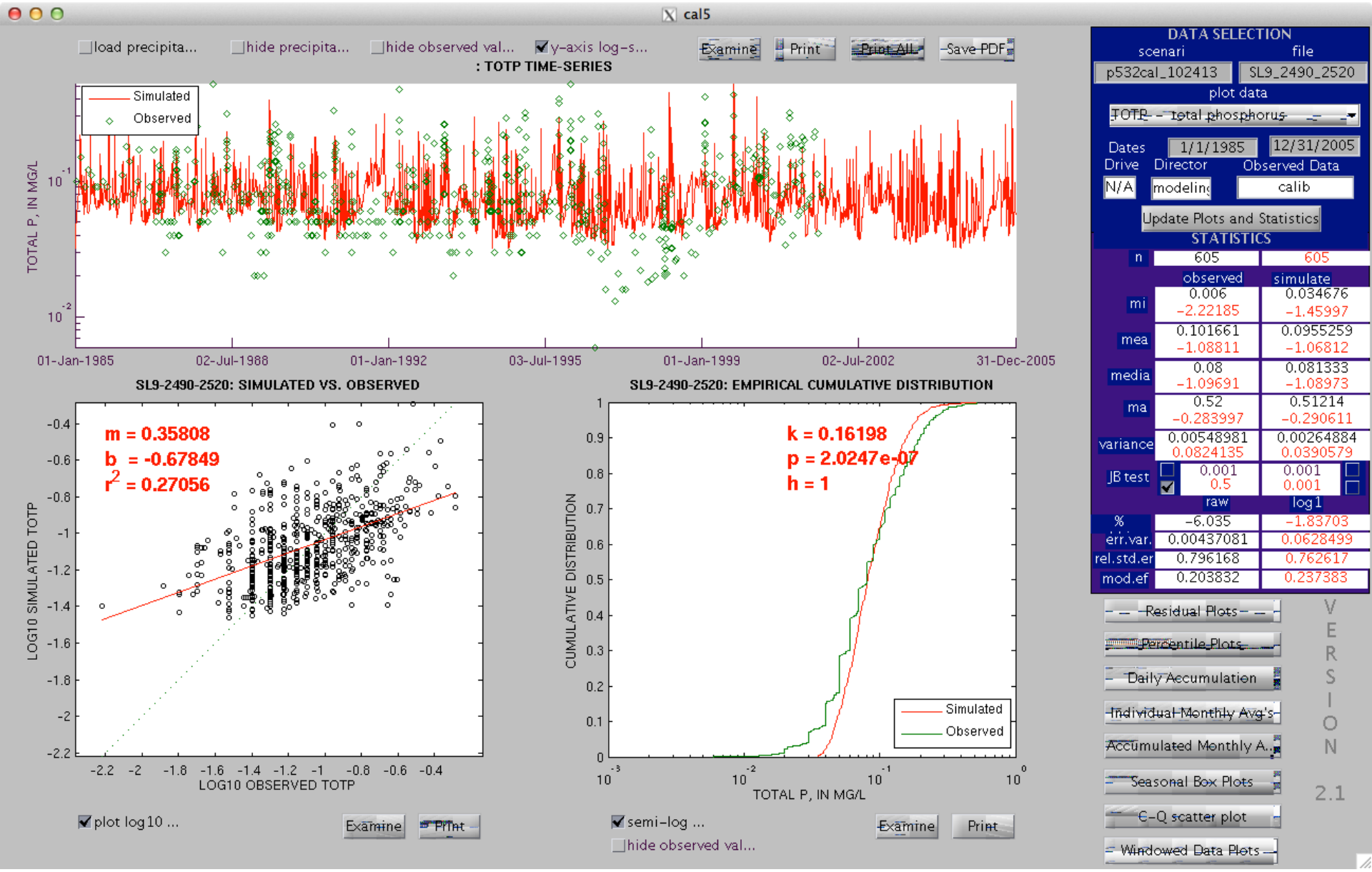

cal5
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: TOTN TIME-SERIES
Simulated
Observed
TOTAL N, IN MG/L
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2490-2520: SIMULATED VS. OBSERVED
m = 0.35601
b = 0.17211
r2 = 0.15092
LOG10 SIMULATED TOTN
LOG10 OBSERVED TOTN
plot log10 ...
Examine
Print
SL9-2490-2520: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.16449
p = 8.259e-07
h = 1
CUMULATIVE DISTRIBUTION
Simulated
Observed
TOTAL N, IN MG/L
semi-log ...
hide observed val...
Examine
Print
DATA SELECTION
scenari
file
param20140826_a
SL9_2490_2520
plot data
TOTN - total nitrogen
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modeling
calib
Update Plots and Statistics
STATISTICS
n
535
535
observed
simulate
mi
0.71
-0.148742
0.88056
-0.055241
mea
1.73054
0.215982
1.85141
0.249006
media
1.6
0.20412
1.7361
0.239575
ma
7.92
0.898725
5.4054
0.732828
variance
0.383373
0.0181846
0.345951
0.0152709
JB test
0.001
0.001
0.001
0.001
raw
log1
% err.var.
6.98433
0.46283
15.2903
0.0216004
rel.std.er
1.20726
1.18784
mod.ef
-0.20726
-0.18784
Residual Plots
Percentile Plots
Daily Accumulation
Individual Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
C-Q scatter plot
Windowed Data Plots
VERSION 2.1

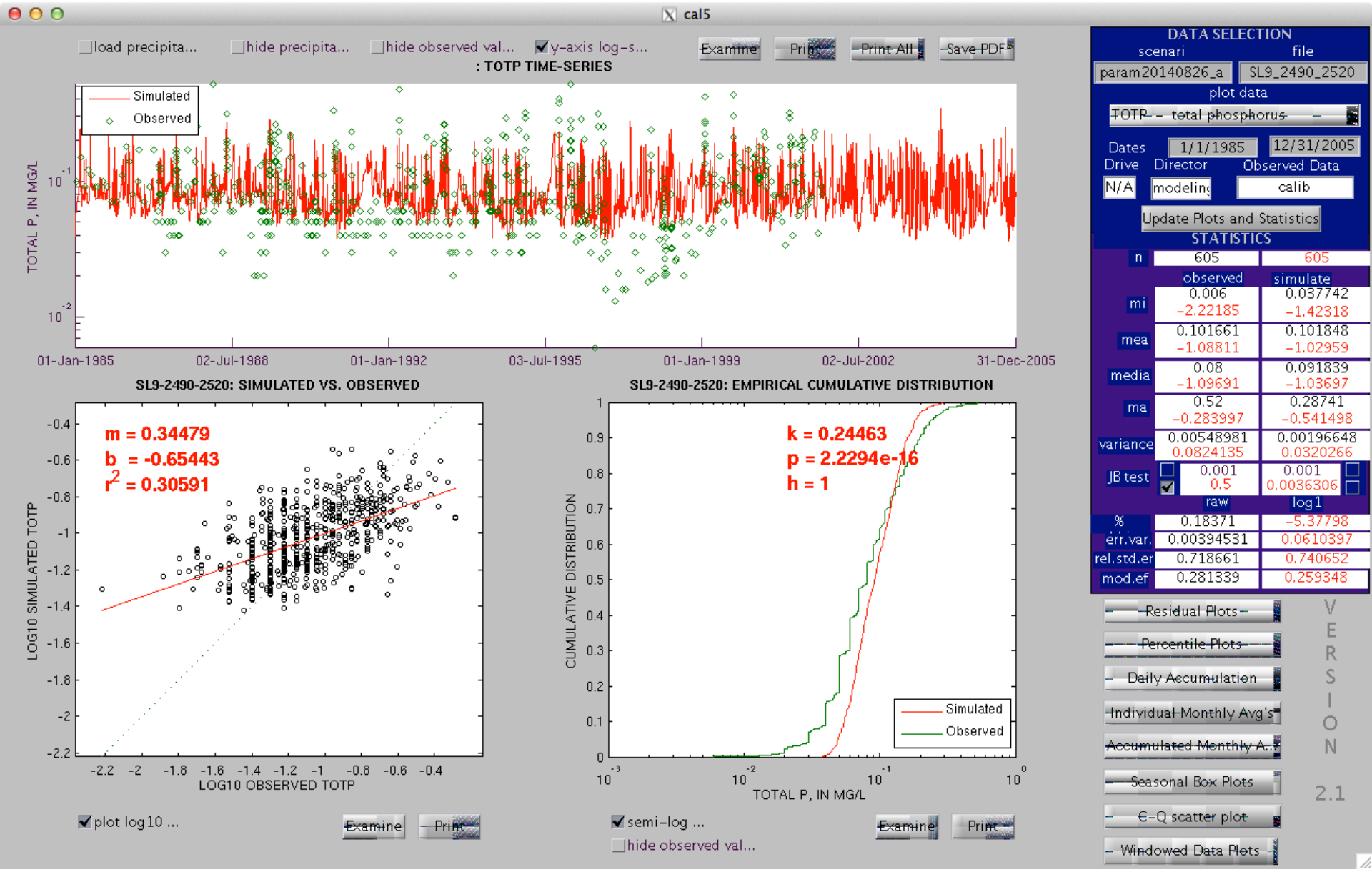

cal5
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: NO3X TIME-SERIES
Simulated
Observed
NITRATE, IN MG/L
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2490-2520: SIMULATED VS. OBSERVED
m = 0.11606
b = -0.079423
r2 = 0.025408
LOG10 SIMULATED NO3X
LOG10 OBSERVED NO3X
plot log10 ...
Examine
Print
SL9-2490-2520: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.29916
p = 6.8317e-24
h = 1
CUMULATIVE DISTRIBUTION
Simulated
Observed
NITRATE, IN MG/L
semi-log ...
hide observed val...
Examine
Print
DATA SELECTION
scenari
file
p532cal_102413
SL9_2490_2520
plot data
NO3X - nitrate
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modelinc
calib
Update Plots and Statistics
STATISTICS
n
595
595
observed
simulate
mi
0.001
-3
0.059716
-1.22391
mea
1.16018
0.0223506
0.91287
-0.0768286
media
1.1
0.0413927
0.89759
-0.046922
ma
4.97
0.696356
3.5743
0.553191
variance
0.207852
0.0692015
0.142899
0.0366838
JB test
0.001
0.001
0.001
0.001
raw
log1
% err.var.
-21.3166
0.341272
-443.743
0.0996759
rel.std.er
1.6419
1.44037
mod.ef
-0.641895
-0.440371
Residual Plots
Percentile Plots
Daily Accumulation
Individual Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
Q-scatter plot
Windowed Data Plots
VERSION 2.1

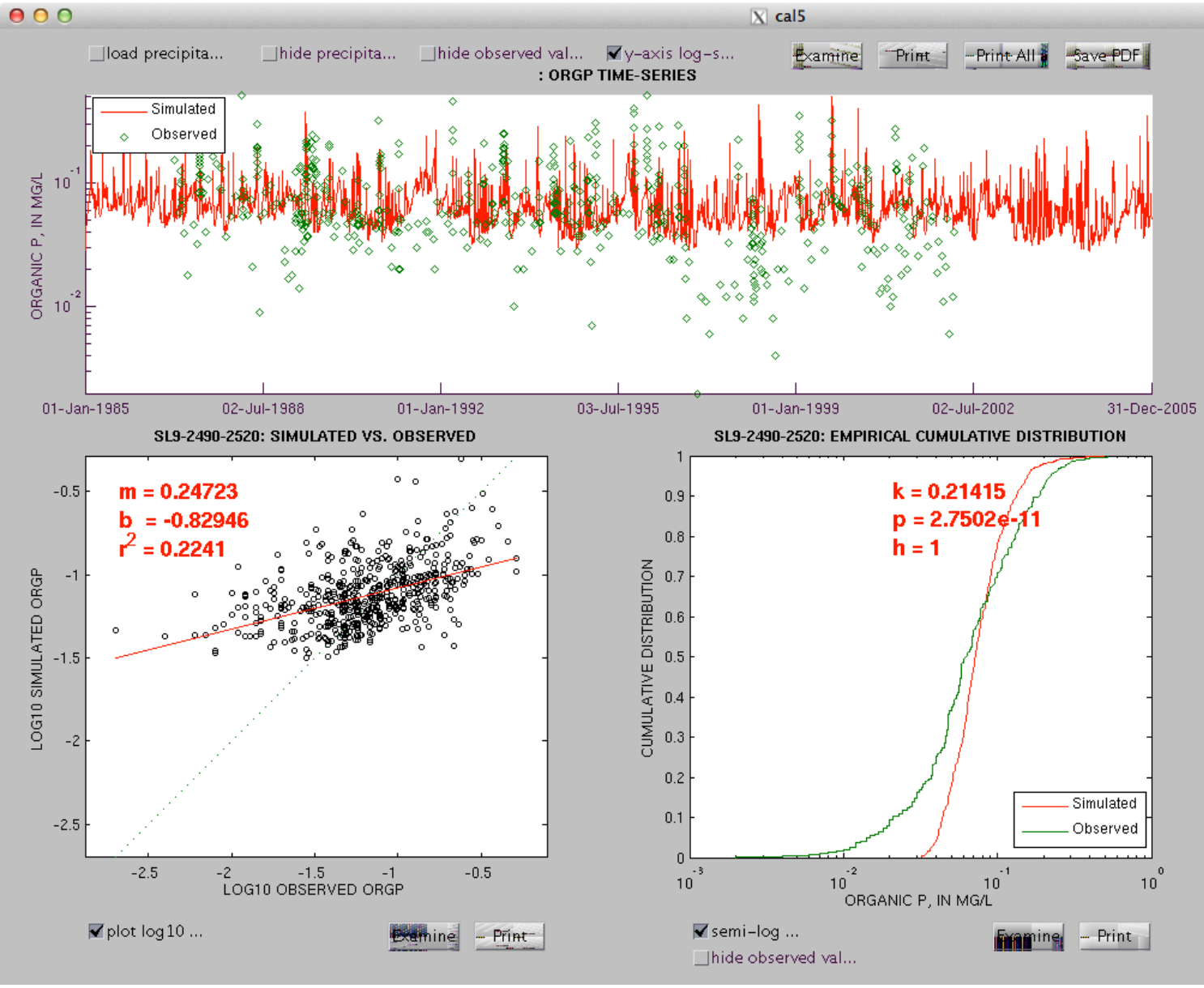

cal5
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: NO3X TIME-SERIES
Simulated
Observed
NITRATE, IN MG/L
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2490-2520: SIMULATED VS. OBSERVED
m = 0.12093
b = -0.051953
r2 = 0.031956
LOG10 SIMULATED NO3X
LOG10 OBSERVED NO3X
plot log10 ...
Examine
Print
SL9-2490-2520: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.22689
p = 6.3508e-14
h = 1
CUMULATIVE DISTRIBUTION
Simulated
Observed
NITRATE, IN MG/L
semi-log ...
hide observed val...
Examine
Print
DATA SELECTION
scenari
file
param20140826_a
SL9_2490_2520
plot data
NO3X - nitrate
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modeling
calib
Update Plots and Statistics
STATISTICS
n 595 595
observed simulate
mi 0.001 -3 0.10102 -0.995593
mea 1.16018 0.0223506 0.963259 -0.0492504
media 1.1 0.0413927 0.9451 -0.0245222
ma 4.97 0.696356 2.7809 0.444185
variance 0.207852 0.0692015 0.134906 0.0316701
JB test 0.001 0.001 0.001 0.001
raw log1
% err.var. -16.9735 -320.354
0.307074 0.0892695
rel.std.er 1.47736 1.28999
mod.ef -0.477363 -0.289994
Residual Plots
Percentile Plots
Daily Accumulation
Individual Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
C-Q scatter plot
Windowed Data Plots
VERSION 2.1


cal5
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: NH3X TIME-SERIES
Simulated
Observed
AMMONIA, IN MG/L
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2490-2520: SIMULATED VS. OBSERVED
m = 0.57996
b = -0.68138
r2 = 0.23127
LOG10 SIMULATED NH3X
LOG10 OBSERVED NH3X
plot log10 ...
Examine
Print
SL9-2490-2520: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.27438
p = 1.7052e-20
h = 1
CUMULATIVE DISTRIBUTION
AMMONIA, IN MG/L
Simulated
Observed
semi-log ...
hide observed val...
Examine
Print
DATA SELECTION
scenari
file
p532cal_102413
SL9_2490_2520
plot data
NH3X - ammonia
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modeling
calib
Update Plots and Statistics
STATISTICS
n
605
605
observed
simulate
mi
0.001
-3
0.0034385
-2.46363
mea
0.0634314
-1.33781
0.0484868
-1.45725
media
0.05
-1.30103
0.041859
-1.37821
ma
2
0.30103
0.45768
-0.339438
variance
0.0132979
0.0945206
0.00179181
0.137465
JB test
0.001
0.001
0.001
0.0036616
raw
log1
% err.var.
-23.5602
8.9282
0.0144924
0.13664
rel.std.er
1.08983
1.44561
mod.ef
-0.0898288
-0.445614
Residual Plots
Percentile Plots
Daily Accumulation
Individual Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
C-Q scatter plot
Windowed Data Plots
VERSION 2.1


