Coastal Protection and Restoration Authority
450 Laurel Street, Baton Rouge, LA 70804 | coastal@la.gov | www.coastal.la.gov

2017 Coastal Master Plan

Appendix C – Modeling

Attachment C3-26.2

Flow Data

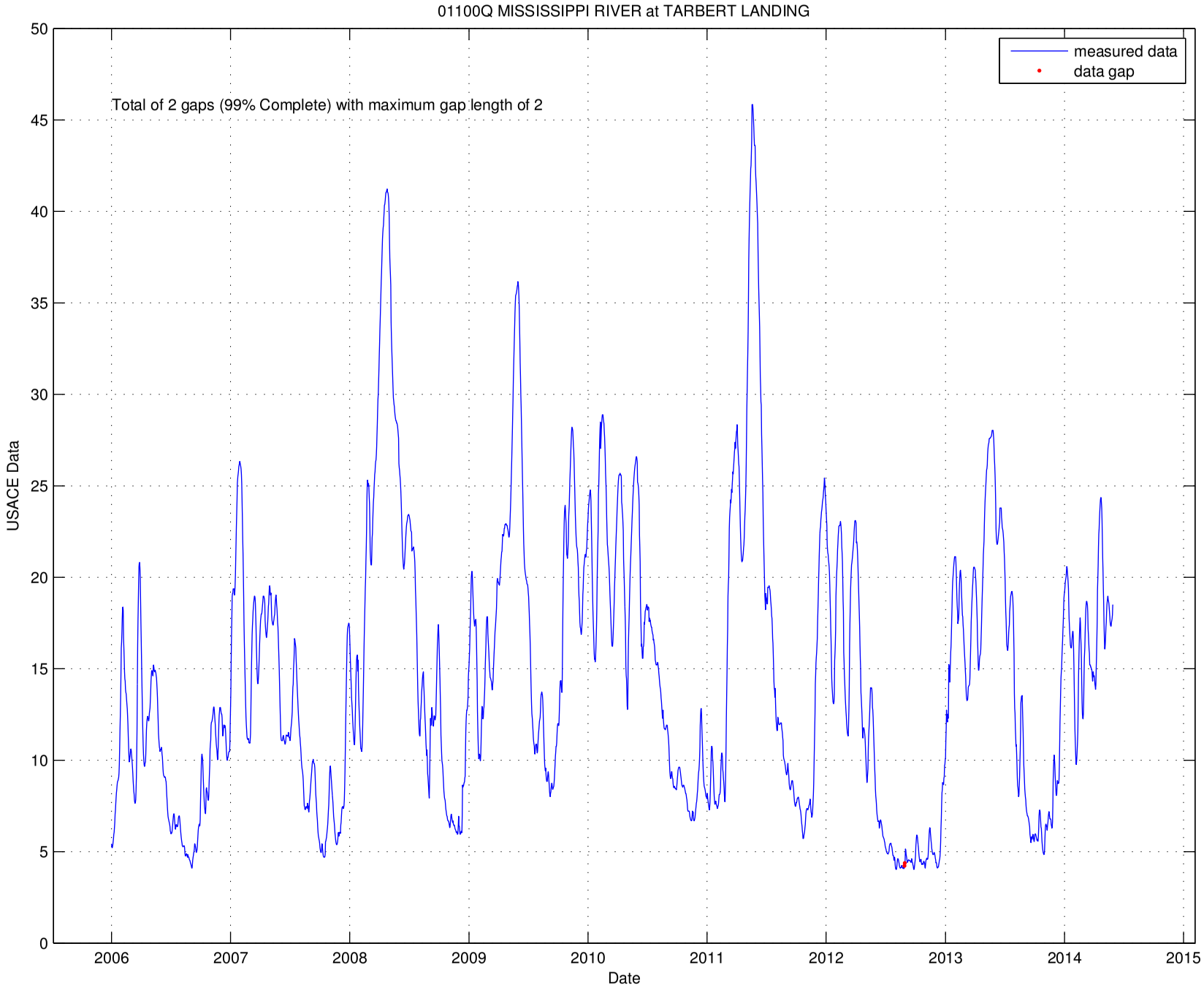
Report: Version I

Date: July 2015

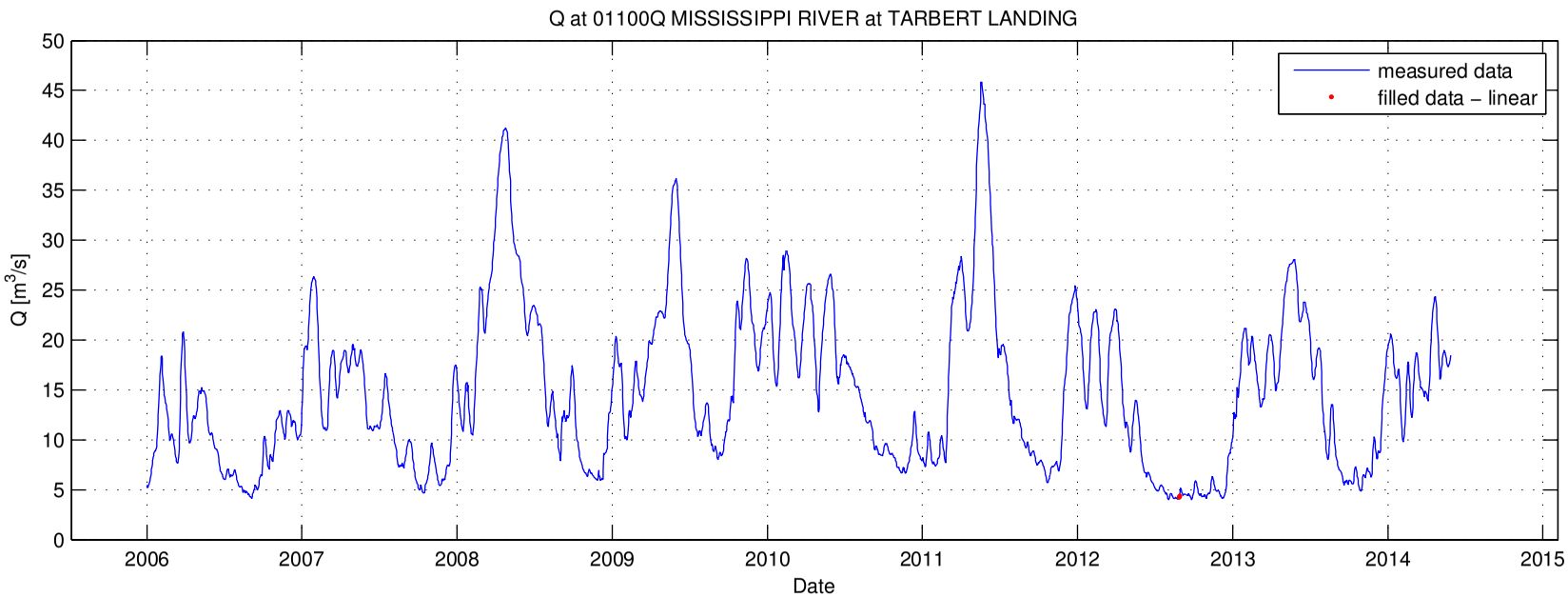
Prepared By: Stokka Brown, Moffatt & Nichol

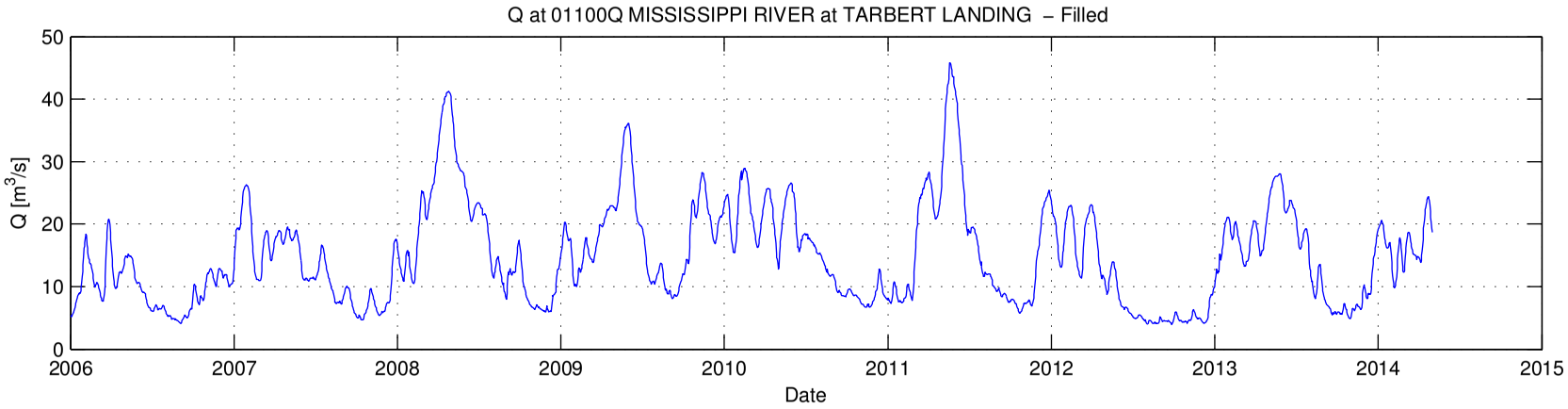
Coastal Protection and Restoration Authority