cal5
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: NH3X TIME-SERIES
Simulated
Observed
AMMONIA, IN MG/L
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2490-2520: SIMULATED VS. OBSERVED
m = 0.50596
b = -0.75782
r2 = 0.19316
LOG10 SIMULATED NH3X
LOG10 OBSERVED NH3X
plot log10 ...
Examine
Print
SL9-2490-2520: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.2281
p = 2.6986e-14
h = 1
CUMULATIVE DISTRIBUTION
AMMONIA, IN MG/L
Simulated
Observed
semi-log ...
hide observed val...
Examine
Print
DATA SELECTION
scenari
file
param20140826_a
SL9_2490_2520
plot data
NH3X - ammonia
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modelinc
calib
Update Plots and Statistics
STATISTICS
n 605 605
observed simulate
mi 0.001 -3 0.0033857 -2.47035
mea 0.0634314 -1.33781 0.0497111 -1.4347
media 0.05 -1.30103 0.041951 -1.37726
ma 2 0.30103 0.28977 -0.537947
variance 0.0132979 0.0945206 0.00159486 0.125268
JB test 0.001 0.001 0.001 0.0075950
raw log1
% err.var. -21.6302 7.24254
err.var. 0.014301 0.133545
rel.std.er 1.07543 1.41286
mod.ef -0.0754337 -0.412862
Residual Plots
Percentile Plots
Daily Accumulation
Individual Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
C-Q scatter plot
Windowed Data Plots
VERSION 2.1


cal5
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: TOTP TIME-SERIES
Simulated
Observed
TOTAL P, IN MG/L
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2490-2520: SIMULATED VS. OBSERVED
m = 0.35808
b = -0.67849
r2 = 0.27056
LOG10 SIMULATED TOTP
LOG10 OBSERVED TOTP
plot log10 ...
Examine
Print
SL9-2490-2520: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.16198
p = 2.0247e-07
h = 1
CUMULATIVE DISTRIBUTION
TOTAL P, IN MG/L
Simulated
Observed
semi-log ...
hide observed val...
Examine
Print
DATA SELECTION
scenari
file
p532cal_102413
SL9_2490_2520
plot data
TOTP - total phosphorus
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modelinc
calib
Update Plots and Statistics
STATISTICS
n
605
605
observed
simulate
mi
0.006
-2.22185
0.034676
-1.45997
mea
0.101661
-1.08811
0.0955259
-1.06812
media
0.08
-1.09691
0.081333
-1.08973
ma
0.52
-0.283997
0.51214
-0.290611
variance
0.00548981
0.0824135
0.00264884
0.0390579
JB test
0.001
0.5
0.001
0.001
raw
log1
% err.var.
-6.035
0.00437081
-1.83703
0.0628499
rel.std.er
0.796168
0.762617
mod.ef
0.203832
0.237383
Residual Plots
Percentile Plots
Daily Accumulation
Individual Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
C-Q scatter plot
Windowed Data Plots
VERSION 2.1


cal5
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: TOTP TIME-SERIES
Simulated
Observed
TOTAL P, IN MG/L
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2490-2520: SIMULATED VS. OBSERVED
m = 0.34479
b = -0.65443
r2 = 0.30591
LOG10 SIMULATED TOTP
LOG10 OBSERVED TOTP
plot log10 ...
Examine
Print
SL9-2490-2520: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.24463
p = 2.2294e-16
h = 1
CUMULATIVE DISTRIBUTION
TOTAL P, IN MG/L
Simulated
Observed
semi-log ...
hide observed val...
Examine
Print
DATA SELECTION
scenari
file
param20140826_a
SL9_2490_2520
plot data
TOTP - total phosphorus
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modeling
calib
Update Plots and Statistics
STATISTICS
n
605
605
observed
simulate
mi
0.006
-2.22185
0.037742
-1.42318
mea
0.101661
-1.08811
0.101848
-1.02959
media
0.08
-1.09691
0.091839
-1.03697
ma
0.52
-0.283997
0.28741
-0.541498
variance
0.00548981
0.0824135
0.00196648
0.0320266
JB test
0.001
0.5
0.001
0.0036306
raw
log1
% err.var.
0.18371
0.00394531
-5.37798
0.0610397
rel.std.er
0.718661
0.740652
mod.ef
0.281339
0.259348
Residual Plots
Percentile Plots
Daily Accumulation
Individual Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
C-Q scatter plot
Windowed Data Plots
VERSION 2.1



DATA SELECTION

scenari: p532cal_102413

file: SL9_2490_2520

plot data: ORGP - organic phosphorus

Dates: 1/1/1985 – 12/31/2005

Drive: N/A

Director: modeling

Observed Data: calib

Update Plots and Statistics

STATISTICS

		observed	simulate
n		537	537
mi		0.002 -2.69897	0.031586 -1.50051
mea		0.0867412 -1.19427	0.0830183 -1.12472
media		0.062 -1.20761	0.07163 -1.14491
ma		0.518 -0.28567	0.49618 -0.304361
variance		0.00521617 0.125663	0.00203739 0.0342751
JB test		0.001 0.0011584	0.001 0.001
		raw	log1
% err.var.		-4.29188	-5.8236
rel.std.er		0.00429751	0.102648
mod.ef		0.823883	0.816851
		0.176117	0.183149

Residual Plots

Percentile Plots

Daily Accumulation

Individual Monthly Avg's

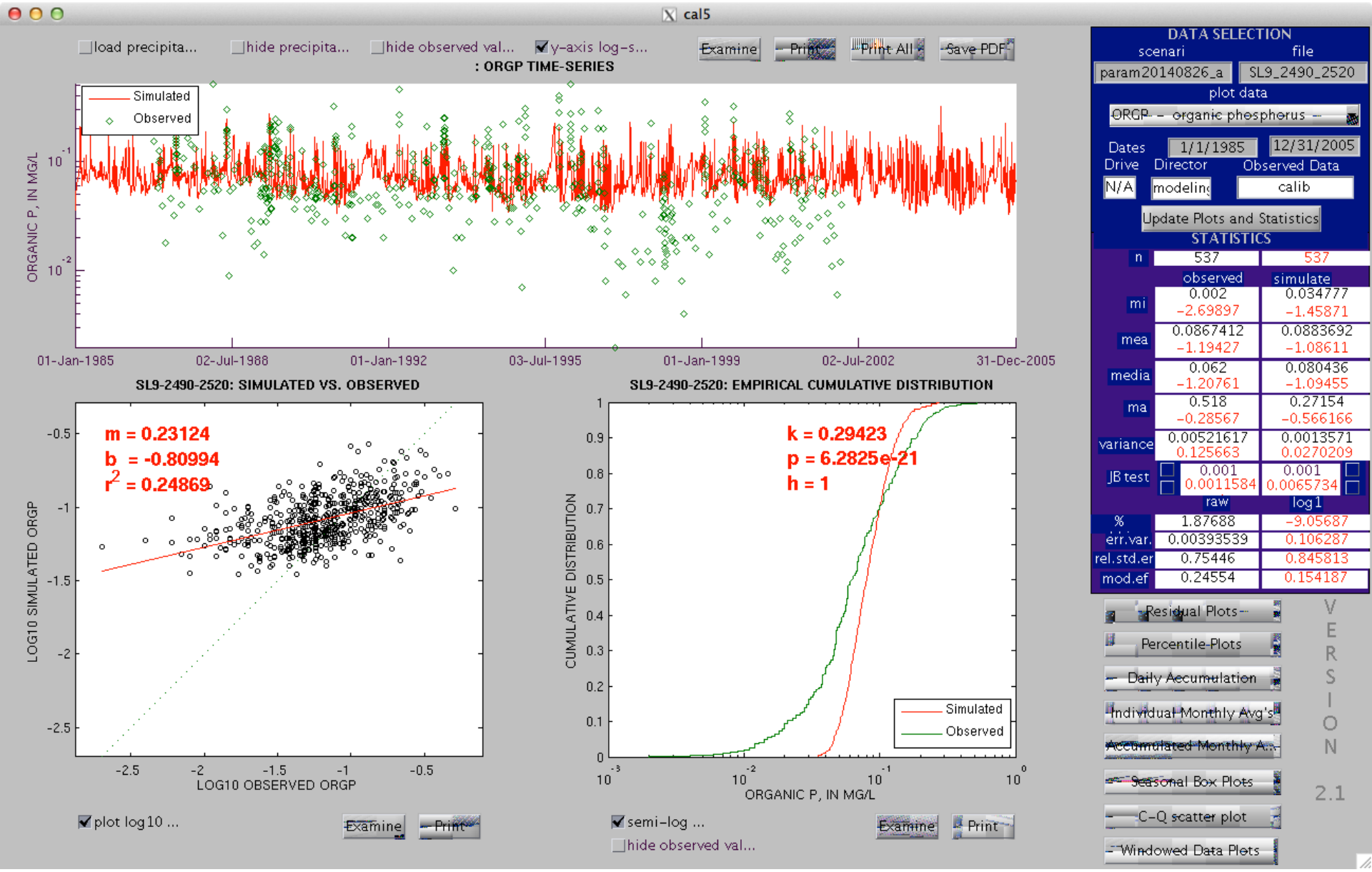
Accumulated Monthly A...