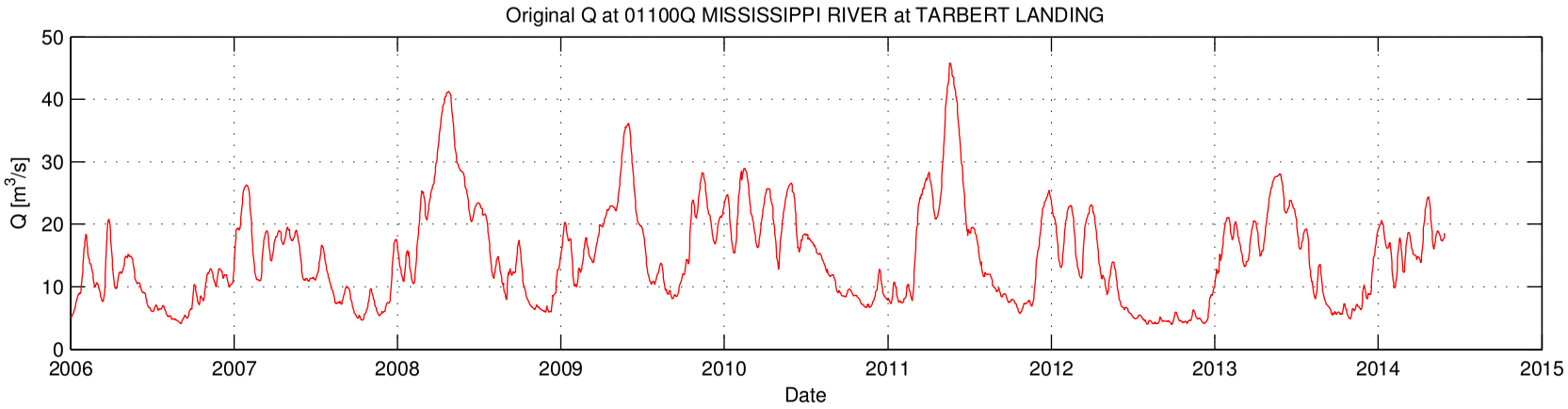
This document was prepared in support of the 2017 Coastal Master Plan being prepared by the Coastal Protection and Restoration Authority (CPRA). CPRA was established by the Louisiana Legislature in response to Hurricanes Katrina and Rita through Act 8 of the First Extraordinary Session of 2005. Act 8 of the First Extraordinary Session of 2005 expanded the membership, duties and responsibilities of CPRA and charged the new Authority to develop and implement a comprehensive coastal protection plan, consisting of a Master Plan (revised every five years) and annual plans. CPRA's mandate is to develop, implement and enforce a comprehensive coastal protection and restoration Master Plan.


01100Q MISSISSIPPI RIVER at TARBERT LANDING
Total of 2 gaps (99% Complete) with maximum gap length of 2
measured data
data gap
USACE Data
Date
0
5
10
15
20
25
30
35
40
45
50
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