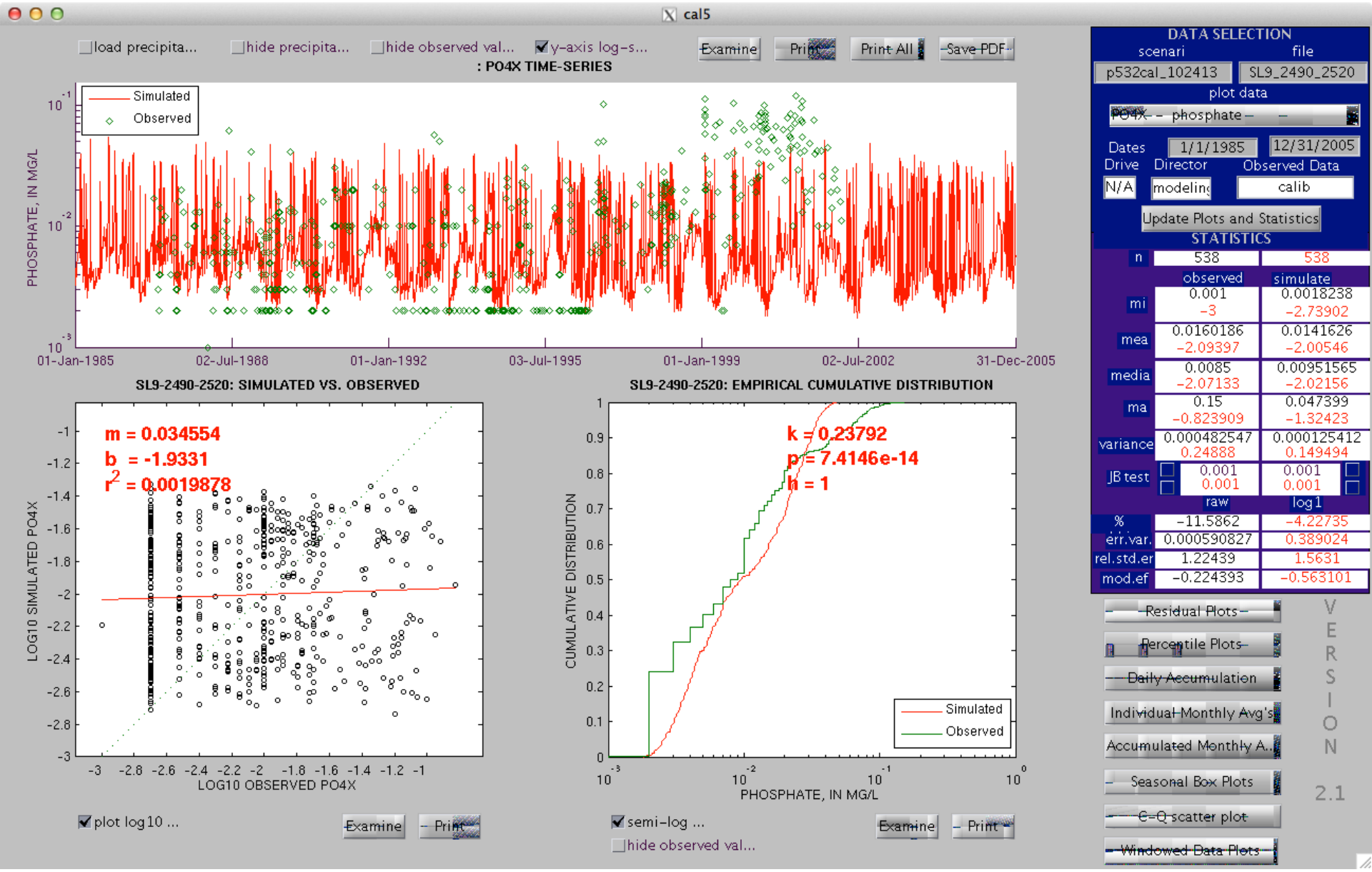
Seasonal Box Plots

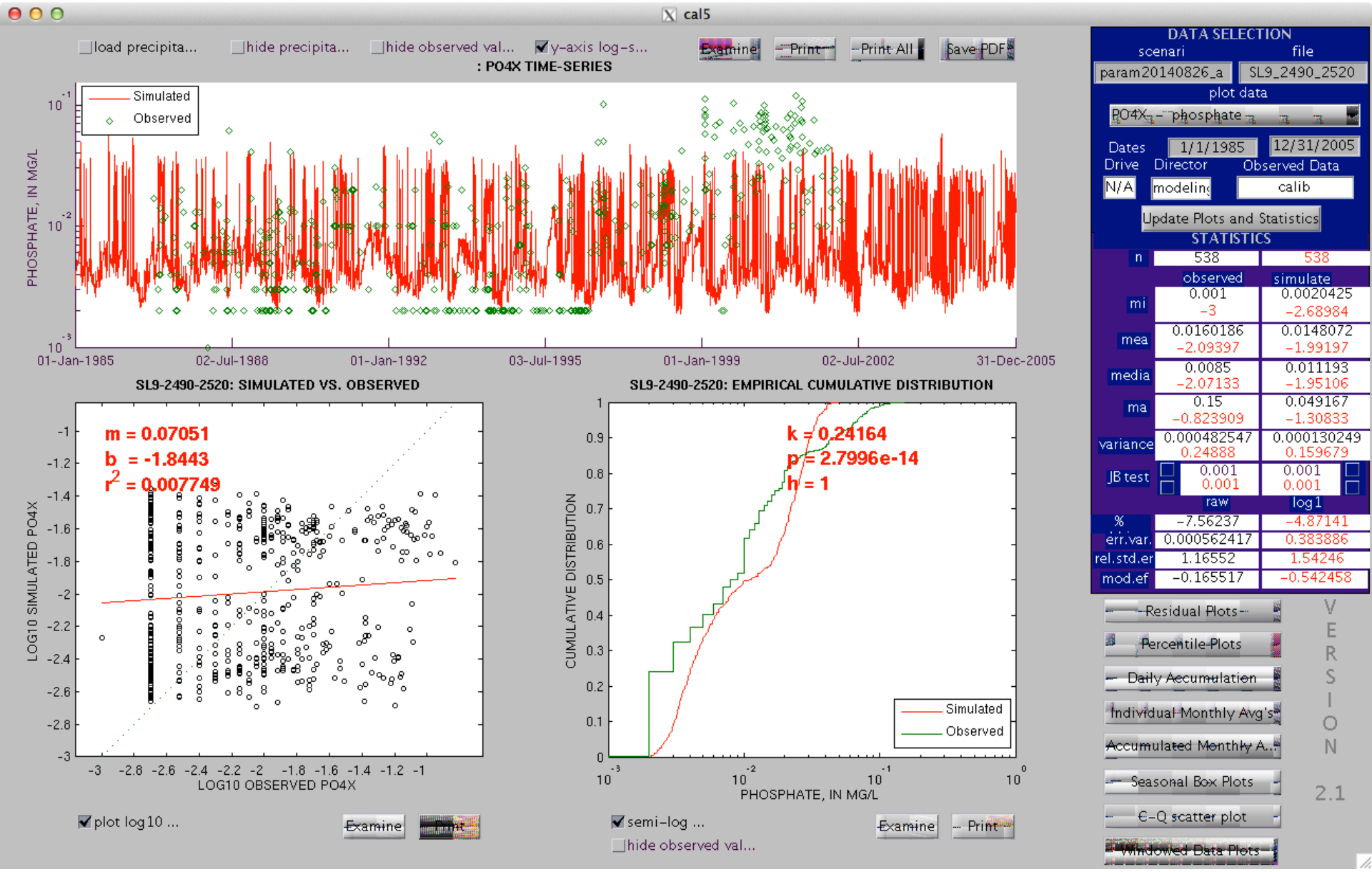
C-Q scatter plot

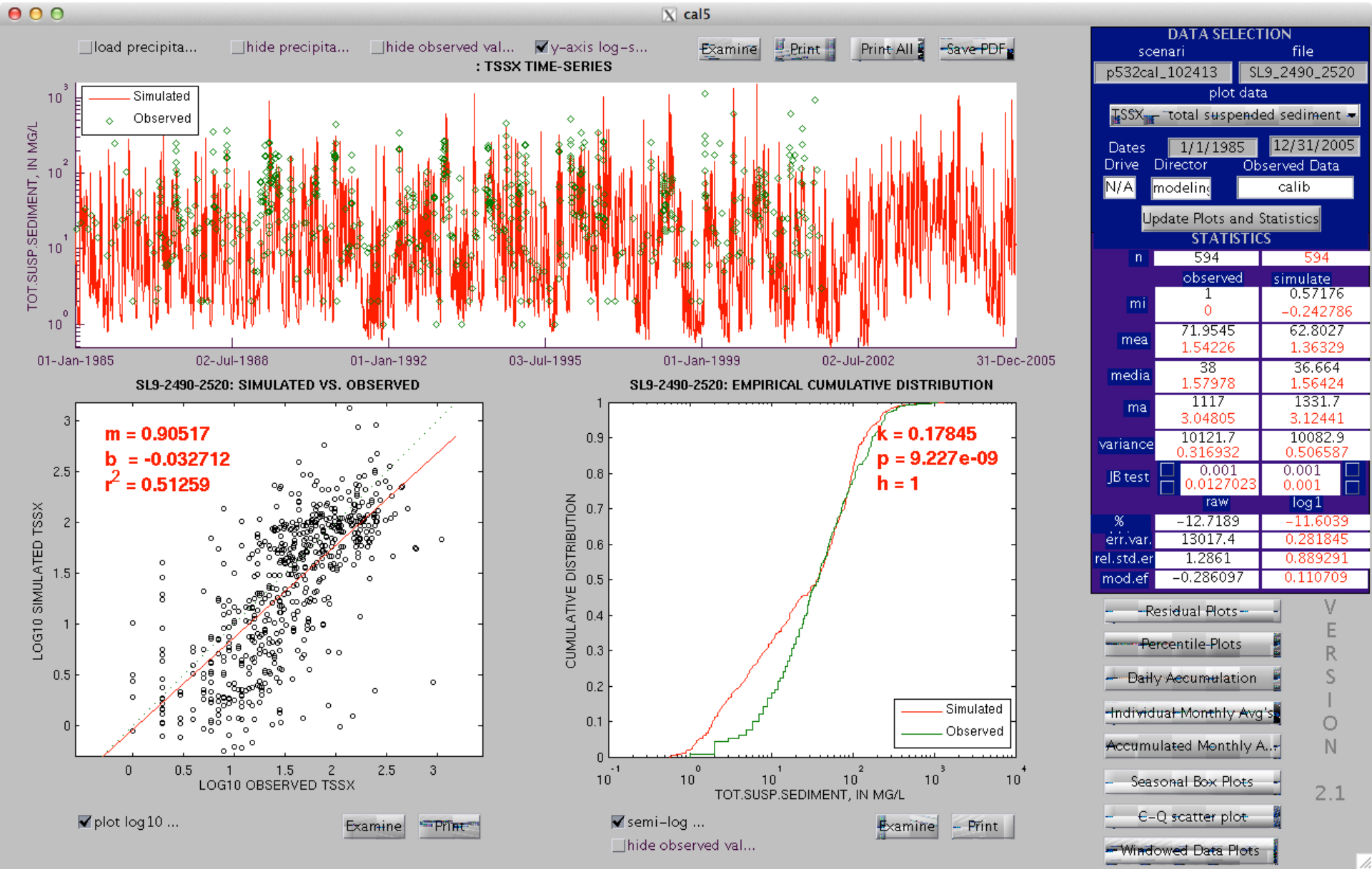
Windowed Data Plots

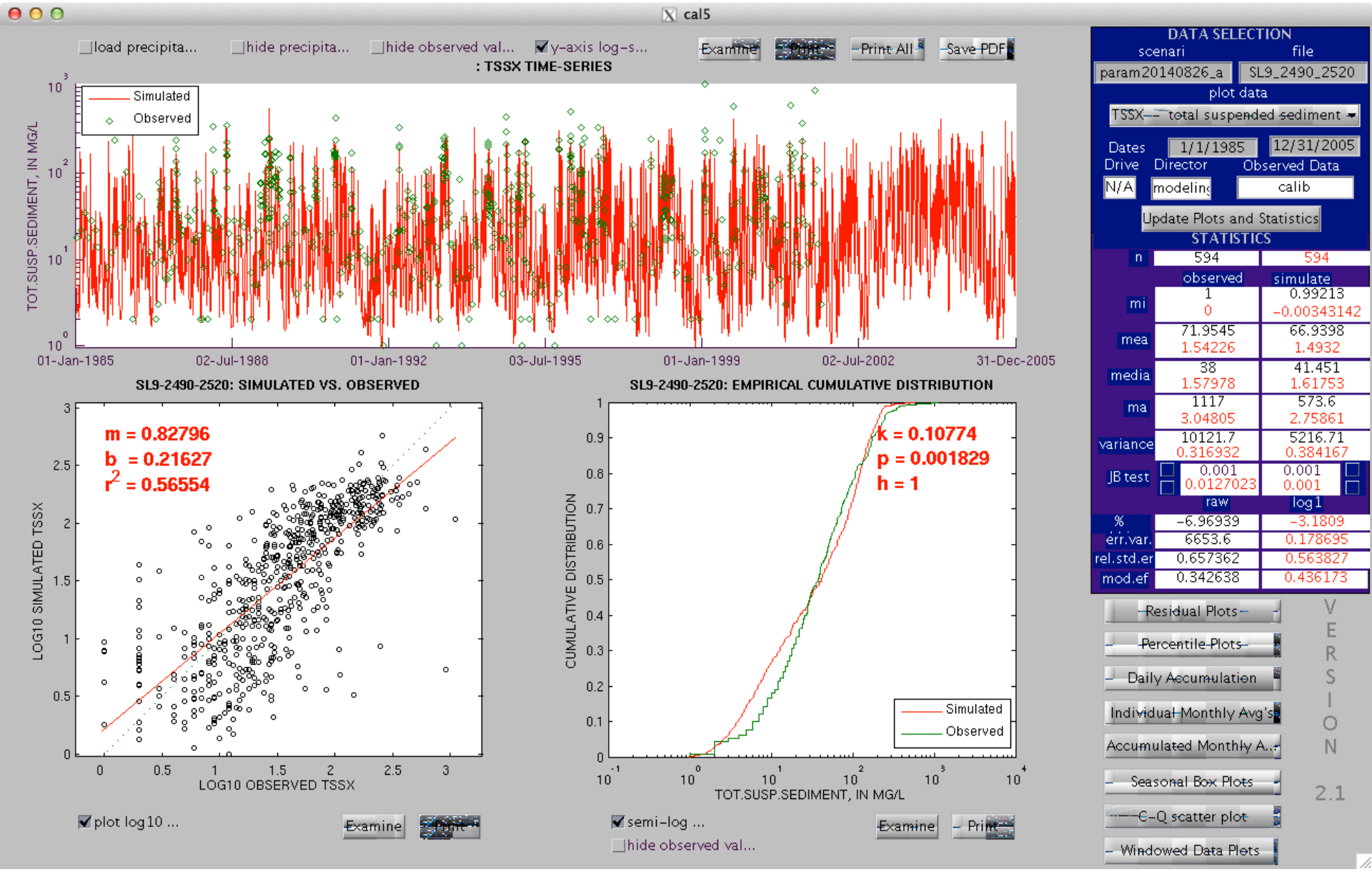
VERSION 2.1


cal5
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: ORGP TIME-SERIES
Simulated
Observed
ORGANIC P, IN MG/L
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2490-2520: SIMULATED VS. OBSERVED
m = 0.23124
b = -0.80994
r2 = 0.24869
LOG10 SIMULATED ORGP
LOG10 OBSERVED ORGP
plot log10 ...
Examine
Print
SL9-2490-2520: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.29423
p = 6.2825e-21
h = 1
CUMULATIVE DISTRIBUTION
ORGANIC P, IN MG/L
Simulated
Observed
semi-log ...
hide observed val...
Examine
Print
DATA SELECTION
scenari
file
param20140826_a
SL9_2490_2520
plot data
ORGP - organic phosphorus -
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modelinç
calib
Update Plots and Statistics
STATISTICS
n 537 537
observed simulate
mi 0.002 -2.69897 0.034777 -1.45871
mea 0.0867412 -1.19427 0.0883692 -1.08611
media 0.062 -1.20761 0.080436 -1.09455
ma 0.518 -0.28567 0.27154 -0.566166
variance 0.00521617 0.125663 0.0013571 0.0270209
JB test 0.001 0.0011584 0.001 0.0065734
raw log1
% err.var. 1.87688 -9.05687
rel.std.er 0.00393539 0.106287
mod.ef 0.75446 0.845813
0.24554 0.154187
Residual Plots
Percentile Plots
Daily Accumulation
Individual Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
C-Q scatter plot
Windowed Data Plots
VERSION 2.1

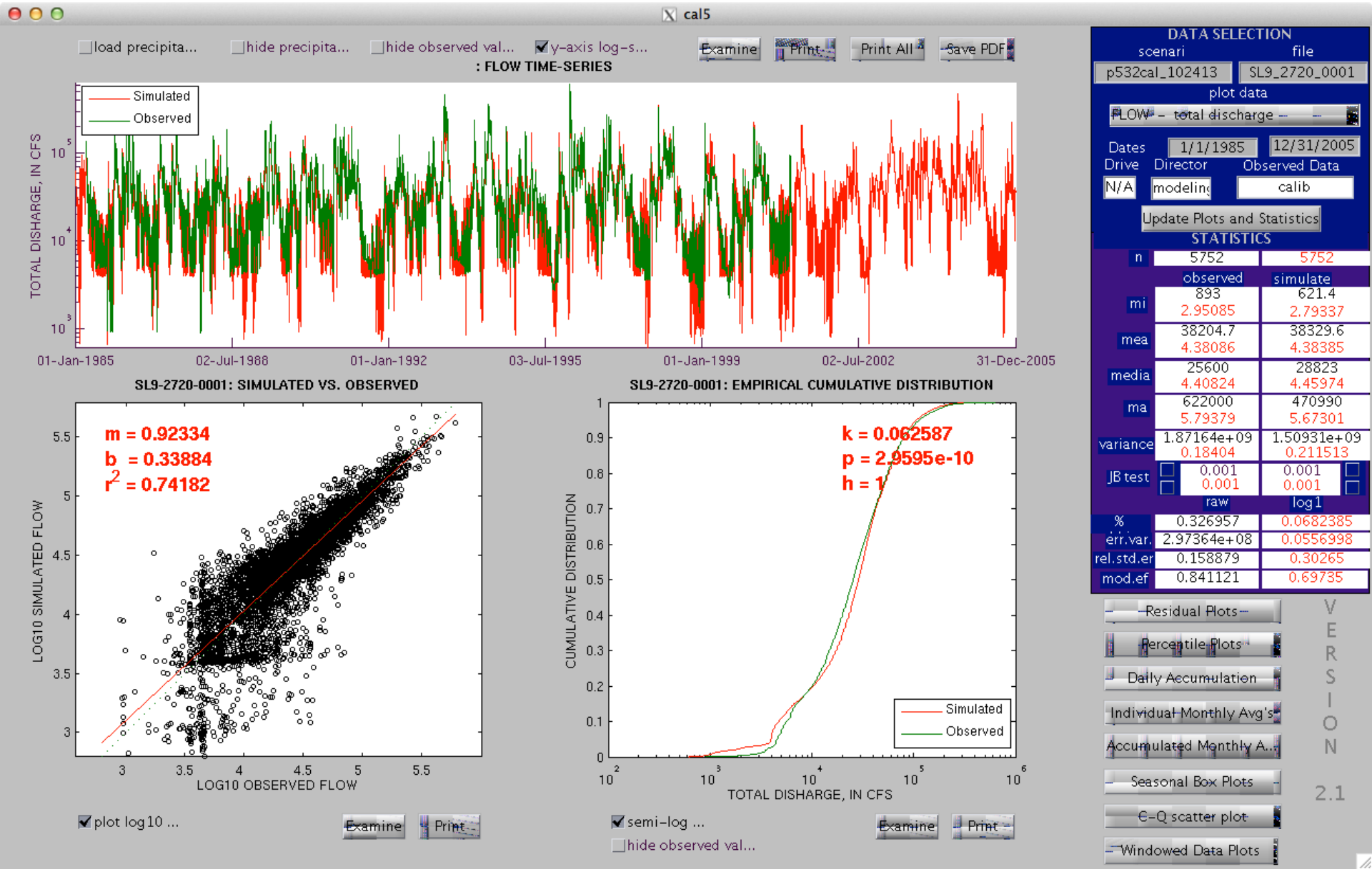

cal5
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: PO4X TIME-SERIES
Simulated
Observed
PHOSPHATE, IN MG/L
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2490-2520: SIMULATED VS. OBSERVED
m = 0.034554
b = -1.9331
r2 = 0.0019878
LOG10 SIMULATED PO4X
LOG10 OBSERVED PO4X
plot log10 ...
Examine
Print
SL9-2490-2520: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.23792
p = 7.4146e-14
h = 1
CUMULATIVE DISTRIBUTION
PHOSPHATE, IN MG/L
Simulated
Observed
semi-log ...
hide observed val...
Examine
Print
DATA SELECTION
scenari
file
p532cal_102413
SL9_2490_2520
plot data
PO4X - phosphate -
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modelin
calib
Update Plots and Statistics
STATISTICS
n 538 538
observed simulate
mi 0.001 -3 0.0018238 -2.73902
mea 0.0160186 -2.09397 0.0141626 -2.00546
media 0.0085 -2.07133 0.00951565 -2.02156
ma 0.15 -0.823909 0.047399 -1.32423
variance 0.000482547 0.24888 0.000125412 0.149494
JB test 0.001 0.001 0.001 0.001
raw log1
% err.var. -11.5862 0.000590827 -4.22735 0.389024
rel.std.er 1.22439 1.5631
mod.ef -0.224393 -0.563101
Residual Plots
Percentile Plots
Daily Accumulation
Individual Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
C-Q scatter plot
Windowed Data Plots
VERSION 2.1


cal5
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: PO4X TIME-SERIES
Simulated
Observed
PHOSPHATE, IN MG/L
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2490-2520: SIMULATED VS. OBSERVED
m = 0.07051
b = -1.8443
r2 = 0.007749
LOG10 SIMULATED PO4X
LOG10 OBSERVED PO4X
plot log10 ...
Examine
SL9-2490-2520: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.24164
p = 2.7996e-14
h = 1
CUMULATIVE DISTRIBUTION
PHOSPHATE, IN MG/L
Simulated
Observed
semi-log ...
hide observed val...
Examine
Print
DATA SELECTION
scenari
file
param20140826_a
SL9_2490_2520
plot data
PO4X - phosphate
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modelinc
calib
Update Plots and Statistics
STATISTICS
n
538
538
observed
simulate
mi
0.001
-3
0.0020425
-2.68984
mea
0.0160186
-2.09397
0.0148072
-1.99197
media
0.0085
-2.07133
0.011193
-1.95106
ma
0.15
-0.823909
0.049167
-1.30833
variance
0.000482547
0.24888
0.000130249
0.159679
JB test
0.001
0.001
0.001
0.001
raw
log1
%
-7.56237
-4.87141
err.var.
0.000562417
0.383886
rel.std.er
1.16552
1.54246
mod.ef
-0.165517
-0.542458
Residual Plots
Percentile Plots
Daily Accumulation
Individual Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
C-Q scatter plot
Windowed Data Plots
VERSION 2.1

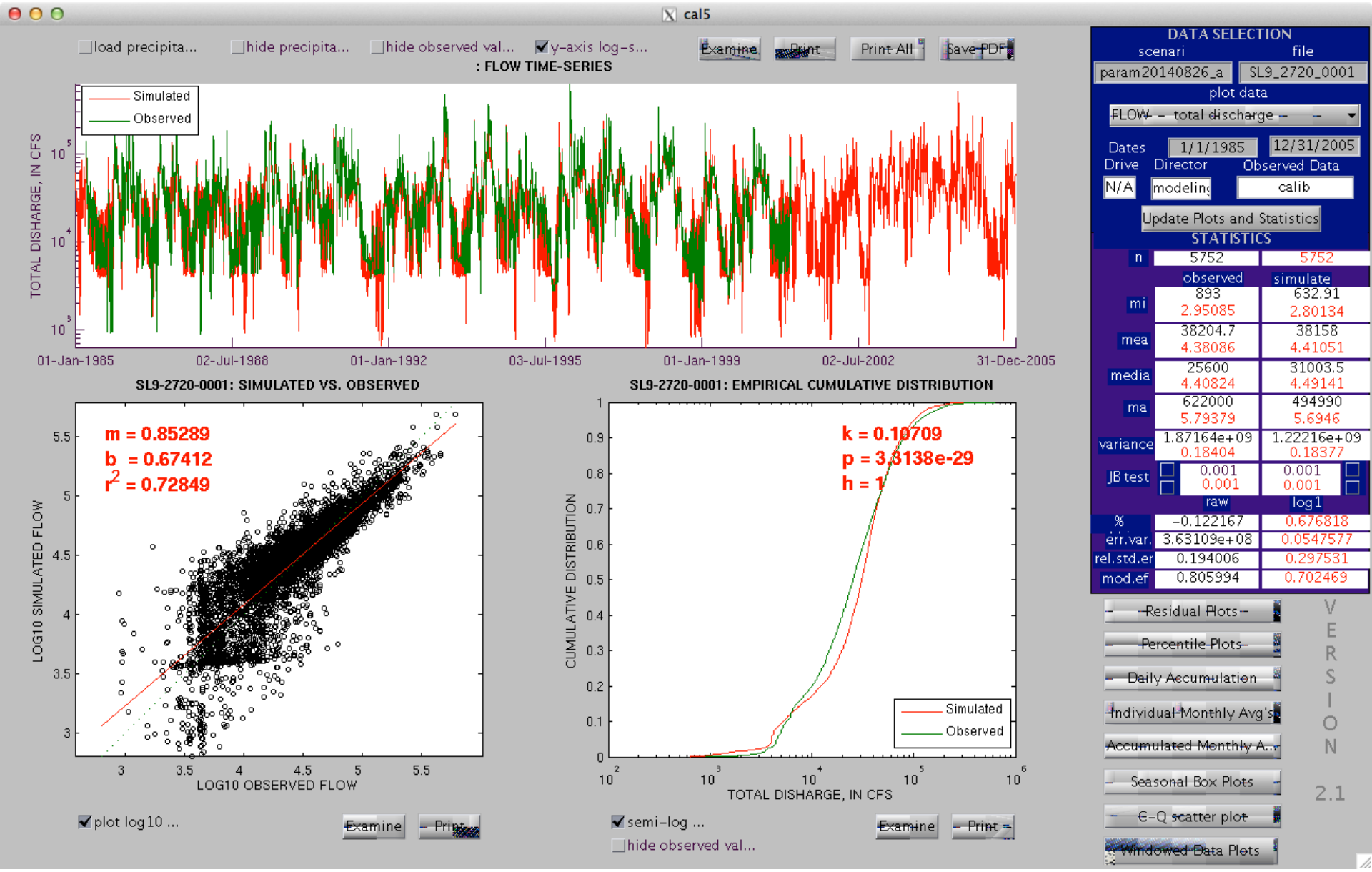

cal5
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: TSSX TIME-SERIES
Simulated
Observed
TOT.SUSP.SEDIMENT, IN MG/L
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2490-2520: SIMULATED VS. OBSERVED
m = 0.90517
b = -0.032712
r2 = 0.51259
LOG10 SIMULATED TSSX
LOG10 OBSERVED TSSX
plot log10 ...
Examine
Print
SL9-2490-2520: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.17845
p = 9.227e-09
h = 1
CUMULATIVE DISTRIBUTION
TOT.SUSP.SEDIMENT, IN MG/L
Simulated
Observed
semi-log ...
hide observed val...
Examine
Print
DATA SELECTION
scenari
file
p532cal_102413
SL9_2490_2520
plot data
TSSX total suspended sediment
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modelin
calib
Update Plots and Statistics
STATISTICS
n 594 594
observed simulate
mi 1 0.57176
0 -0.242786
mea 71.9545 62.8027
1.54226 1.36329
media 38 36.664
1.57978 1.56424
ma 1117 1331.7
3.04805 3.12441
variance 10121.7 10082.9
0.316932 0.506587
JB test 0.001 0.001
0.0127023 0.001
raw log1
% err.var. -12.7189 -11.6039
13017.4 0.281845
rel.std.er 1.2861 0.889291
mod.ef -0.286097 0.110709
Residual Plots
Percentile Plots
Daily Accumulation
Individual Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
C-Q scatter plot
Windowed Data Plots
VERSION 2.1

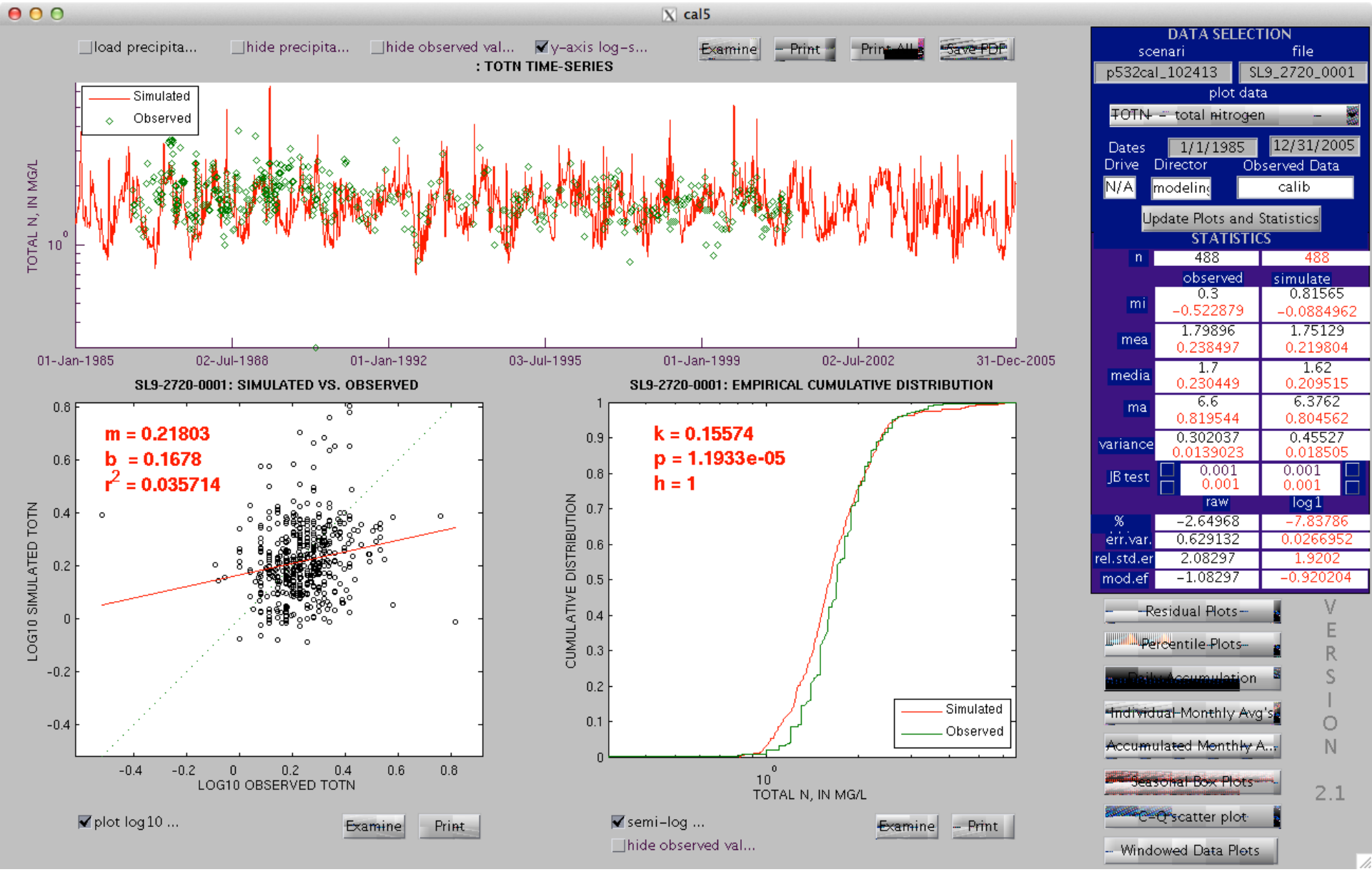

cal5
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: TSSX TIME-SERIES
Simulated
Observed
TOT.SUSP.SEDIMENT, IN MG/L
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2490-2520: SIMULATED VS. OBSERVED
m = 0.82796
b = 0.21627
r2 = 0.56554
LOG10 SIMULATED TSSX
LOG10 OBSERVED TSSX
plot log10 ...
Examine
Print
SL9-2490-2520: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.10774
p = 0.001829
h = 1
CUMULATIVE DISTRIBUTION
TOT.SUSP.SEDIMENT, IN MG/L
Simulated
Observed
semi-log ...
hide observed val...
Examine
Print
DATA SELECTION
scenari
file
param20140826_a
SL9_2490_2520
plot data
TSSX-- total suspended sediment
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modelin
calib
Update Plots and Statistics
STATISTICS
n
594
594
observed
simulate
mi
1
0
0.99213
-0.00343142
mea
71.9545
1.54226
66.9398
1.4932
media
38
1.57978
41.451
1.61753
ma
1117
3.04805
573.6
2.75861
variance
10121.7
0.316932
5216.71
0.384167
JB test
0.001
0.0127023
0.001
0.001
raw
log1
% err.var.
-6.96939
6653.6
-3.1809
0.178695
rel.std.er
0.657362
0.563827
mod.ef
0.342638
0.436173
Residual Plots
Percentile Plots
Daily Accumulation
Individual Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
C-Q scatter plot
Windowed Data Plots
VERSION 2.1

Models vs. Observations: Susquehanna at Conowingo

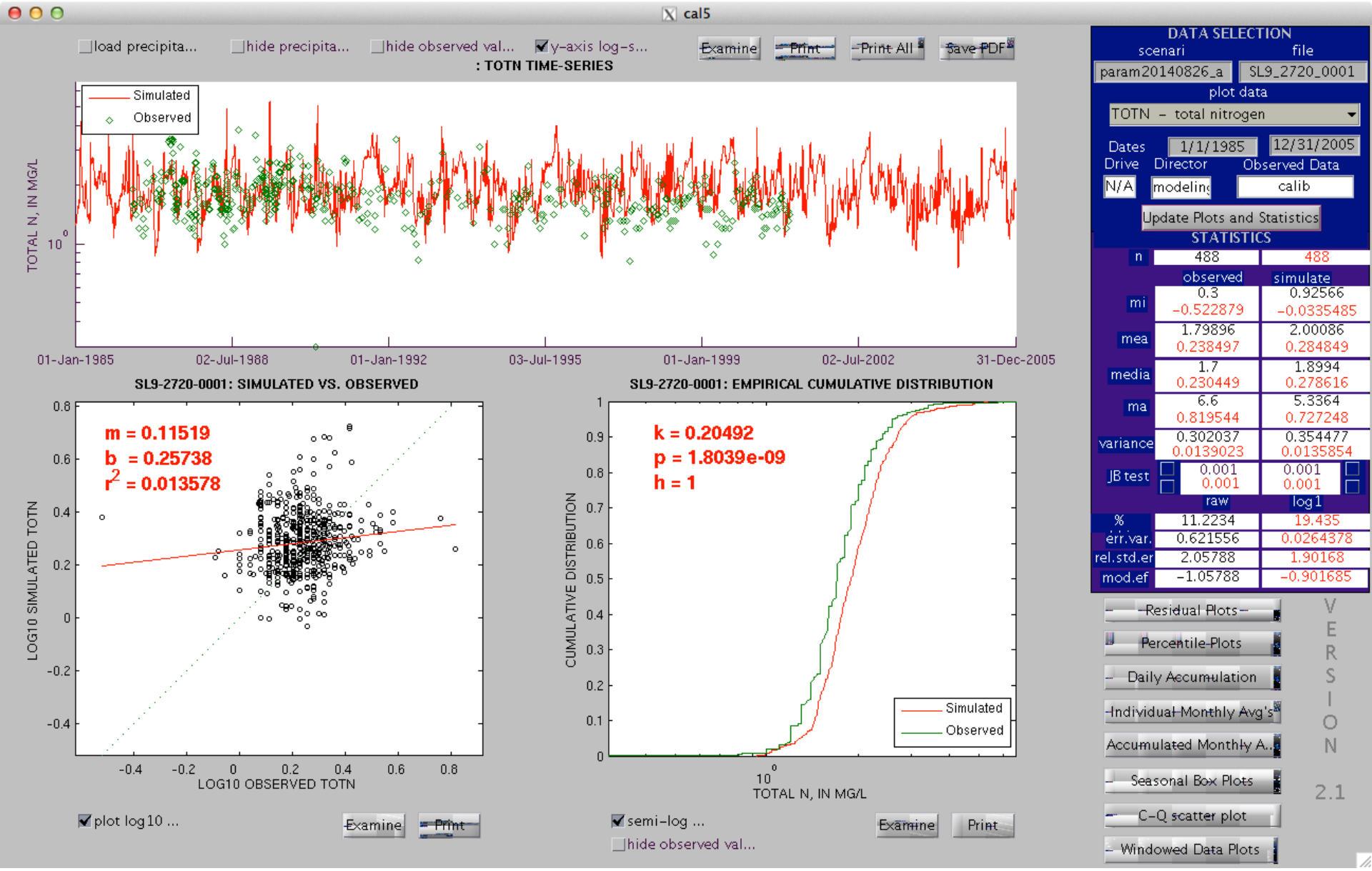

cal5
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: FLOW TIME-SERIES
Simulated
Observed
TOTAL DISHARGE, IN CFS
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2720-0001: SIMULATED VS. OBSERVED
m = 0.92334
b = 0.33884
r2 = 0.74182
LOG10 SIMULATED FLOW
LOG10 OBSERVED FLOW
SL9-2720-0001: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.062587
p = 2.9595e-10
h = 1
CUMULATIVE DISTRIBUTION
TOTAL DISHARGE, IN CFS
Simulated
Observed
plot log10 ...
semi-log ...
hide observed val...
DATA SELECTION
scenari
file
p532cal_102413
SL9_2720_0001
plot data
FLOW - total discharge
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modelin
calib
Update Plots and Statistics
STATISTICS
n
5752
5752
observed
simulate
mi
893
2.95085
621.4
2.79337
mea
38204.7
4.38086
38329.6
4.38385
media
25600
4.40824
28823
4.45974
ma
622000
5.79379
470990
5.67301
variance
1.87164e+09
0.18404
1.50931e+09
0.211513
JB test
0.001
0.001
0.001
0.001
raw
log1
% err.var.
0.326957
2.97364e+08
0.0682385
0.0556998
rel.std.er
0.158879
0.30265
mod.ef
0.841121
0.69735
Residual Plots
Percentile Plots
Daily Accumulation
Individual Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
C-Q scatter plot
Windowed Data Plots
VERSION 2.1