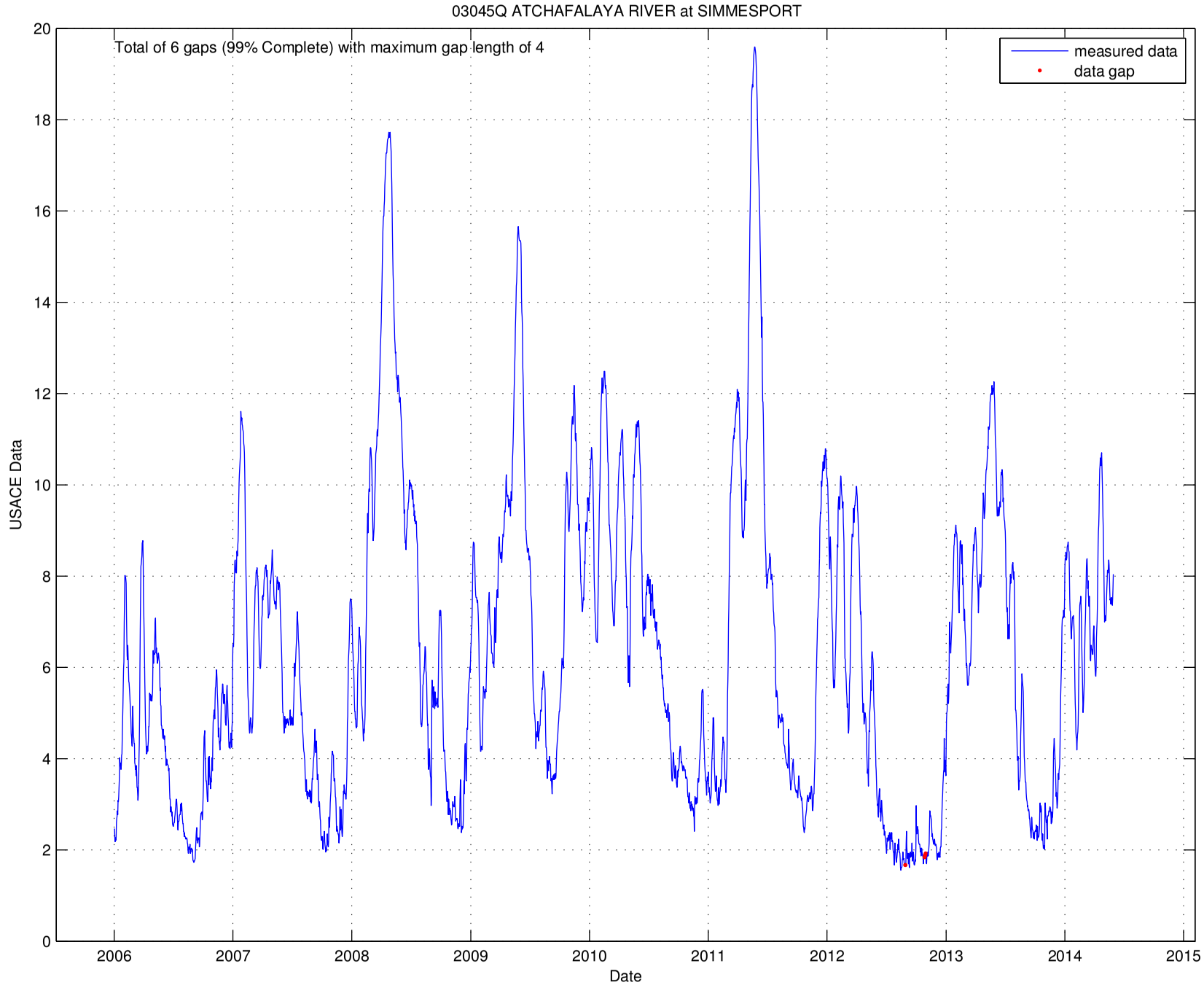
No data filled using rating curve

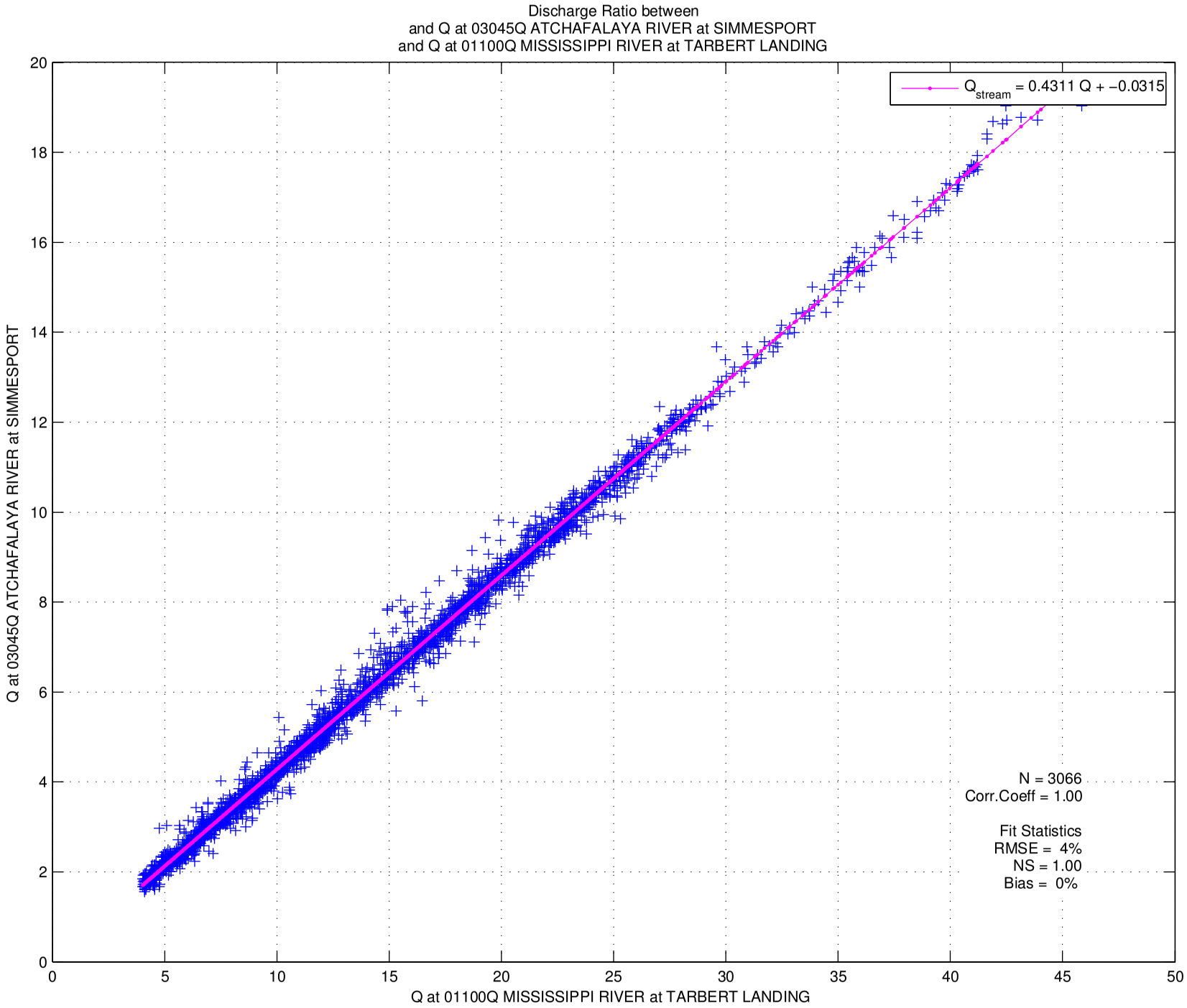


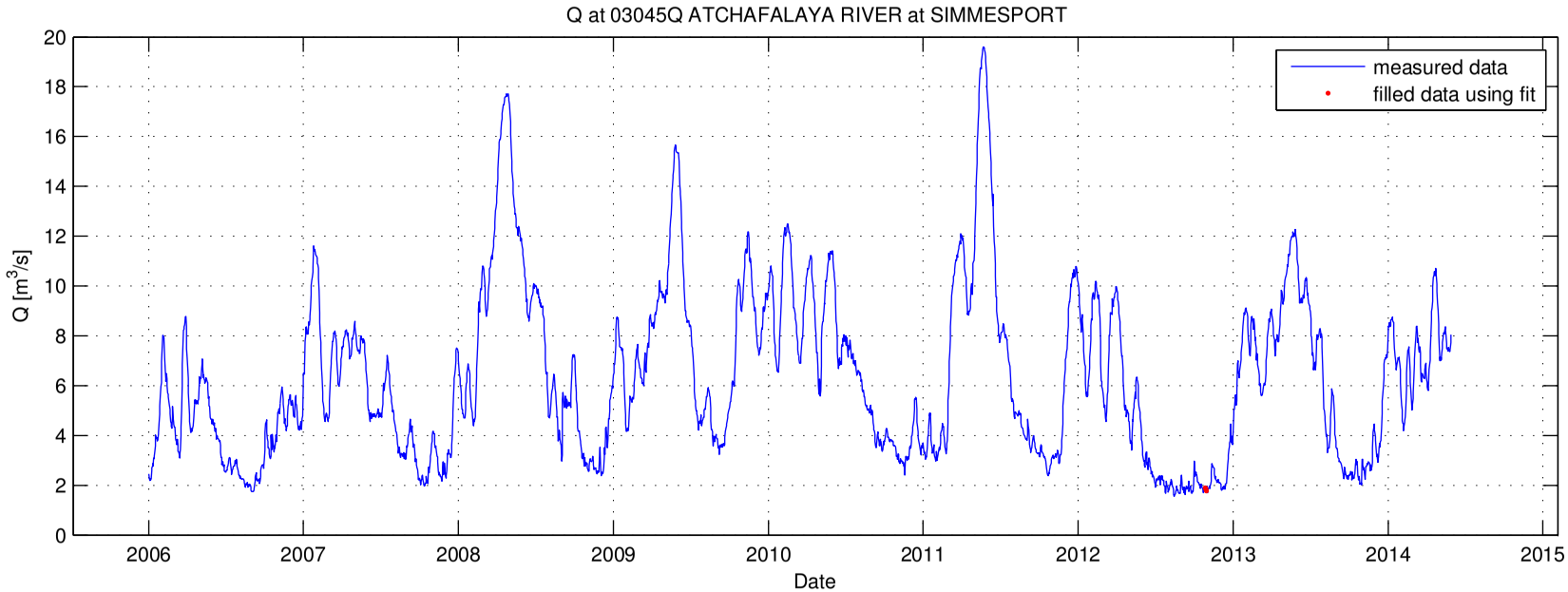


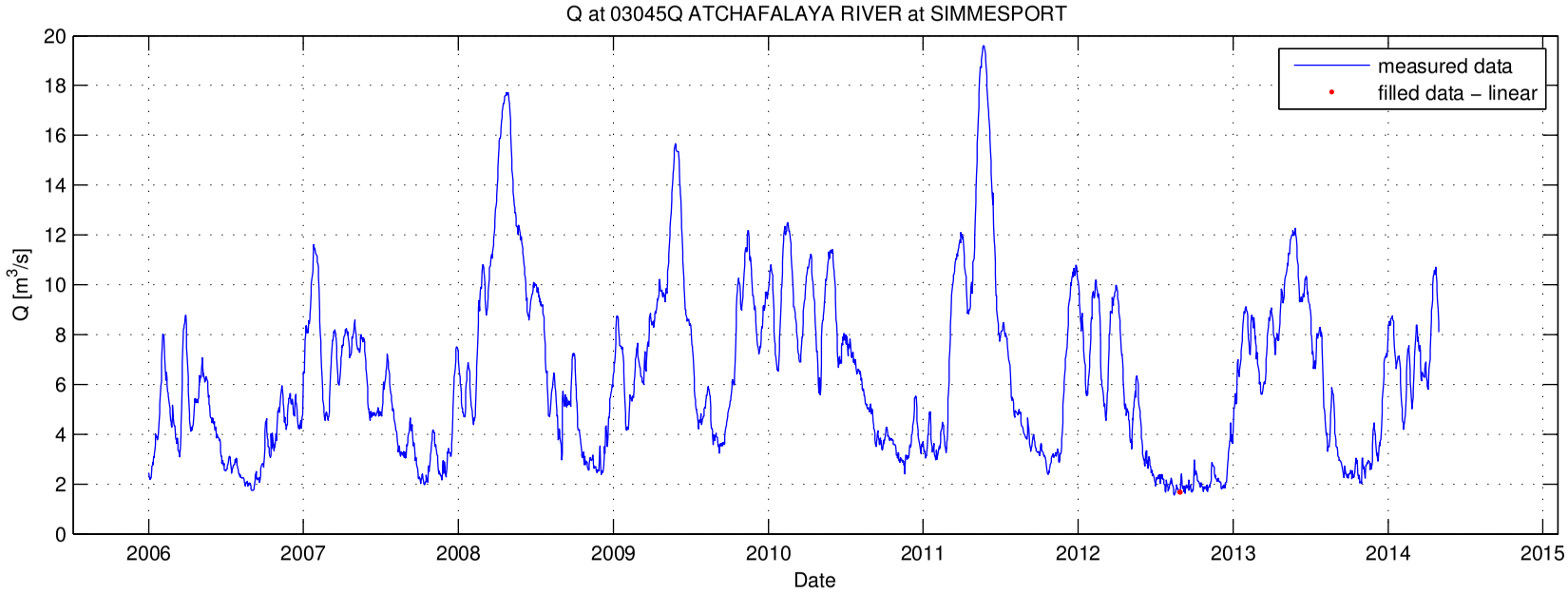


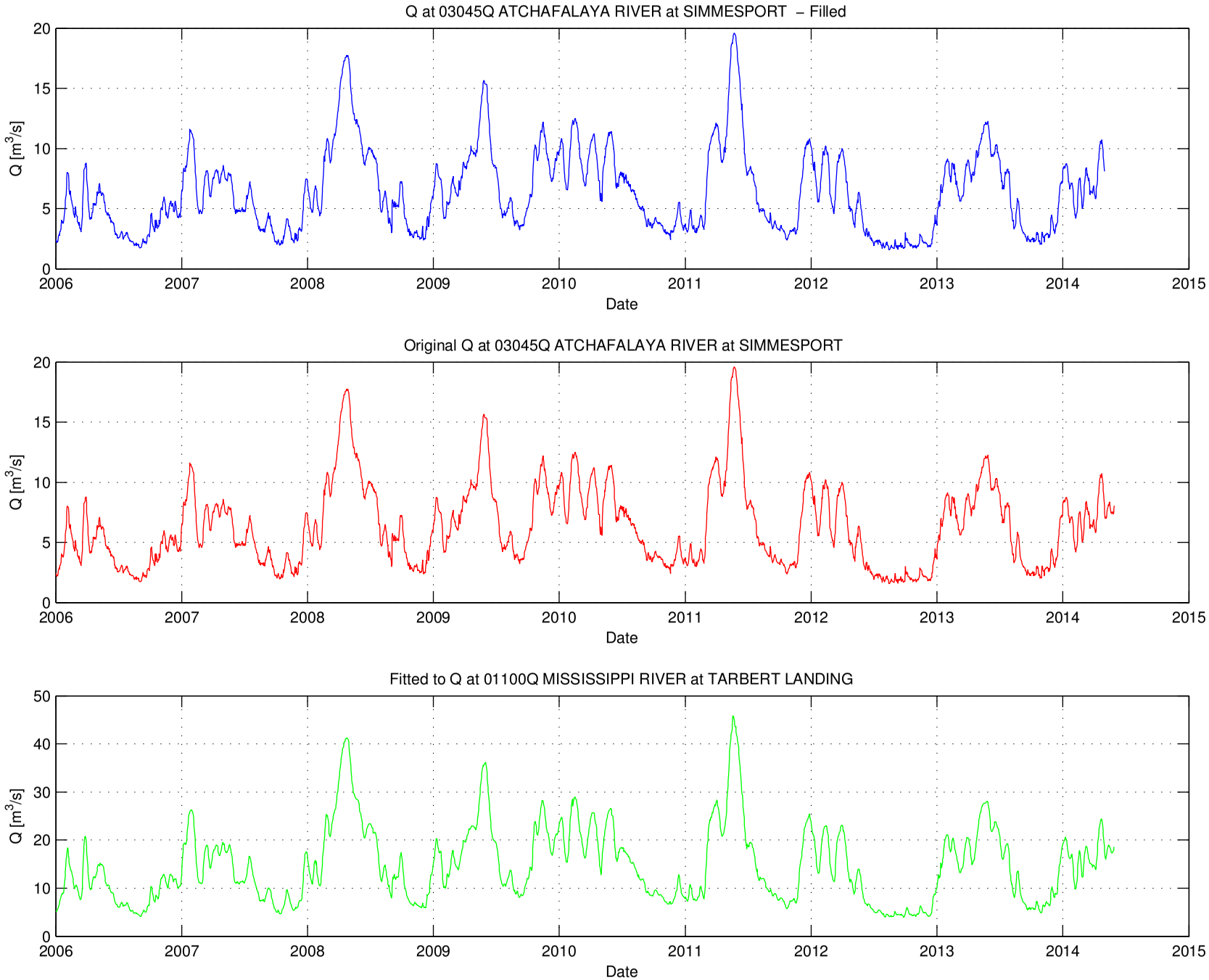
No fitted timeseries

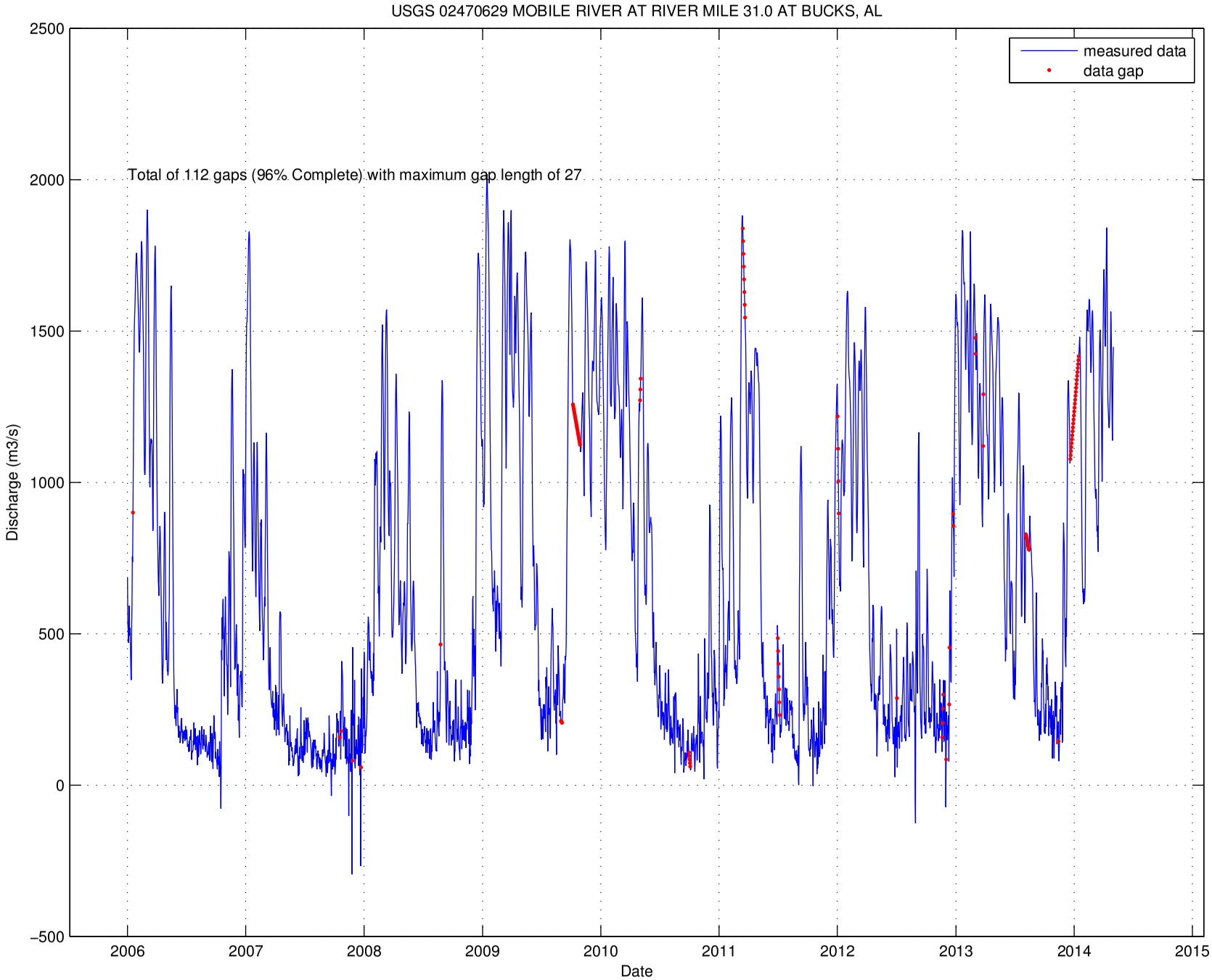

03045Q ATCHAFALAYA RIVER at SIMMESPORT
Total of 6 gaps (99% Complete) with maximum gap length of 4
measured data
data gap
USACE Data
Date
0
2
4
6
8
10
12
14
16
18
20