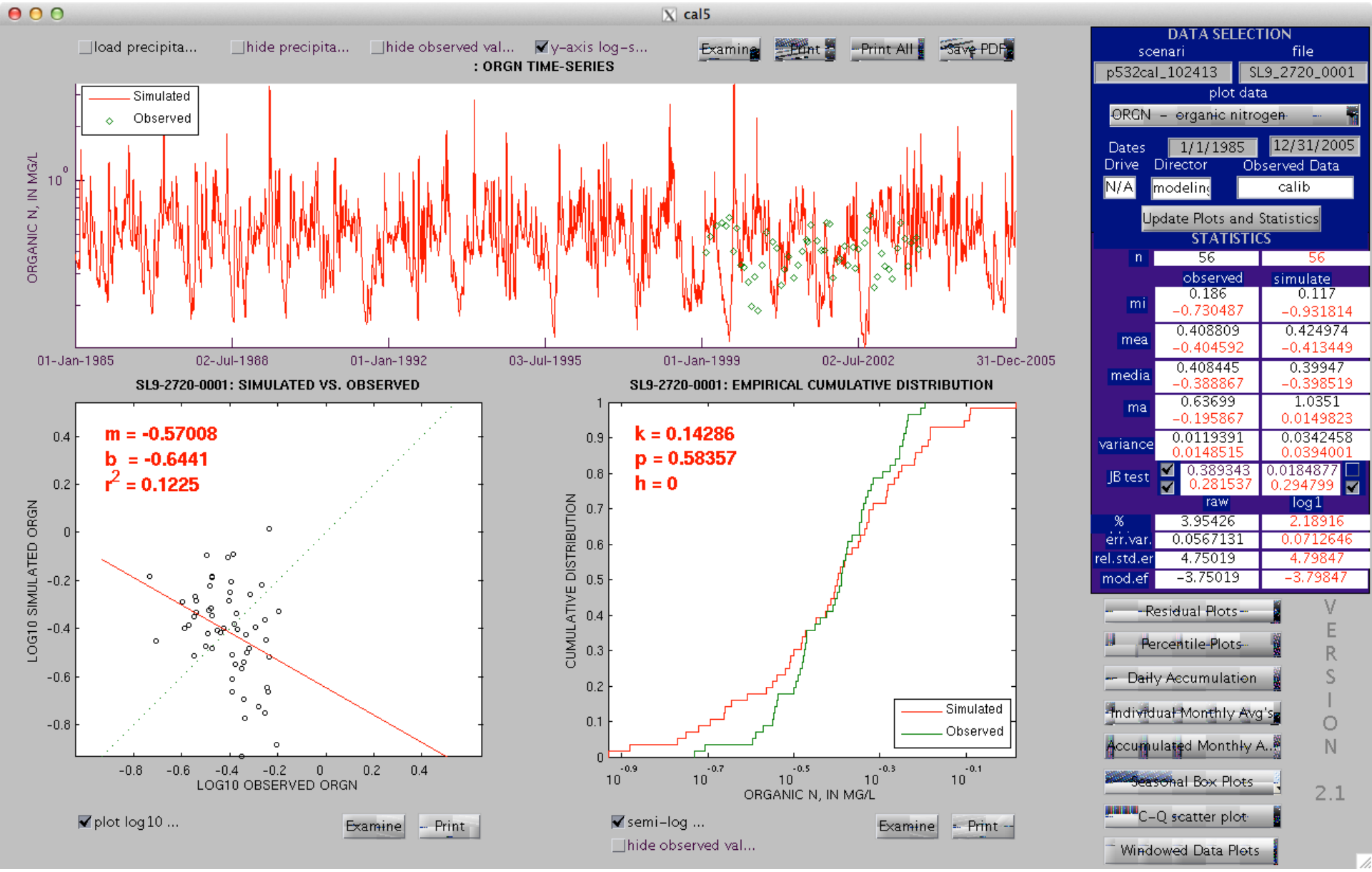
Phase 6 HYDRO & SEDMNT with AGCHEM



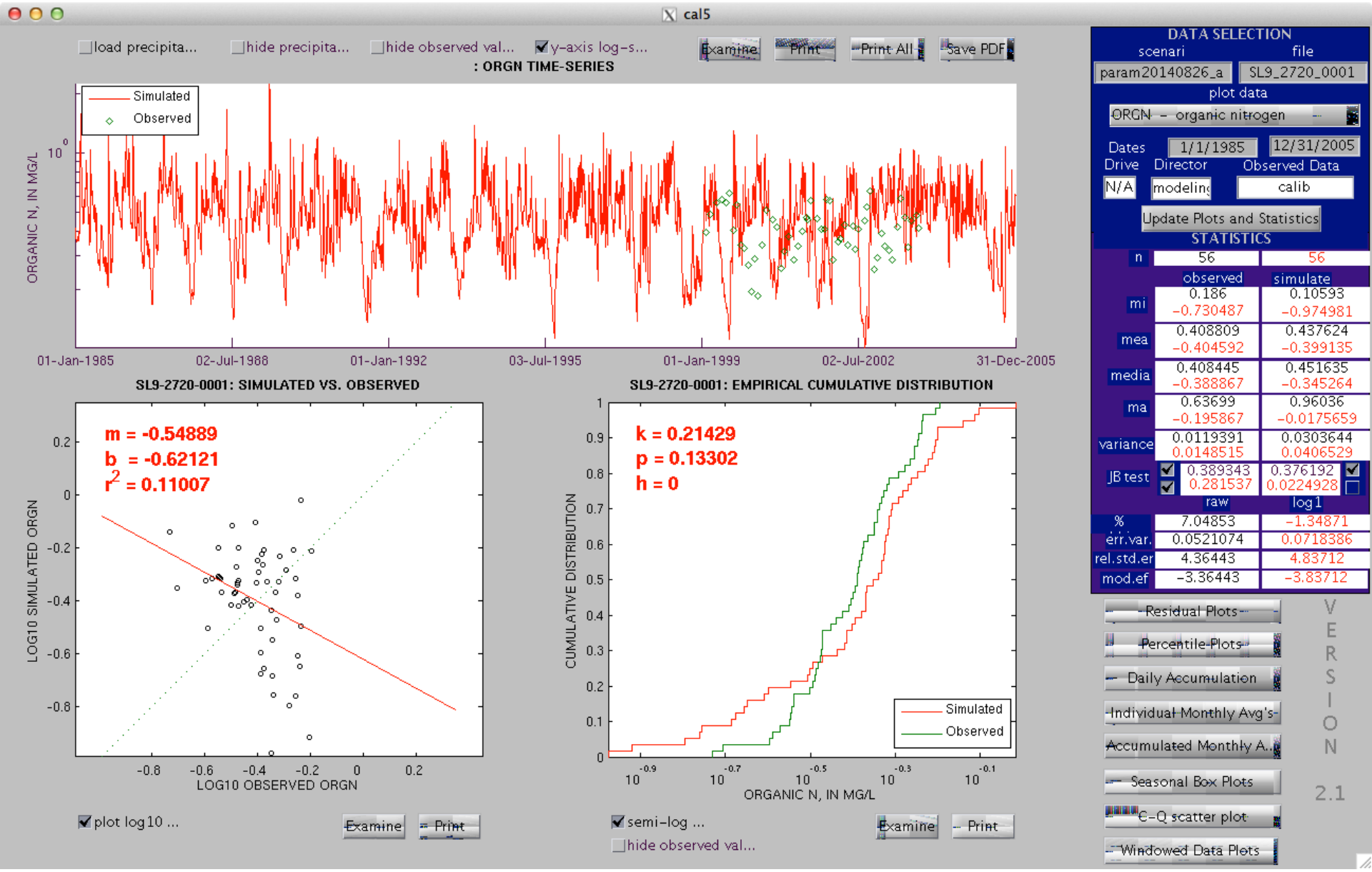

cal5
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: TOTN TIME-SERIES
Simulated
Observed
TOTAL N, IN MG/L
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2720-0001: SIMULATED VS. OBSERVED
m = 0.21803
b = 0.1678
r2 = 0.035714
LOG10 SIMULATED TOTN
LOG10 OBSERVED TOTN
plot log10 ...
Examine
Print
SL9-2720-0001: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.15574
p = 1.1933e-05
h = 1
CUMULATIVE DISTRIBUTION
TOTAL N, IN MG/L
Simulated
Observed
semi-log ...
hide observed val...
Examine
Print
DATA SELECTION
scenari
file
p532cal_102413
SL9_2720_0001
plot data
TOTN - total nitrogen
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modelinc
calib
Update Plots and Statistics
STATISTICS
n
488
488
observed
simulate
mi
0.3
-0.522879
0.81565
-0.0884962
mea
1.79896
0.238497
1.75129
0.219804
media
1.7
0.230449
1.62
0.209515
ma
6.6
0.819544
6.3762
0.804562
variance
0.302037
0.0139023
0.45527
0.018505
JB test
0.001
0.001
0.001
0.001
raw
log1
% err.var.
-2.64968
-7.83786
0.629132
0.0266952
rel.std.er
2.08297
1.9202
mod.ef
-1.08297
-0.920204
Residual Plots
Percentile Plots
Daily Accumulation
Individual Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
C-Q scatter plot
Windowed Data Plots
VERSION 2.1

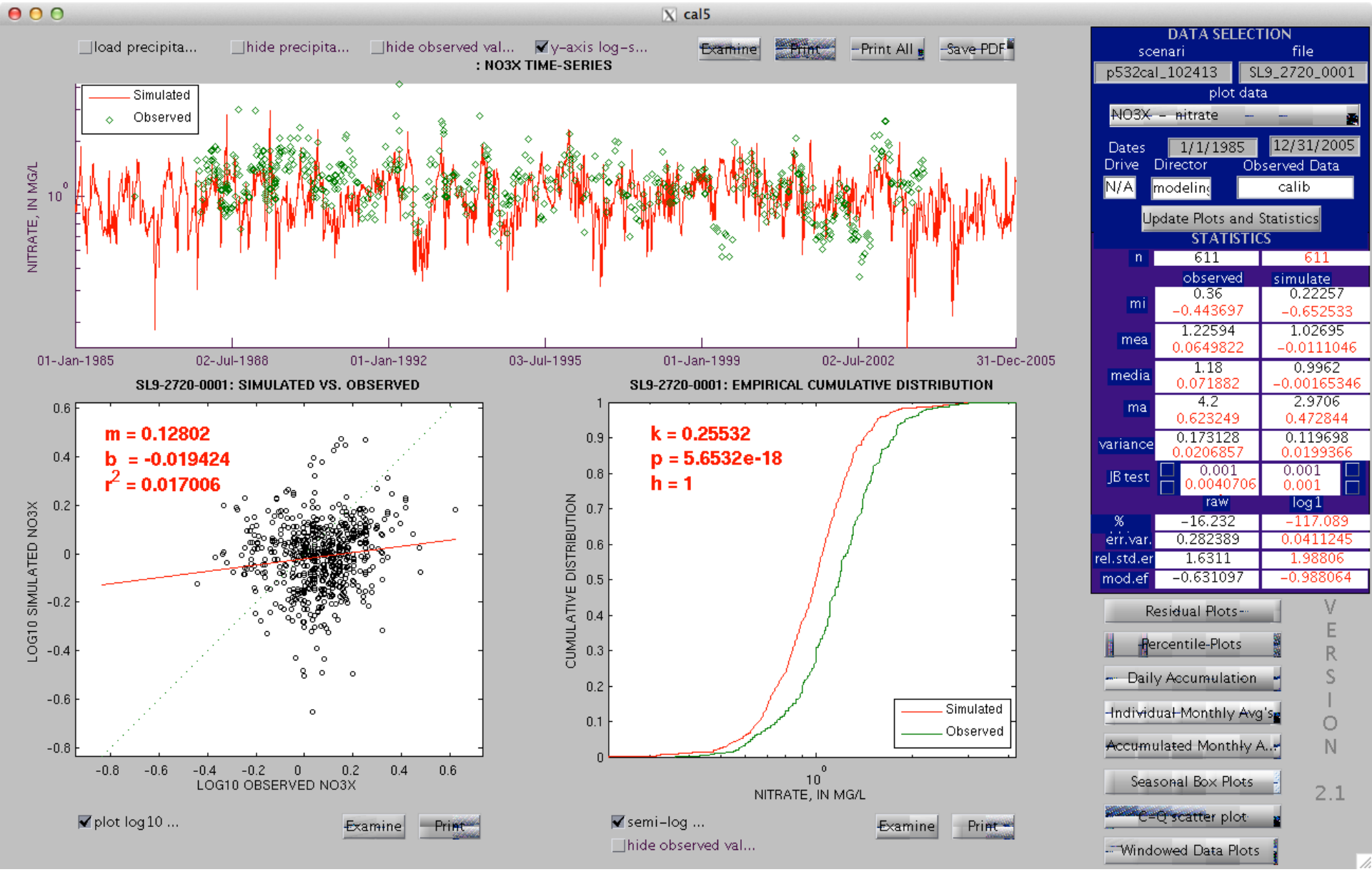
Phase 6 HYDRO & SEDMNT with AGCHEM



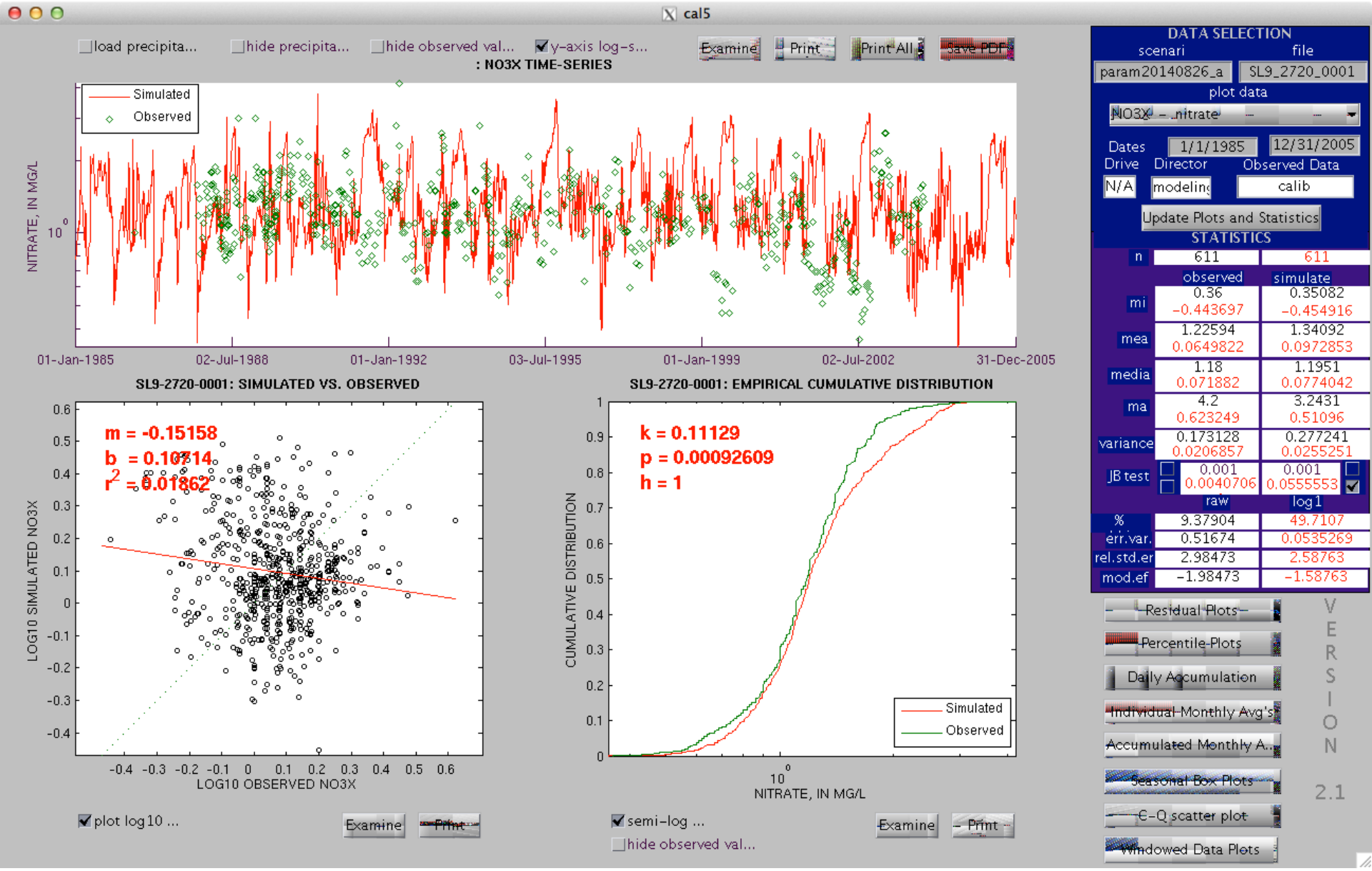

cal5
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: ORGN TIME-SERIES
Simulated
Observed
ORGANIC N, IN MG/L
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2720-0001: SIMULATED VS. OBSERVED
m = -0.57008
b = -0.6441
r2 = 0.1225
LOG10 SIMULATED ORGN
LOG10 OBSERVED ORGN
plot log10 ...
Examine
Print
SL9-2720-0001: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.14286
p = 0.58357
h = 0
CUMULATIVE DISTRIBUTION
ORGANIC N, IN MG/L
Simulated
Observed
semi-log ...
hide observed val...
Examine
Print
DATA SELECTION
scenari
file
p532cal_102413
SL9_2720_0001
plot data
ORGN - organic nitrogen
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modelin
calib
Update Plots and Statistics
STATISTICS
n
56
56
observed
simulate
mi
0.186
-0.730487
0.117
-0.931814
mea
0.408809
-0.404592
0.424974
-0.413449
media
0.408445
-0.388867
0.39947
-0.398519
ma
0.63699
-0.195867
1.0351
0.0149823
variance
0.0119391
0.0148515
0.0342458
0.0394001
JB test
0.389343
0.281537
0.0184877
0.294799
raw
log1
% err.var.
3.95426
0.0567131
2.18916
0.0712646
rel.std.er
4.75019
4.79847
mod.ef
-3.75019
-3.79847
Residual Plots
Percentile Plots
Daily Accumulation
Individual Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
C-Q scatter plot
Windowed Data Plots
VERSION 2.1

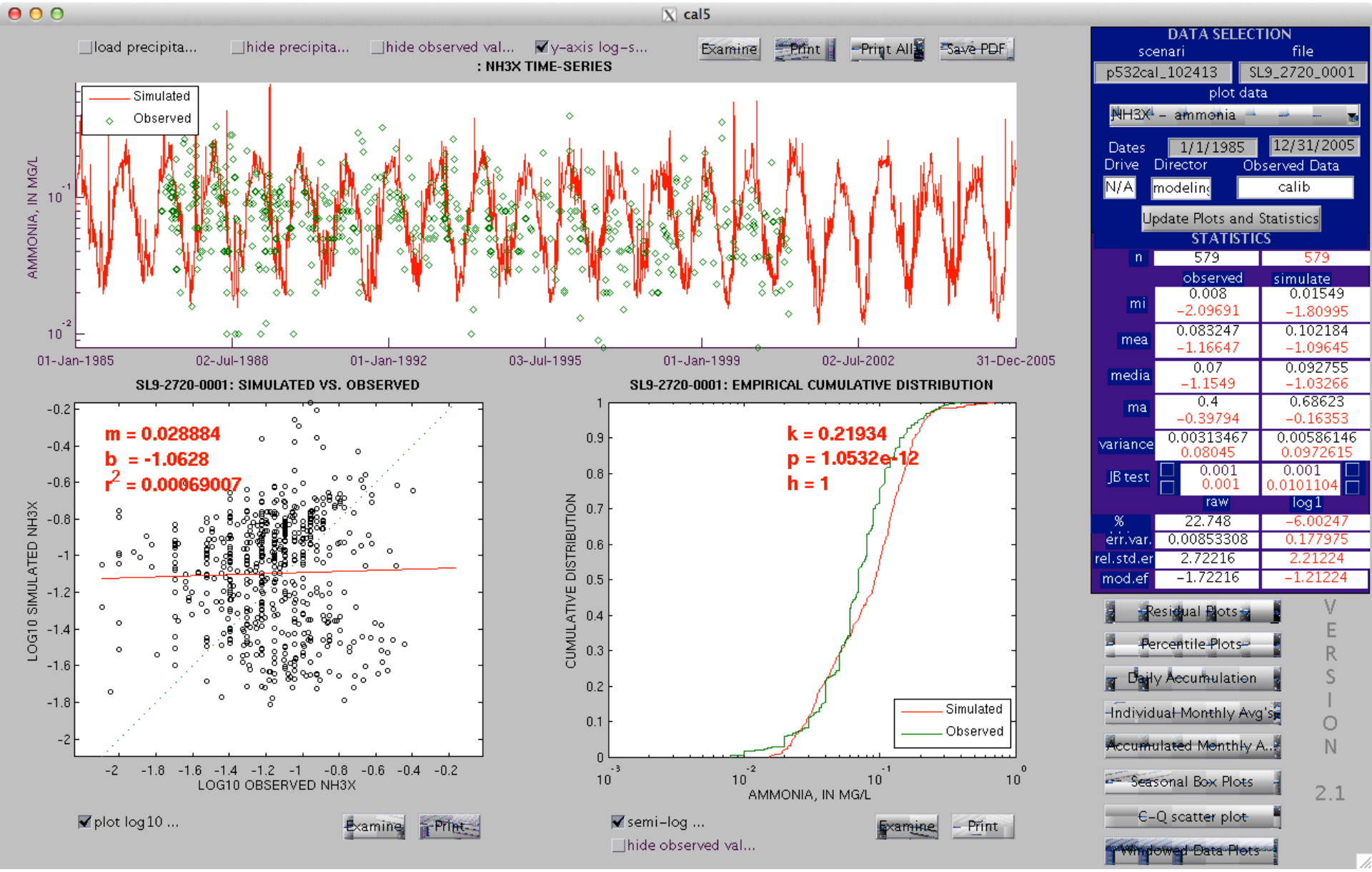
Phase 6 HYDRO & SEDMNT with AGCHEM



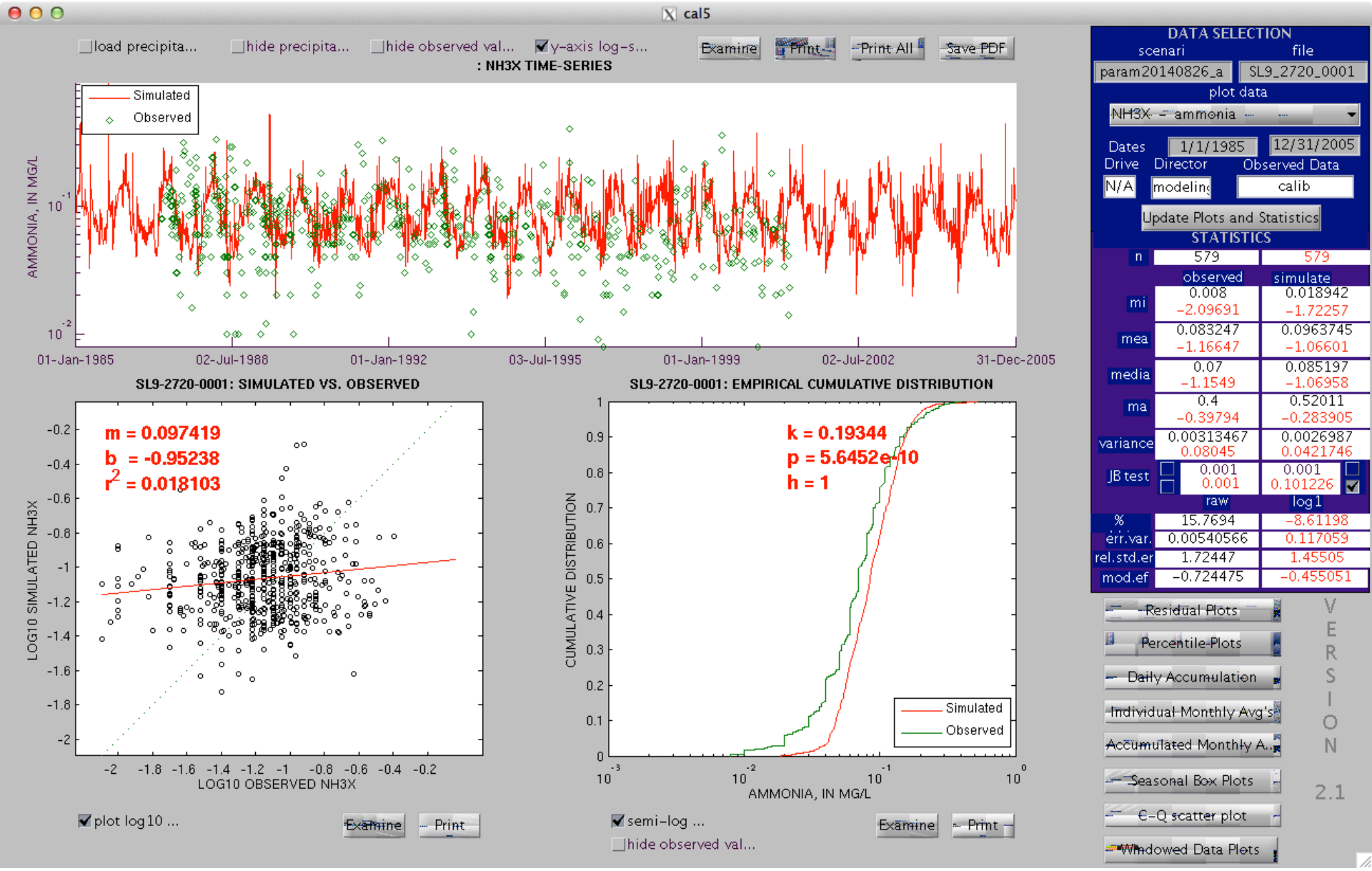

cal5
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: NO3X TIME-SERIES
Simulated
Observed
NITRATE, IN MG/L
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2720-0001: SIMULATED VS. OBSERVED
m = 0.12802
b = -0.019424
r2 = 0.017006
LOG10 SIMULATED NO3X
LOG10 OBSERVED NO3X
plot log10 ...
Examine
Print
SL9-2720-0001: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.25532
p = 5.6532e-18
h = 1
CUMULATIVE DISTRIBUTION
NITRATE, IN MG/L
Simulated
Observed
semi-log ...
hide observed val...
Examine
Print
DATA SELECTION
scenari
file
p532cal_102413
SL9_2720_0001
plot data
NO3X -- nitrate
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modelin
calib
Update Plots and Statistics
STATISTICS
n 611 611
observed simulate
mi 0.36 -0.443697 0.22257 -0.652533
mea 1.22594 0.0649822 1.02695 -0.0111046
media 1.18 0.071882 0.9962 -0.00165346
ma 4.2 0.623249 2.9706 0.472844
variance 0.173128 0.0206857 0.119698 0.0199366
JB test 0.001 0.0040706 0.001 0.001
raw log1
% err.var. -16.232 0.282389 -117.089 0.0411245
rel.std.er 1.6311 1.98806
mod.ef -0.631097 -0.988064
Residual Plots--
Percentile-Plots
Daily Accumulation
Individual Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
C-Q scatter plot
Windowed Data Plots
VERSION 2.1