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

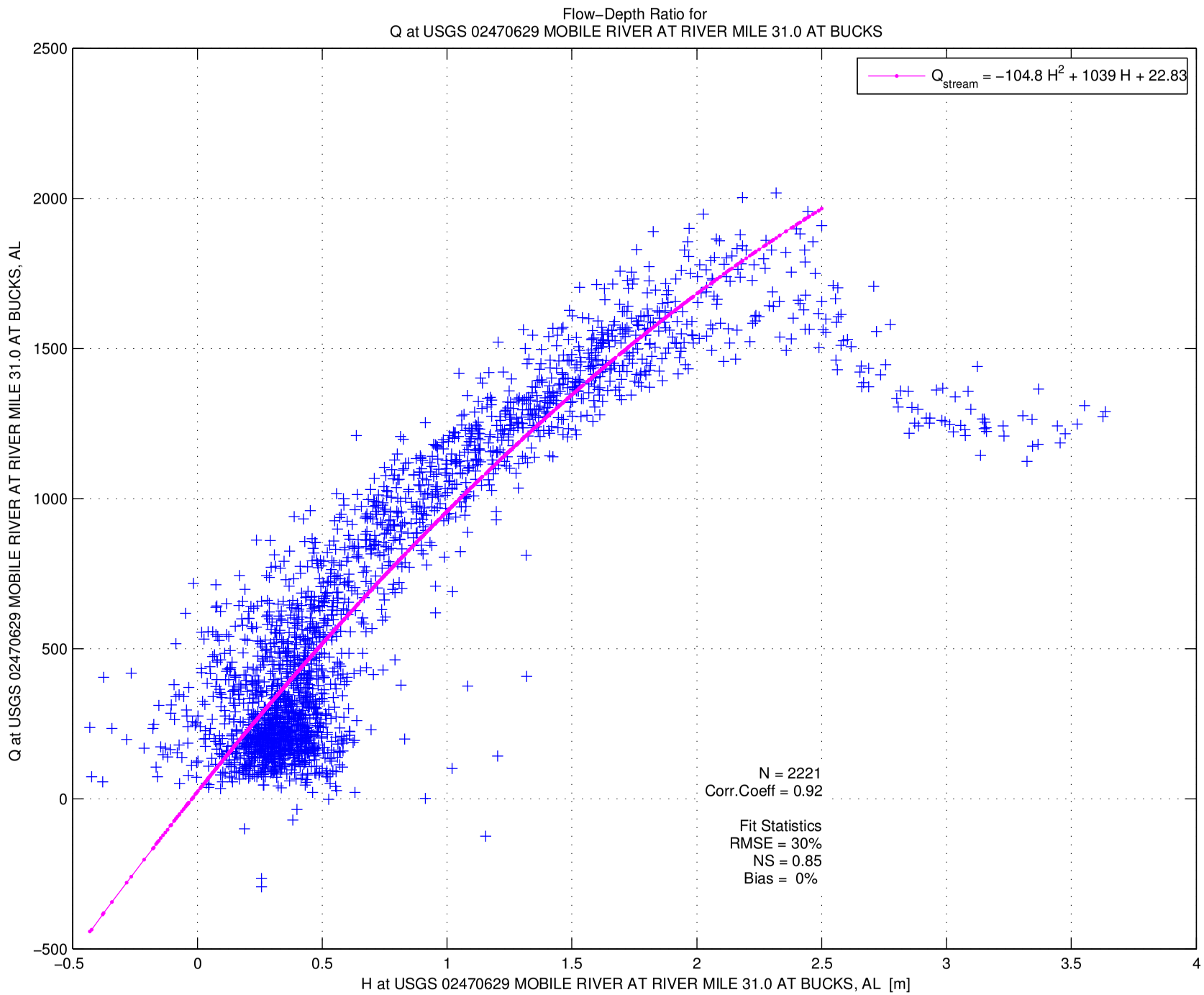

Discharge Ratio between
and Q at 03045Q ATCHAFALAYA RIVER at SIMMESPORT
and Q at 01100Q MISSISSIPPI RIVER at TARBERT LANDING
Q_stream = 0.4311 Q + −0.0315
N = 3066
Corr.Coeff = 1.00
Fit Statistics
RMSE = 4%
NS = 1.00
Bias = 0%
Q at 03045Q ATCHAFALAYA RIVER at SIMMESPORT
Q at 01100Q MISSISSIPPI RIVER at TARBERT LANDING
0
2
4
6
8
10
12
14
16
18
20
0
5
10
15
20
25
30
35
40
45
50

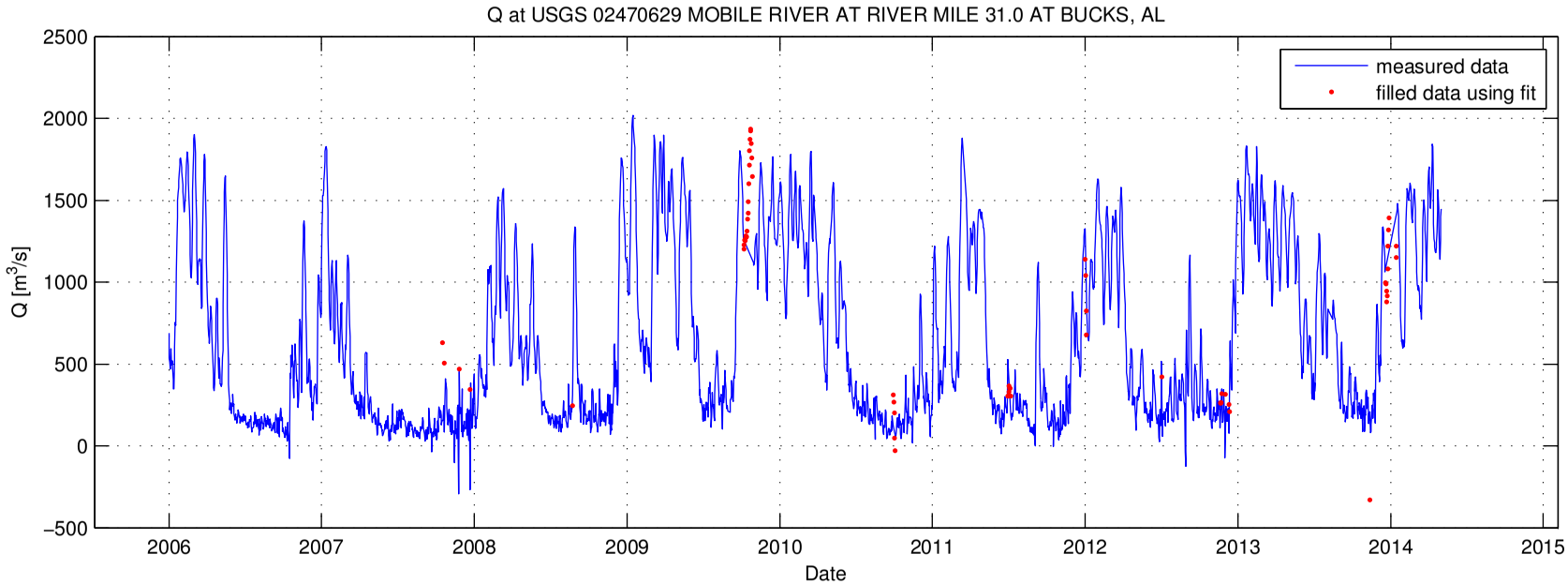

Q at 03045Q ATCHAFALAYA RIVER at SIMMESPORT
measured data
filled data using fit
Q [m3/s]
Date
0
2
4
6
8
10
12
14
16
18
20
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

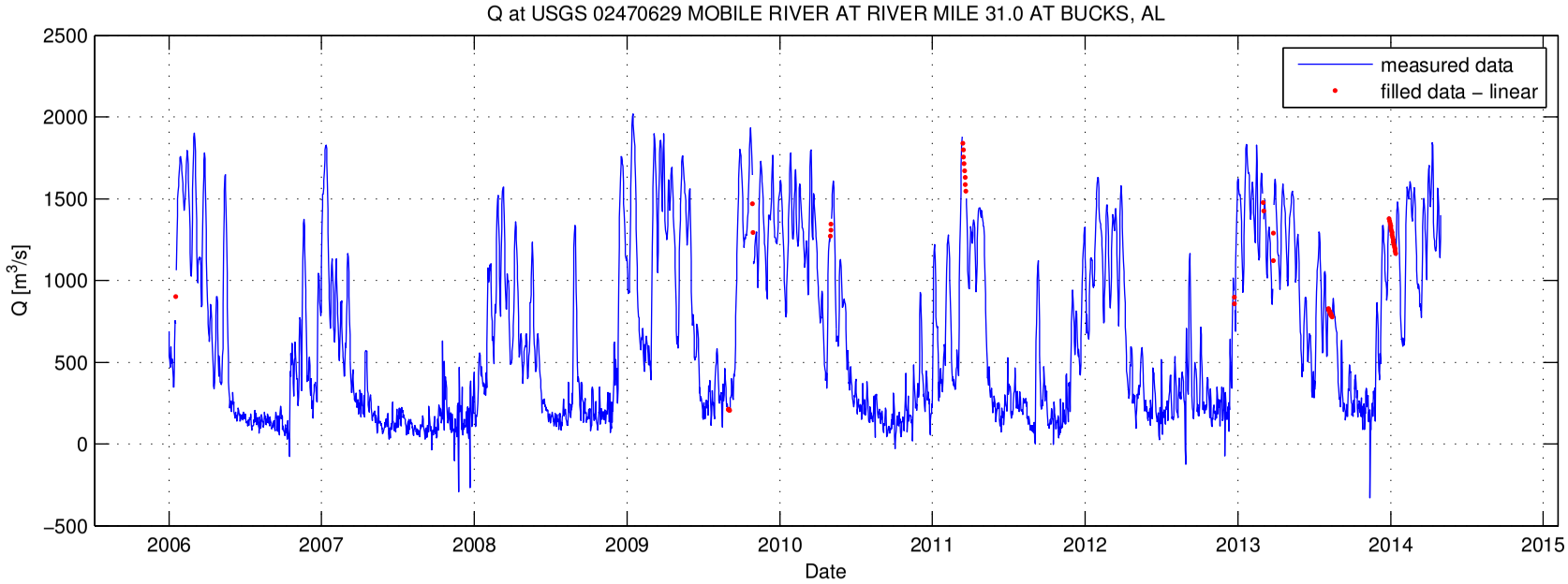

Q at 03045Q ATCHAFALAYA RIVER at SIMMESPORT
measured data
filled data – linear
Q [m3/s]
Date
0
2
4
6
8
10
12
14
16
18
20
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

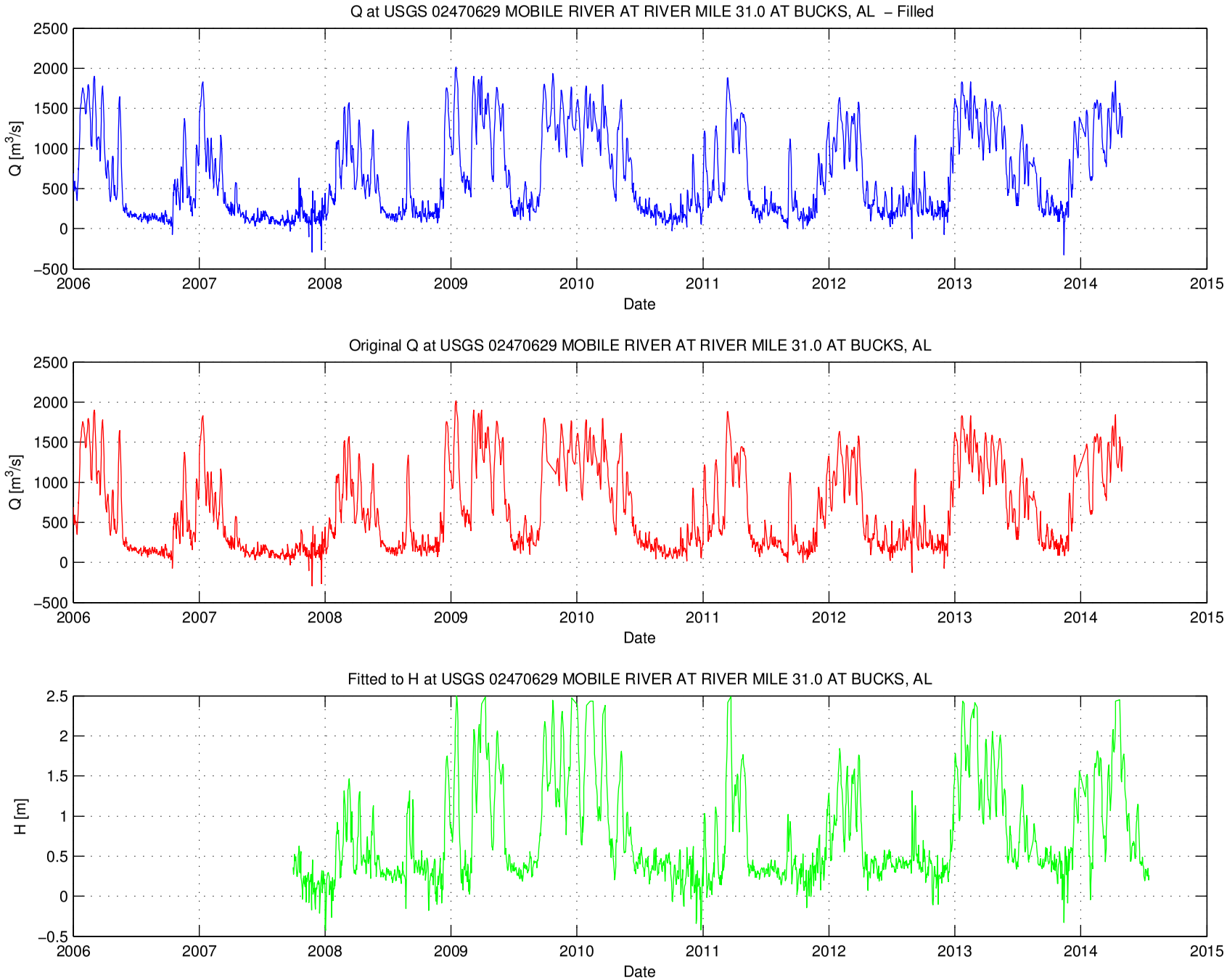

Q at 03045Q ATCHAFALAYA RIVER at SIMMESPORT – Filled
Q [m3/s]
Date
Original Q at 03045Q ATCHAFALAYA RIVER at SIMMESPORT
Q [m3/s]
Date
Fitted to Q at 01100Q MISSISSIPPI RIVER at TARBERT LANDING
Q [m3/s]
Date
0
5
10
15
20
30
40
50
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