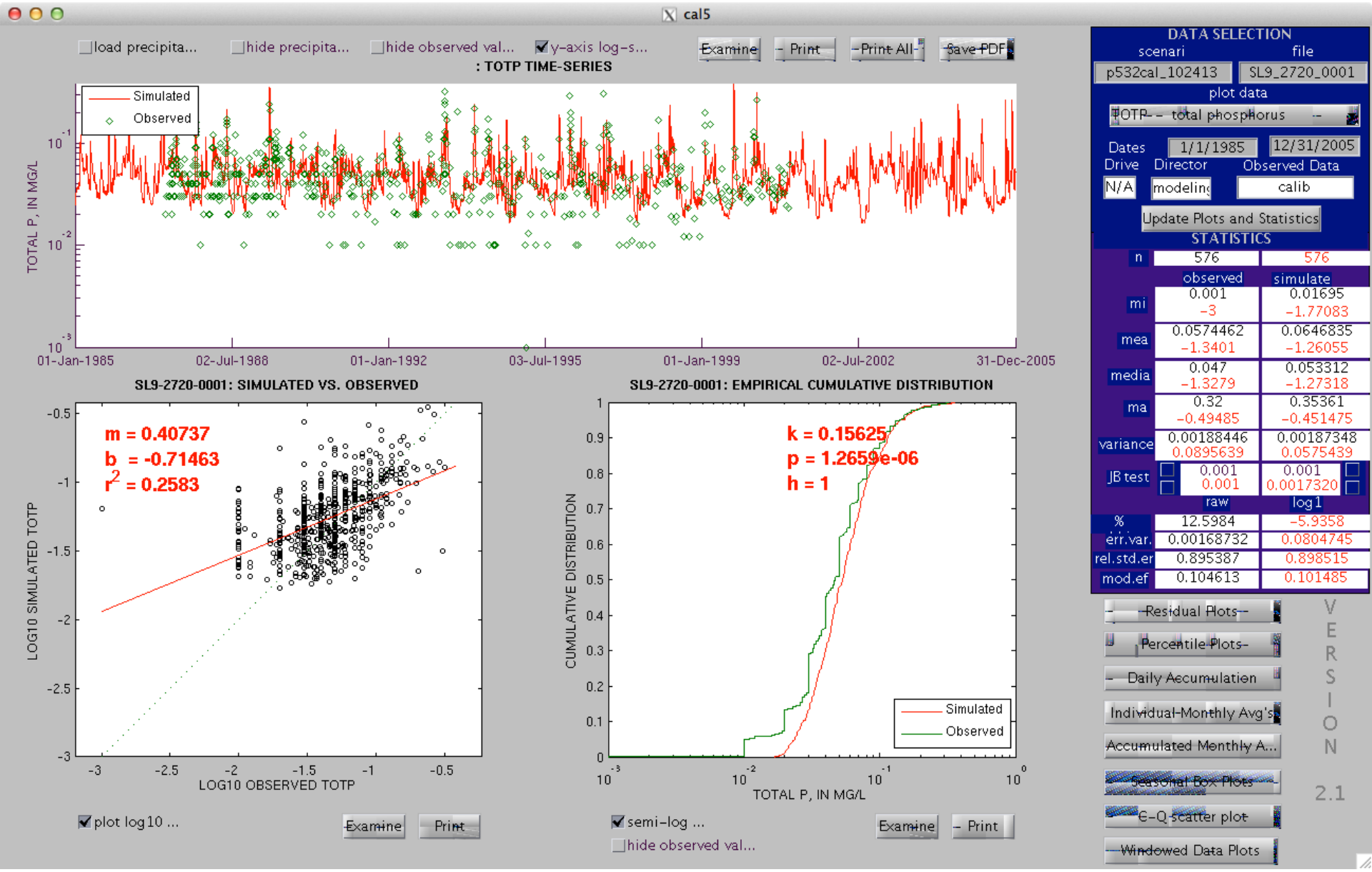
Phase 6 HYDRO & SEDMNT with AGCHEM



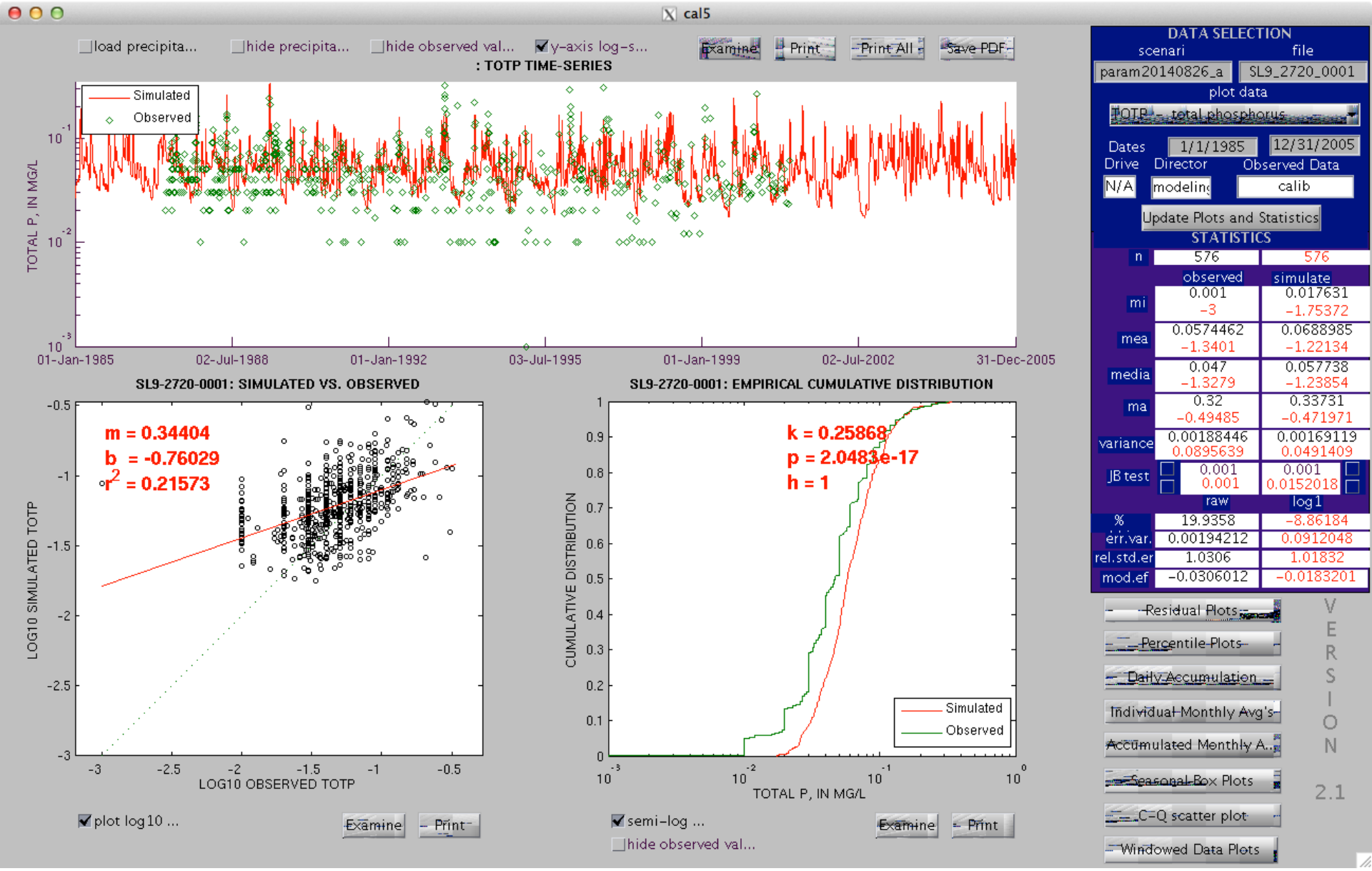

cal5
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: NH3X TIME-SERIES
Simulated
Observed
AMMONIA, IN MG/L
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2720-0001: SIMULATED VS. OBSERVED
m = 0.028884
b = -1.0628
r2 = 0.00069007
LOG10 SIMULATED NH3X
LOG10 OBSERVED NH3X
plot log10 ...
Examine
Print
SL9-2720-0001: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.21934
p = 1.0532e-12
h = 1
CUMULATIVE DISTRIBUTION
AMMONIA, IN MG/L
Simulated
Observed
semi-log ...
hide observed val...
Examine
Print
DATA SELECTION
scenari
file
p532cal_102413
SL9_2720_0001
plot data
NH3X - ammonia
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modelinç
calib
Update Plots and Statistics
STATISTICS
n 579 579
observed simulate
mi 0.008 -2.09691 0.01549 -1.80995
mea 0.083247 -1.16647 0.102184 -1.09645
media 0.07 -1.1549 0.092755 -1.03266
ma 0.4 -0.39794 0.68623 -0.16353
variance 0.00313467 0.08045 0.00586146 0.0972615
JB test 0.001 0.001 0.001 0.0101104
raw log1
% err.var. 22.748 -6.00247
err.var. 0.00853308 0.177975
rel.std.er 2.72216 2.21224
mod.ef -1.72216 -1.21224
Residual Plots
Percentile Plots
Daily Accumulation
Individual Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
C-Q scatter plot
Windowed Data Plots
VERSION 2.1

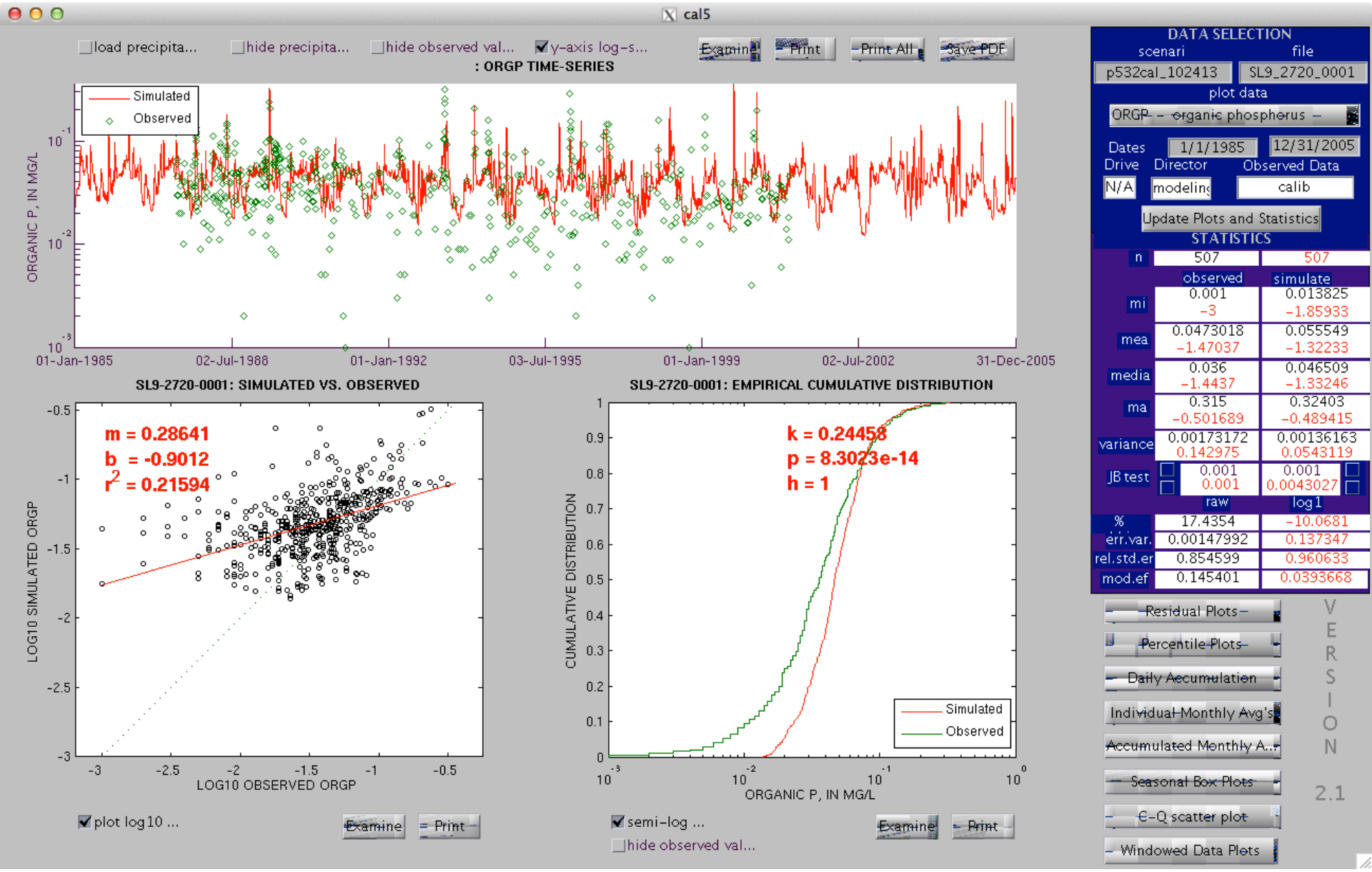
Phase 6 HYDRO & SEDMNT with AGCHEM



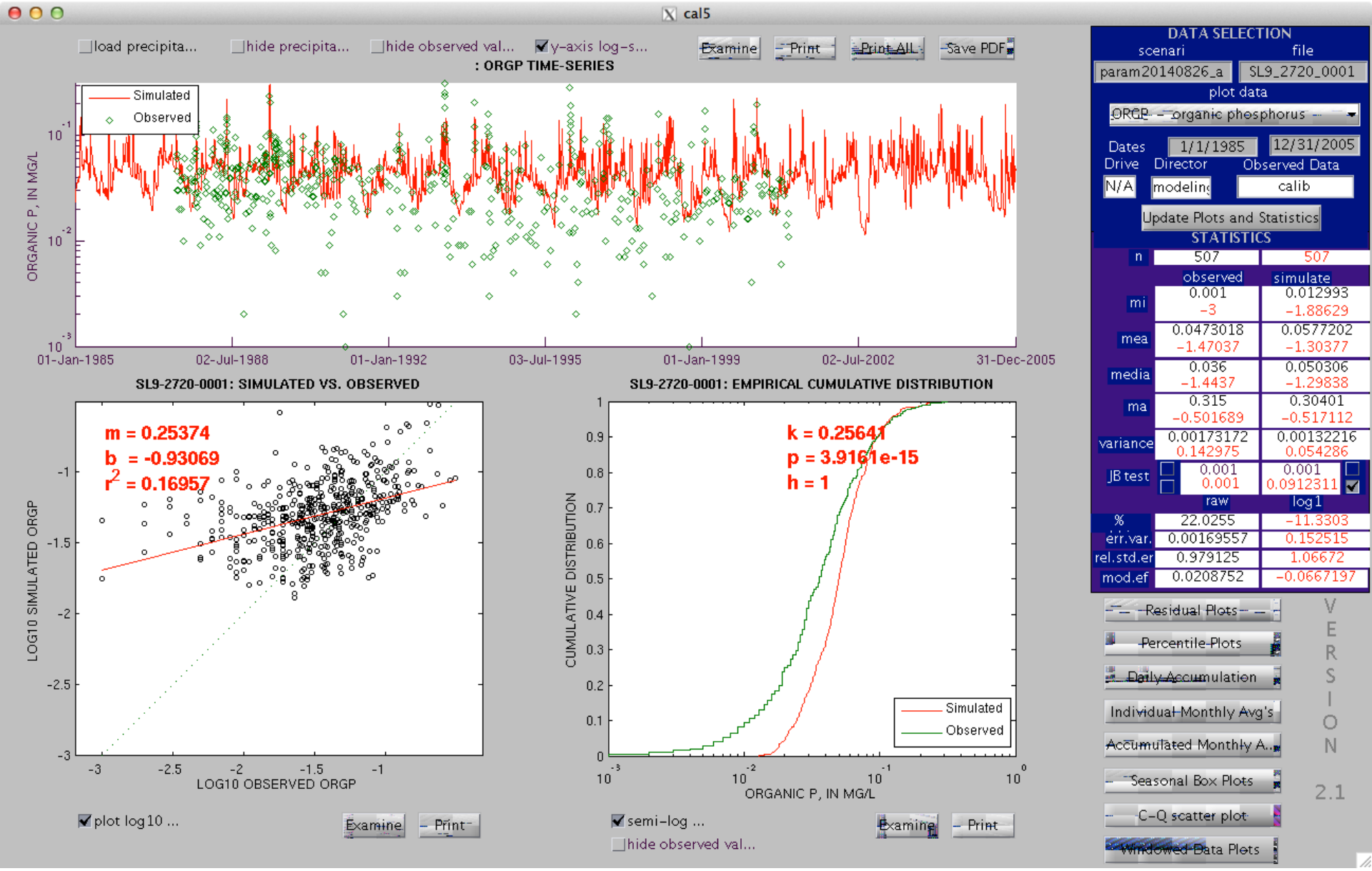

cal5
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: TOTP TIME-SERIES
Simulated
Observed
TOTAL P, IN MG/L
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2720-0001: SIMULATED VS. OBSERVED
m = 0.40737
b = -0.71463
r2 = 0.2583
LOG10 SIMULATED TOTP
LOG10 OBSERVED TOTP
plot log10 ...
Examine
Print
SL9-2720-0001: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.15625
p = 1.2659e-06
h = 1
CUMULATIVE DISTRIBUTION
TOTAL P, IN MG/L
Simulated
Observed
semi-log ...
hide observed val...
Examine
Print
DATA SELECTION
scenari
file
p532cal_102413
SL9_2720_0001
plot data
TOTP - total phosphorus
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modeling
calib
Update Plots and Statistics
STATISTICS
n
576
576
observed
simulate
mi
0.001
-3
0.01695
-1.77083
mea
0.0574462
-1.3401
0.0646835
-1.26055
media
0.047
-1.3279
0.053312
-1.27318
ma
0.32
-0.49485
0.35361
-0.451475
variance
0.00188446
0.0895639
0.00187348
0.0575439
JB test
0.001
0.001
0.001
0.0017320
raw
log1
% err.var.
12.5984
-5.9358
rel.std.er
0.895387
0.898515
mod.ef
0.104613
0.101485
Residual Plots
Percentile Plots
Daily Accumulation
Individual-Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
C-Q scatter plot
Windowed Data Plots
VERSION 2.1