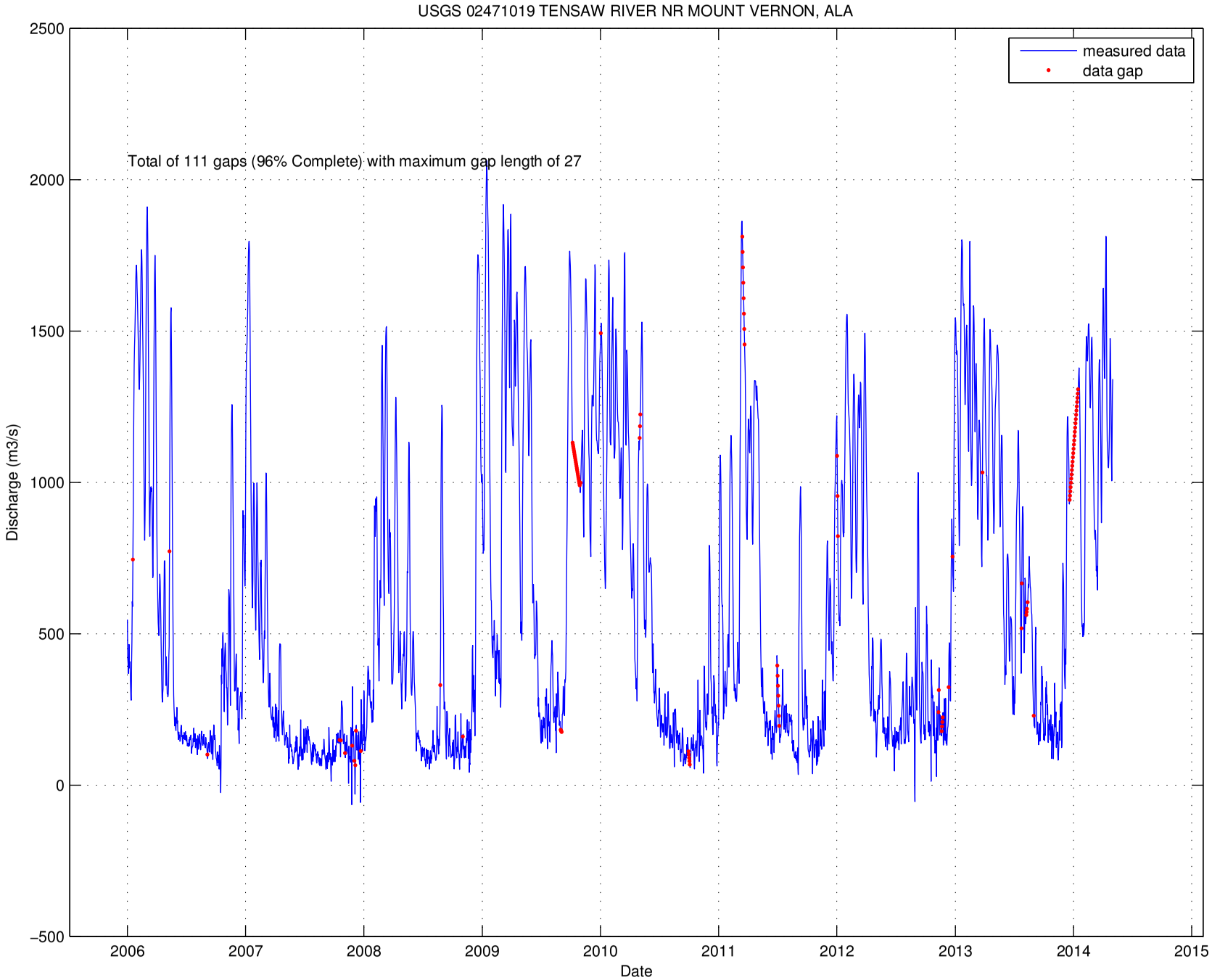

USGS 02470629 MOBILE RIVER AT RIVER MILE 31.0 AT BUCKS, AL
Total of 112 gaps (96% Complete) with maximum gap length of 27
measured data
data gap
Discharge (m3/s)
Date
2500
2000
1500
1000
500
0
−500
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

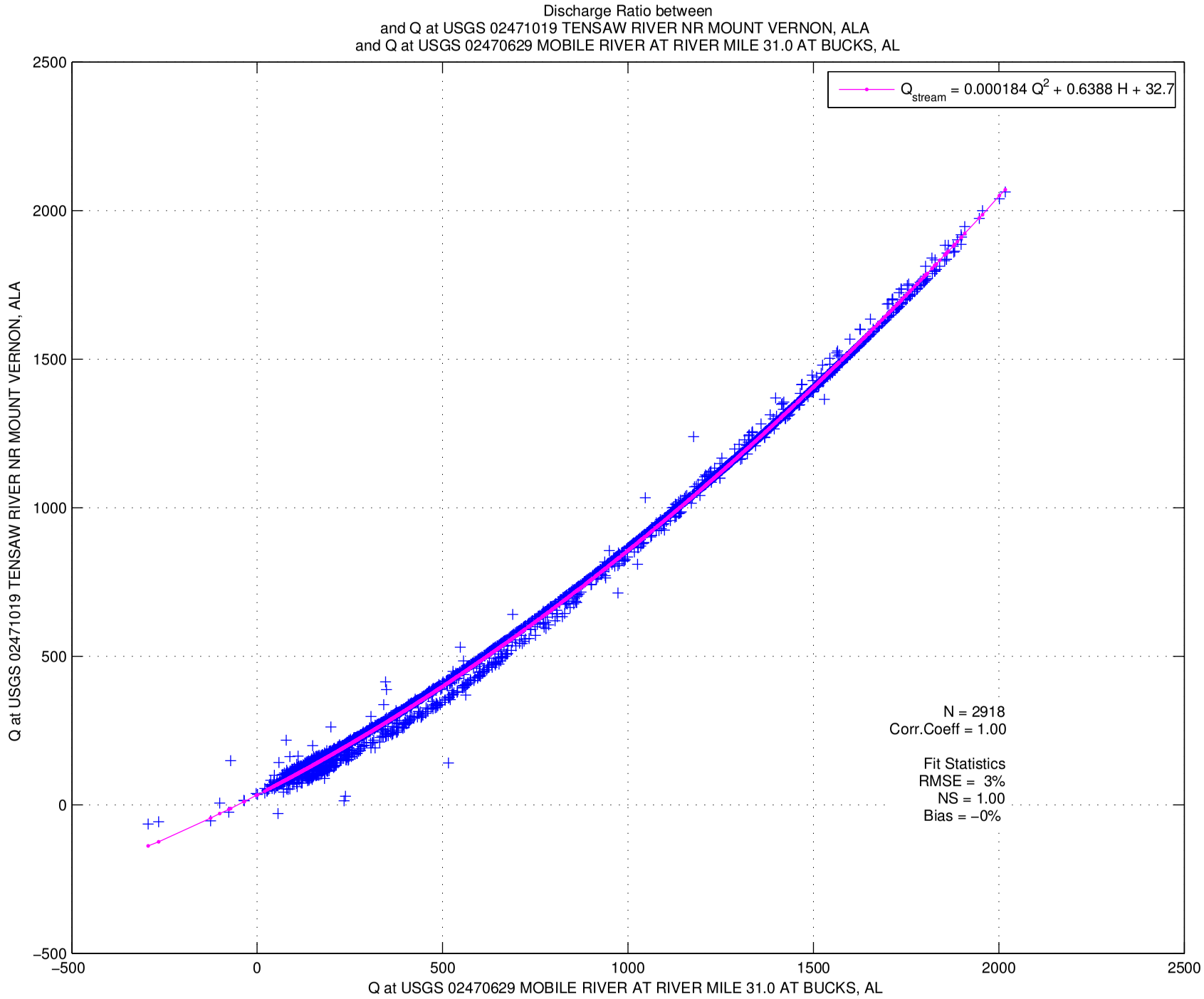

Flow−Depth Ratio for
Q at USGS 02470629 MOBILE RIVER AT RIVER MILE 31.0 AT BUCKS
$Q_{stream} = -104.8\ H^2 + 1039\ H + 22.83$
N = 2221
Corr.Coeff = 0.92
Fit Statistics
RMSE = 30%
NS = 0.85
Bias = 0%
Q at USGS 02470629 MOBILE RIVER AT RIVER MILE 31.0 AT BUCKS, AL
H at USGS 02470629 MOBILE RIVER AT RIVER MILE 31.0 AT BUCKS, AL [m]
2500
2000
1500
1000
500
0
−500
−0.5
0
0.5
1
1.5
2
2.5
3
3.5
4

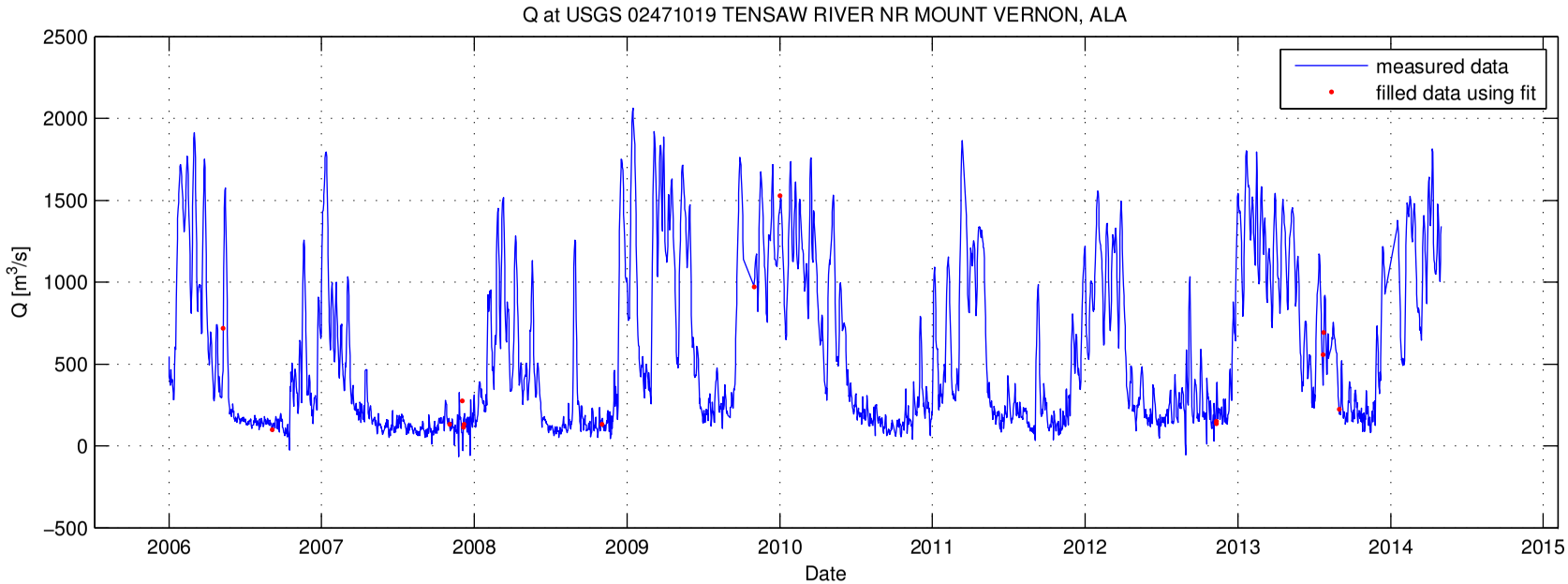

Q at USGS 02470629 MOBILE RIVER AT RIVER MILE 31.0 AT BUCKS, AL
measured data
filled data using fit
Q [m3/s]
Date
2500
2000
1500
1000
500
0
−500
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

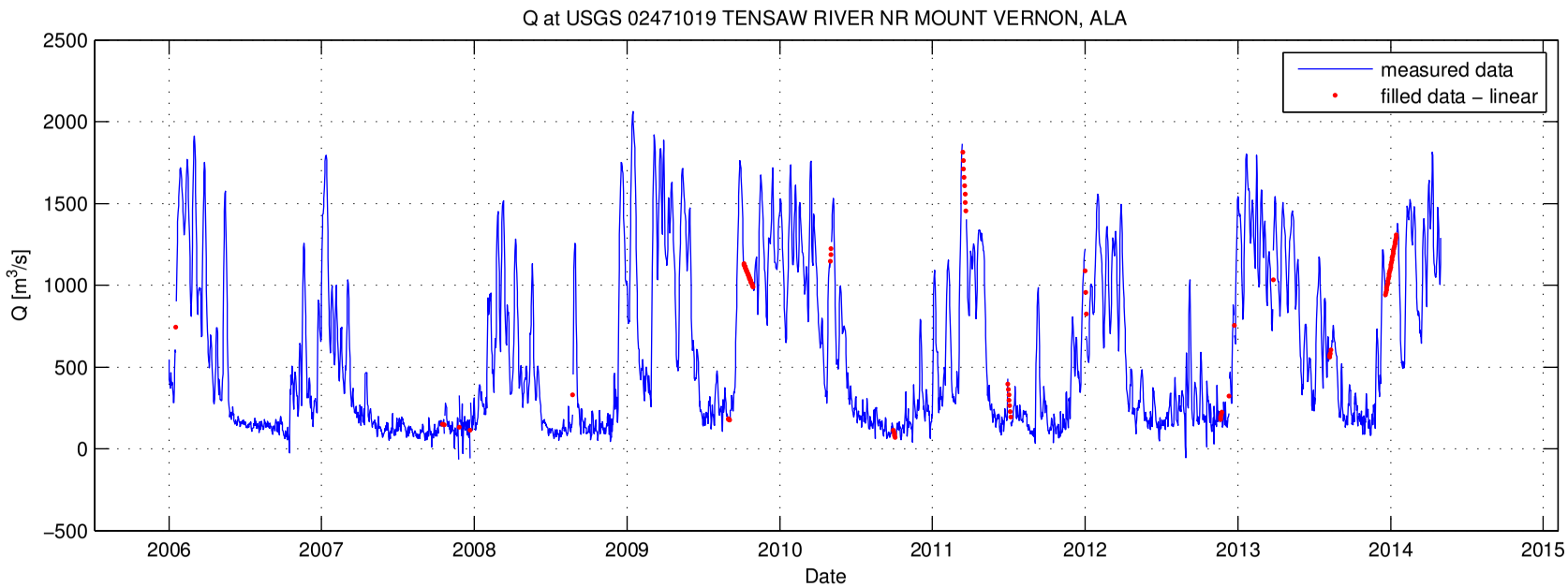

Q at USGS 02470629 MOBILE RIVER AT RIVER MILE 31.0 AT BUCKS, AL
measured data
filled data – linear
Q [m3/s]
Date
2500
2000
1500
1000
500
0
−500
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

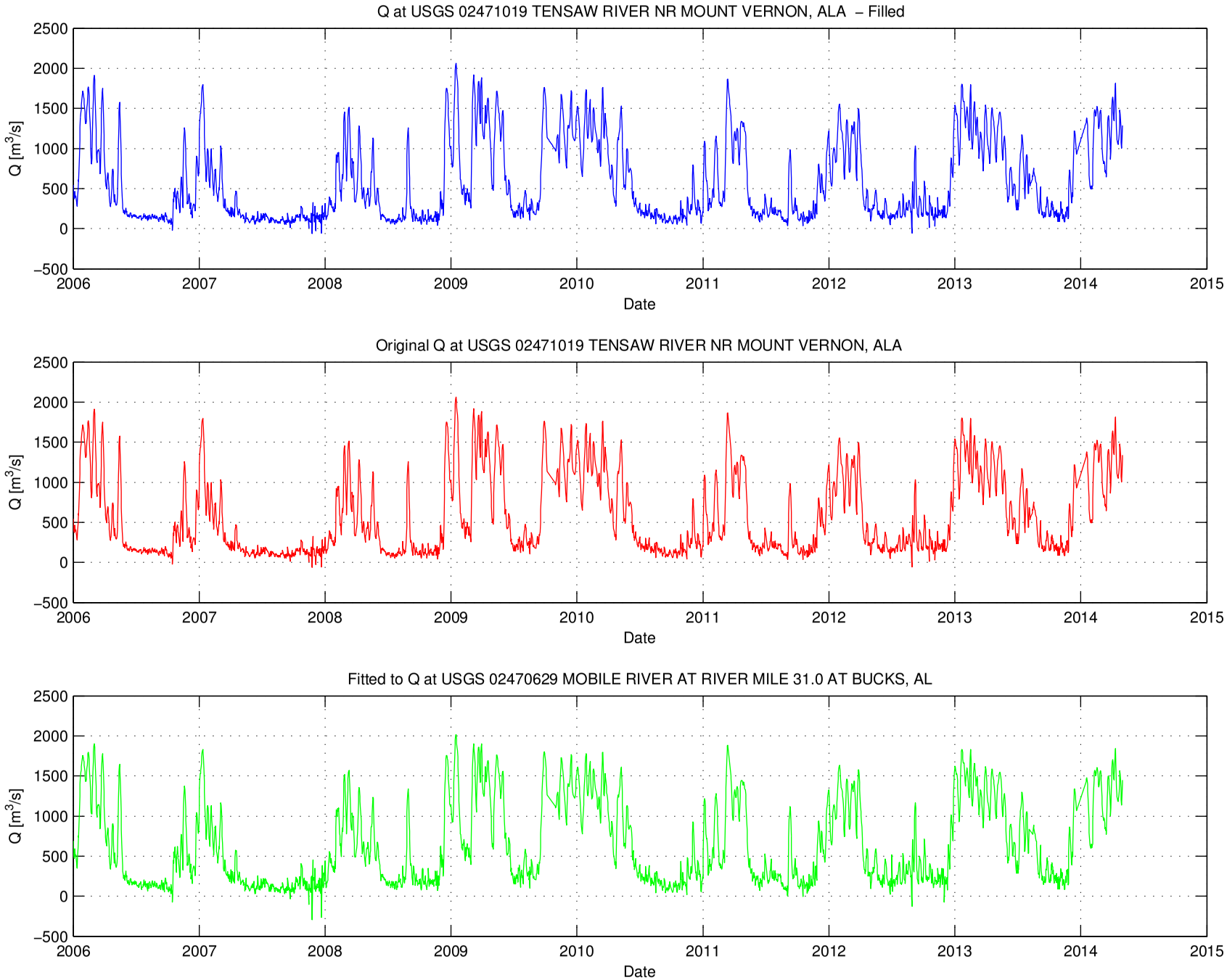

Q at USGS 02470629 MOBILE RIVER AT RIVER MILE 31.0 AT BUCKS, AL – Filled
Q [m3/s]
2500
2000
1500
1000
500
0
−500
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Date
Original Q at USGS 02470629 MOBILE RIVER AT RIVER MILE 31.0 AT BUCKS, AL
Q [m3/s]
Date
Fitted to H at USGS 02470629 MOBILE RIVER AT RIVER MILE 31.0 AT BUCKS, AL
H [m]
2.5
2
1.5
1
0.5
0
−0.5
Date