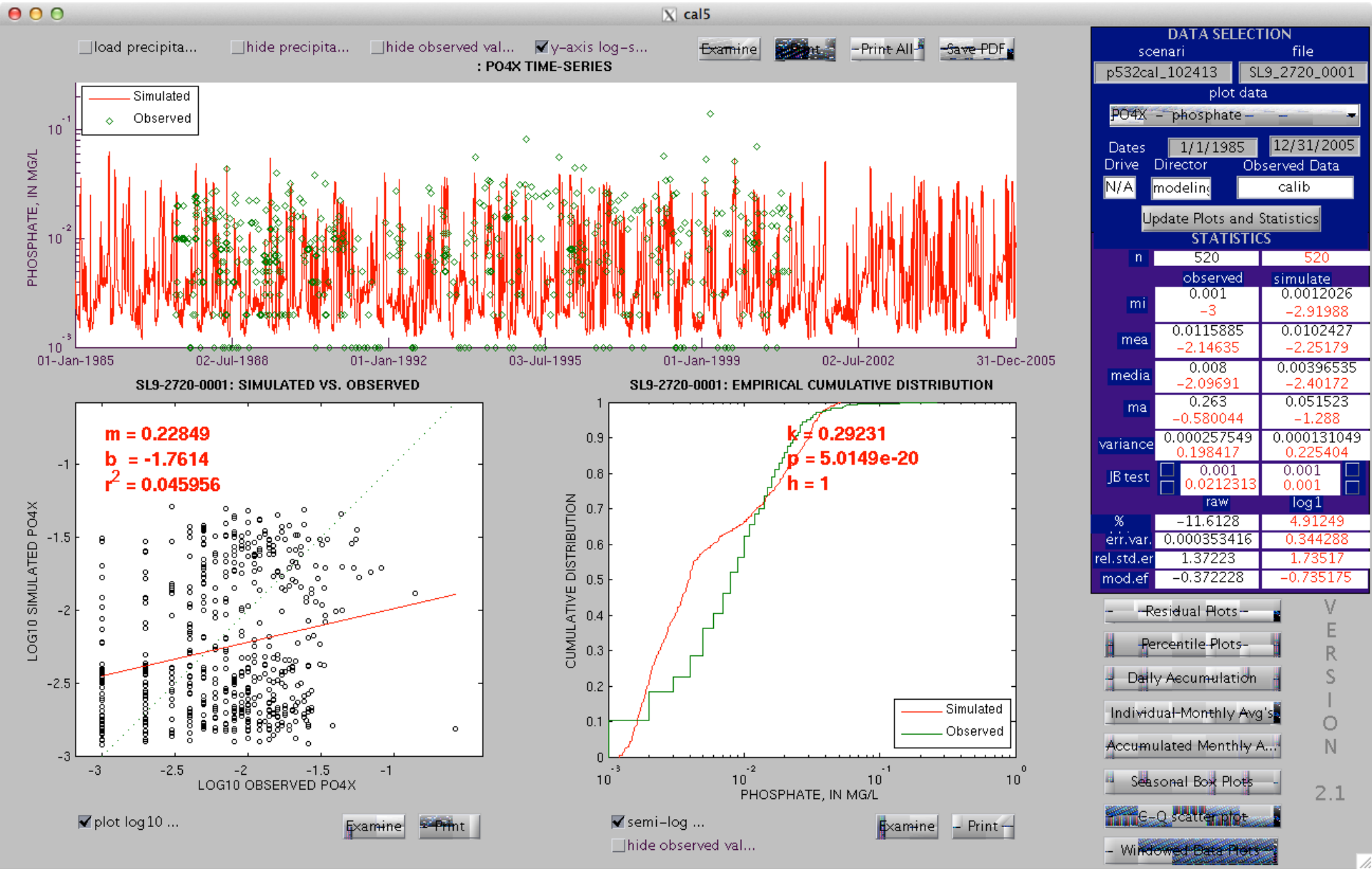
Phase 6 HYDRO & SEDMNT with AGCHEM



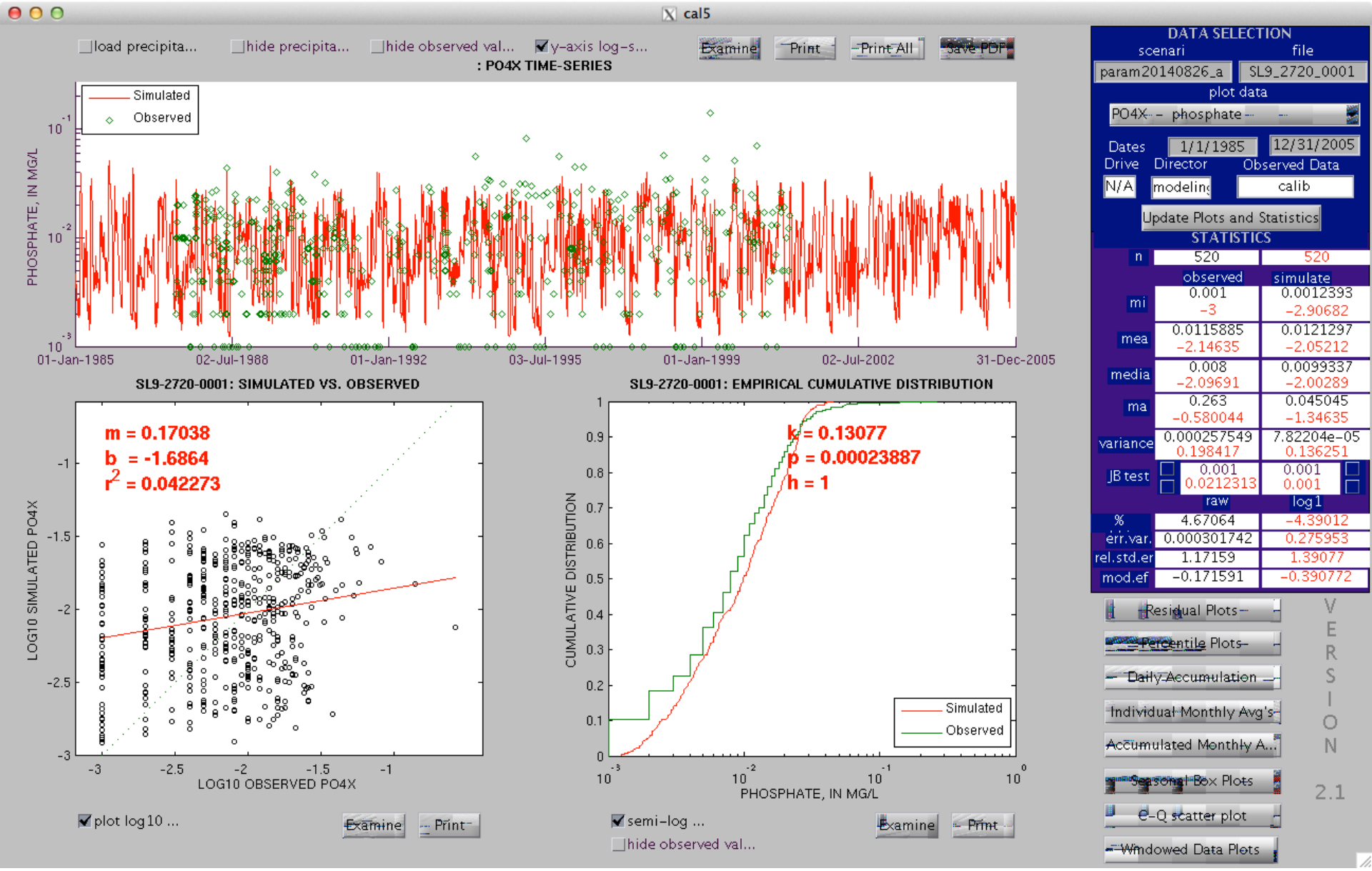

cal5
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: ORGP TIME-SERIES
Simulated
Observed
ORGANIC P, IN MG/L
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2720-0001: SIMULATED VS. OBSERVED
m = 0.28641
b = -0.9012
r2 = 0.21594
LOG10 SIMULATED ORGP
LOG10 OBSERVED ORGP
plot log10 ...
Examine
Print
SL9-2720-0001: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.24458
p = 8.3023e-14
h = 1
CUMULATIVE DISTRIBUTION
ORGANIC P, IN MG/L
Simulated
Observed
semi-log ...
hide observed val...
Examine
Print
DATA SELECTION
scenari
file
p532cal_102413
SL9_2720_0001
plot data
ORGP - organic phosphorus -
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modelin
calib
Update Plots and Statistics
STATISTICS
n
507
507
observed
simulate
mi
0.001
-3
0.013825
-1.85933
mea
0.0473018
-1.47037
0.055549
-1.32233
media
0.036
-1.4437
0.046509
-1.33246
ma
0.315
-0.501689
0.32403
-0.489415
variance
0.00173172
0.142975
0.00136163
0.0543119
JB test
0.001
0.001
0.001
0.0043027
raw
log1
% err.var.
17.4354
-10.0681
0.00147992
0.137347
rel.std.er
0.854599
0.960633
mod.ef
0.145401
0.0393668
Residual Plots
Percentile Plots
Daily Accumulation
Individual Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
C-Q scatter plot
Windowed Data Plots
VERSION 2.1

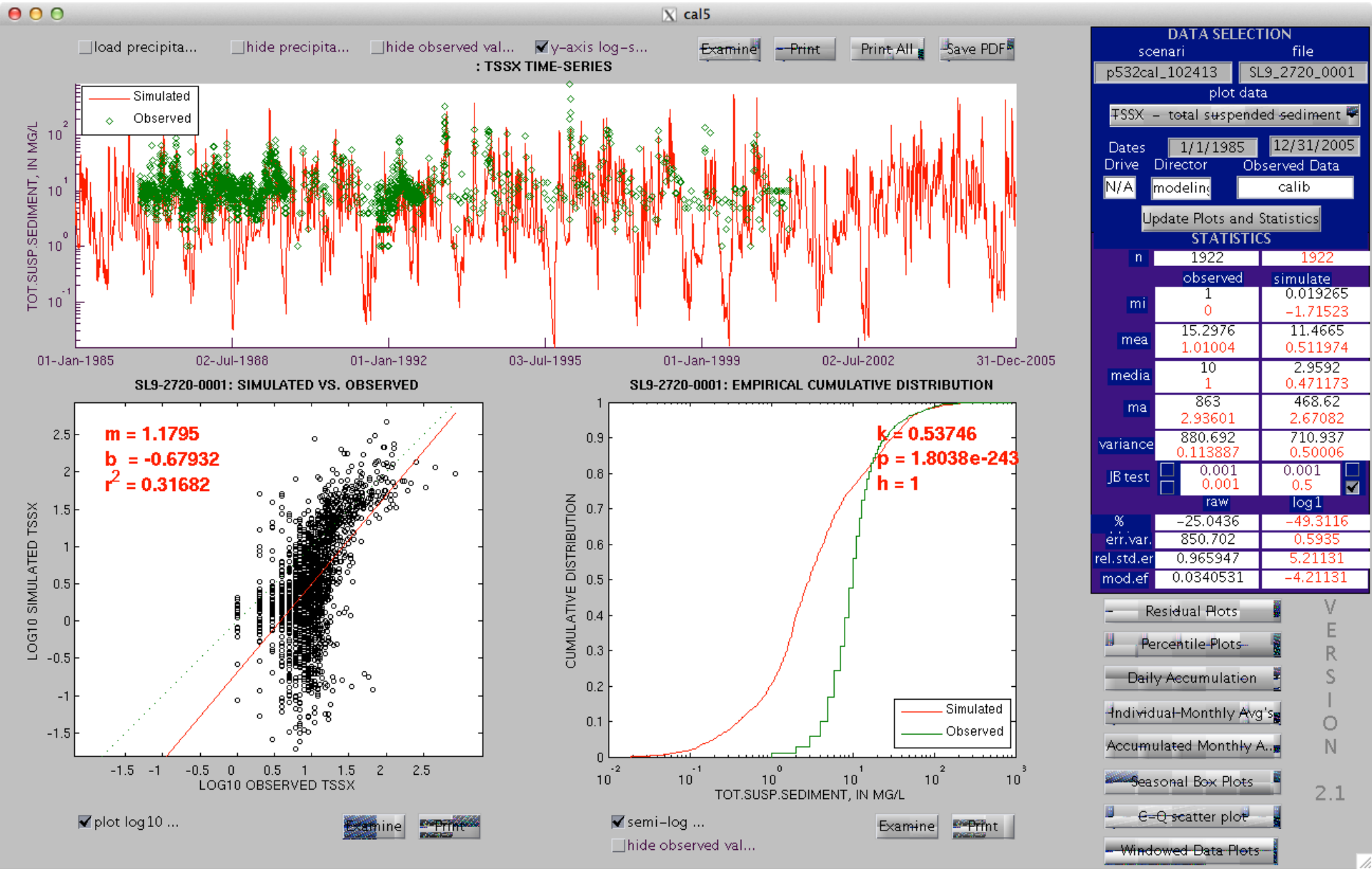
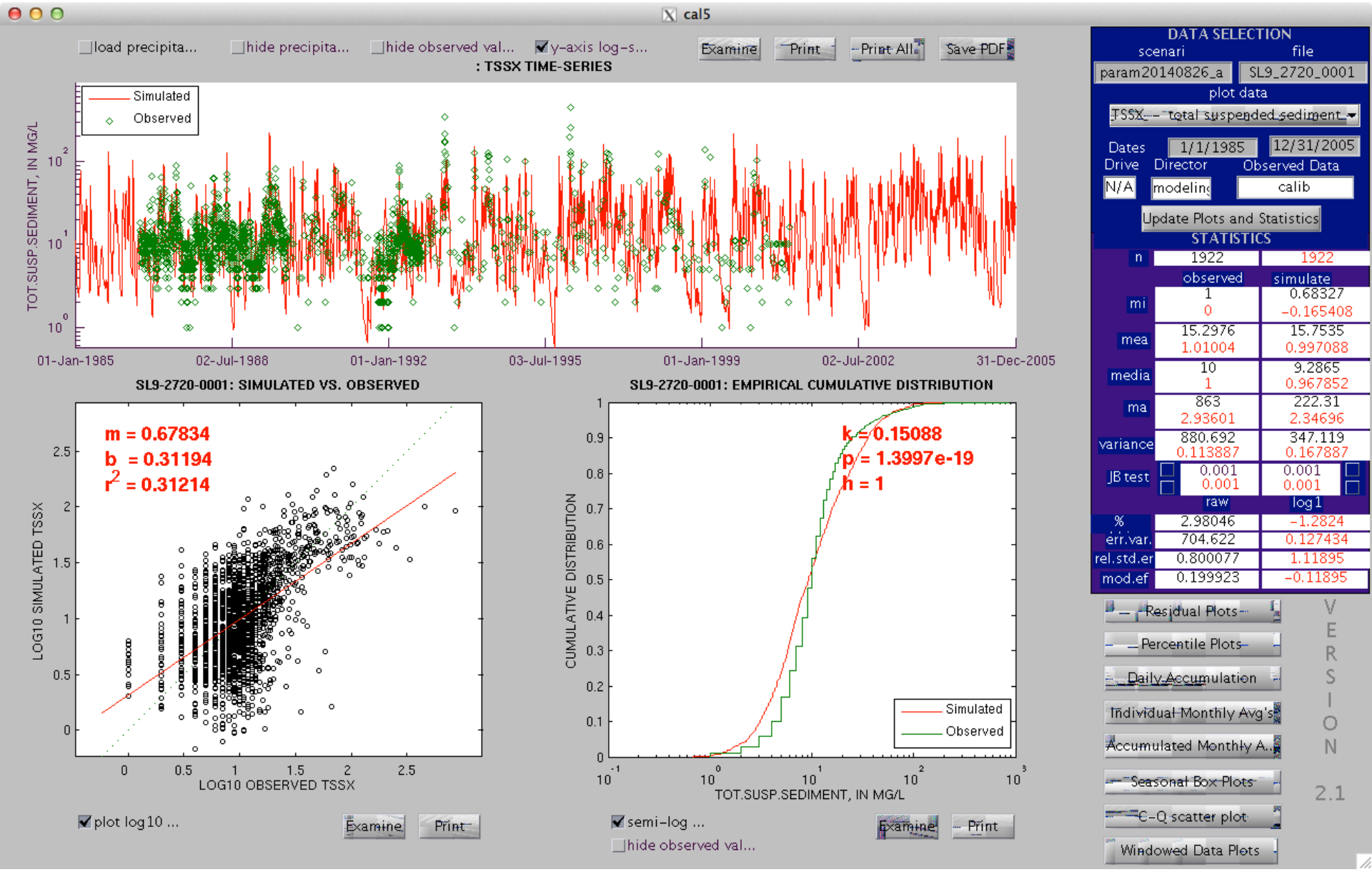
Phase 6 HYDRO & SEDMNT with AGCHEM




cal5
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: PO4X TIME-SERIES
Simulated
Observed
PHOSPHATE, IN MG/L
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2720-0001: SIMULATED VS. OBSERVED
m = 0.22849
b = -1.7614
r2 = 0.045956
LOG10 SIMULATED PO4X
LOG10 OBSERVED PO4X
plot log10 ...
Examine
Print
SL9-2720-0001: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.29231
p = 5.0149e-20
h = 1
CUMULATIVE DISTRIBUTION
PHOSPHATE, IN MG/L
Simulated
Observed
semi-log ...
hide observed val...
Examine
Print
DATA SELECTION
scenari
file
p532cal_102413
SL9_2720_0001
plot data
PO4X - phosphate -
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modeling
calib
Update Plots and Statistics
STATISTICS
n
520
520
observed
simulate
mi
0.001
-3
0.0012026
-2.91988
mea
0.0115885
-2.14635
0.0102427
-2.25179
media
0.008
-2.09691
0.00396535
-2.40172
ma
0.263
-0.580044
0.051523
-1.288
variance
0.000257549
0.198417
0.000131049
0.225404
JB test
0.001
0.0212313
0.001
0.001
raw
log1
%
-11.6128
4.91249
err.var.
0.000353416
0.344288
rel.std.er
1.37223
1.73517
mod.ef
-0.372228
-0.735175
Residual Plots
Percentile Plots
Daily Accumulation
Individual Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
C-Q scatter plot
Windowed Date Plots
VERSION 2.1

Phase 6 HYDRO & SEDMNT with AGCHEM




cal5
load precipita...
hide precipita...
hide observed val...
y-axis log-s...
Examine
Print
Print All
Save PDF
: TSSX TIME-SERIES
Simulated
Observed
TOT.SUSP.SEDIMENT, IN MG/L
01-Jan-1985
02-Jul-1988
01-Jan-1992
03-Jul-1995
01-Jan-1999
02-Jul-2002
31-Dec-2005
SL9-2720-0001: SIMULATED VS. OBSERVED
m = 1.1795
b = -0.67932
r2 = 0.31682
LOG10 SIMULATED TSSX
LOG10 OBSERVED TSSX
plot log10 ...
Examine
Print
SL9-2720-0001: EMPIRICAL CUMULATIVE DISTRIBUTION
k = 0.53746
p = 1.8038e-243
h = 1
CUMULATIVE DISTRIBUTION
TOT.SUSP.SEDIMENT, IN MG/L
Simulated
Observed
semi-log ...
hide observed val...
Examine
Print
DATA SELECTION
scenari
file
p532cal_102413
SL9_2720_0001
plot data
TSSX - total suspended sediment
Dates
1/1/1985
12/31/2005
Drive
Director
Observed Data
N/A
modeling
calib
Update Plots and Statistics
STATISTICS
n
1922
1922
observed
simulate
mi
1
0
0.019265
-1.71523
mea
15.2976
1.01004
11.4665
0.511974
media
10
1
2.9592
0.471173
ma
863
2.93601
468.62
2.67082
variance
880.692
0.113887
710.937
0.50006
JB test
0.001
0.001
0.001
0.5
raw
log1
% err.var.
-25.0436
-49.3116
rel.std.er
850.702
0.5935
mod.ef
0.965947
5.21131
0.0340531
-4.21131
Residual Plots
Percentile Plots
Daily Accumulation
Individual Monthly Avg's
Accumulated Monthly A...
Seasonal Box Plots
C-Q scatter plot
Windowed Data Plots
VERSION 2.1

Phase 6 HYDRO & SEDMNT with AGCHEM