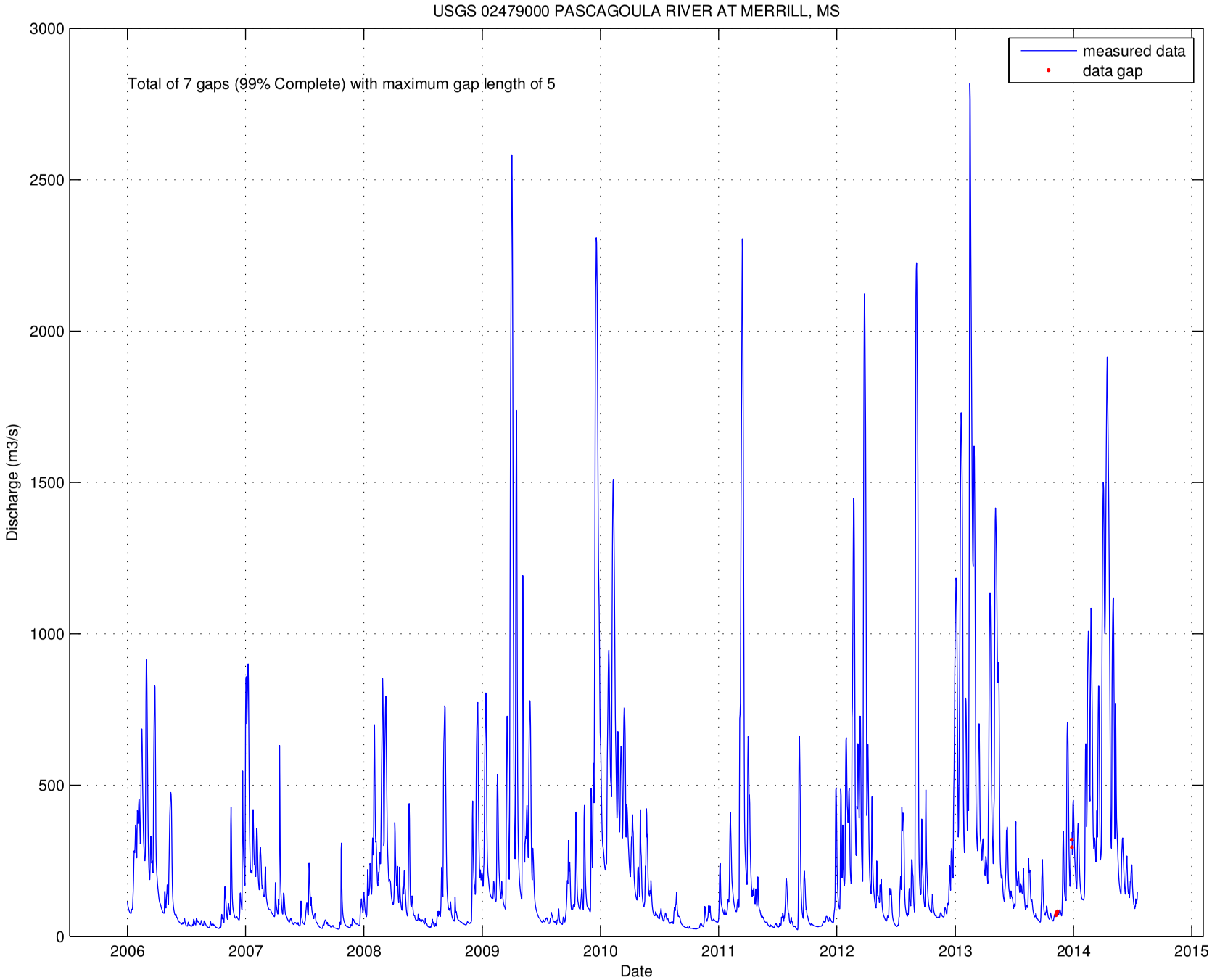

USGS 02471019 TENSAW RIVER NR MOUNT VERNON, ALA
Total of 111 gaps (96% Complete) with maximum gap length of 27
measured data
data gap
Discharge (m3/s)
Date
2500
2000
1500
1000
500
0
−500
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

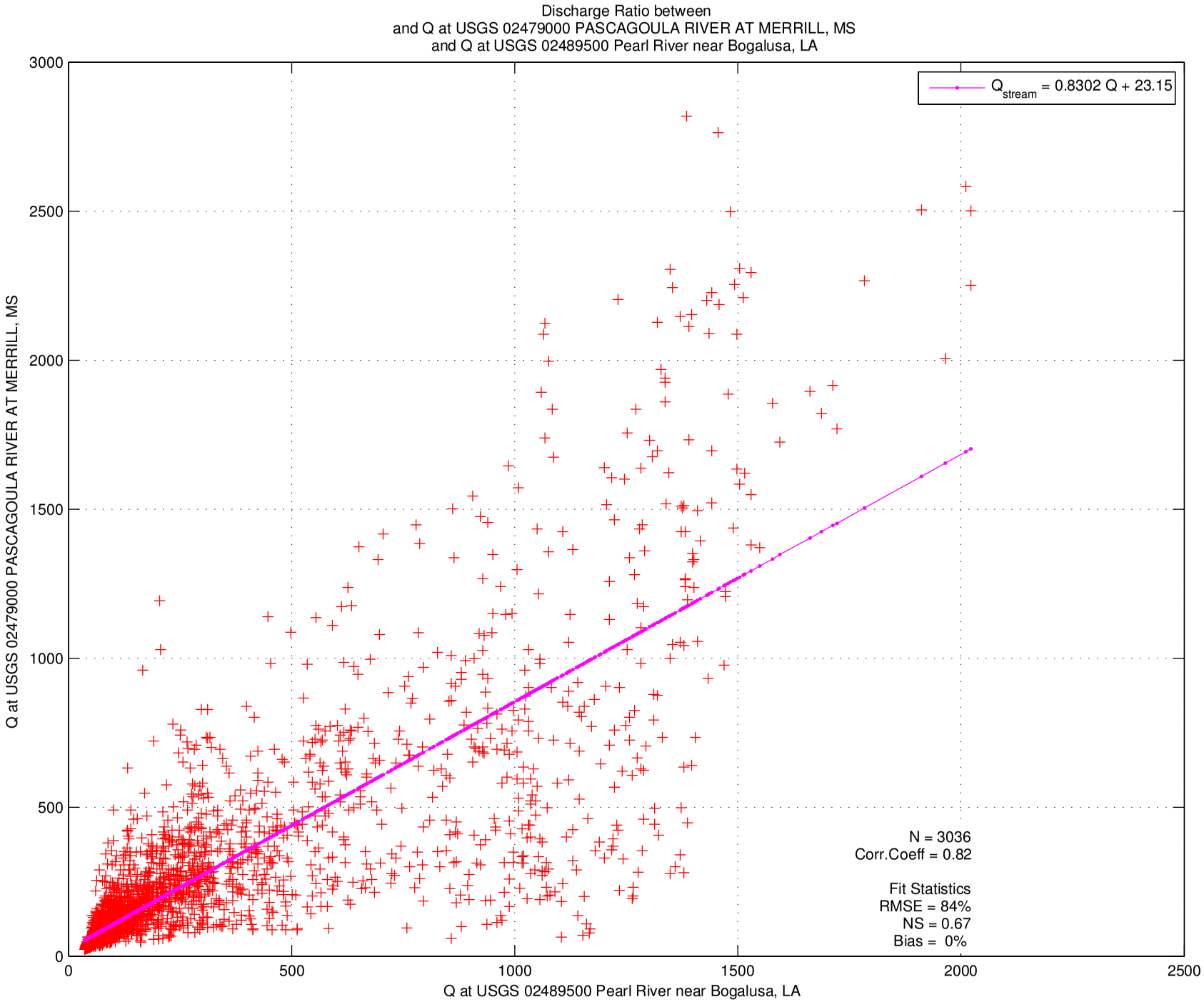

Discharge Ratio between
and Q at USGS 02471019 TENSAW RIVER NR MOUNT VERNON, ALA
and Q at USGS 02470629 MOBILE RIVER AT RIVER MILE 31.0 AT BUCKS, AL
Q_stream = 0.000184 Q^2 + 0.6388 H + 32.7
N = 2918
Corr.Coeff = 1.00
Fit Statistics
RMSE = 3%
NS = 1.00
Bias = −0%
Q at USGS 02471019 TENSAW RIVER NR MOUNT VERNON, ALA
Q at USGS 02470629 MOBILE RIVER AT RIVER MILE 31.0 AT BUCKS, AL
2500
2000
1500
1000
500
0
−500
−500
0
500
1000
1500
2000
2500

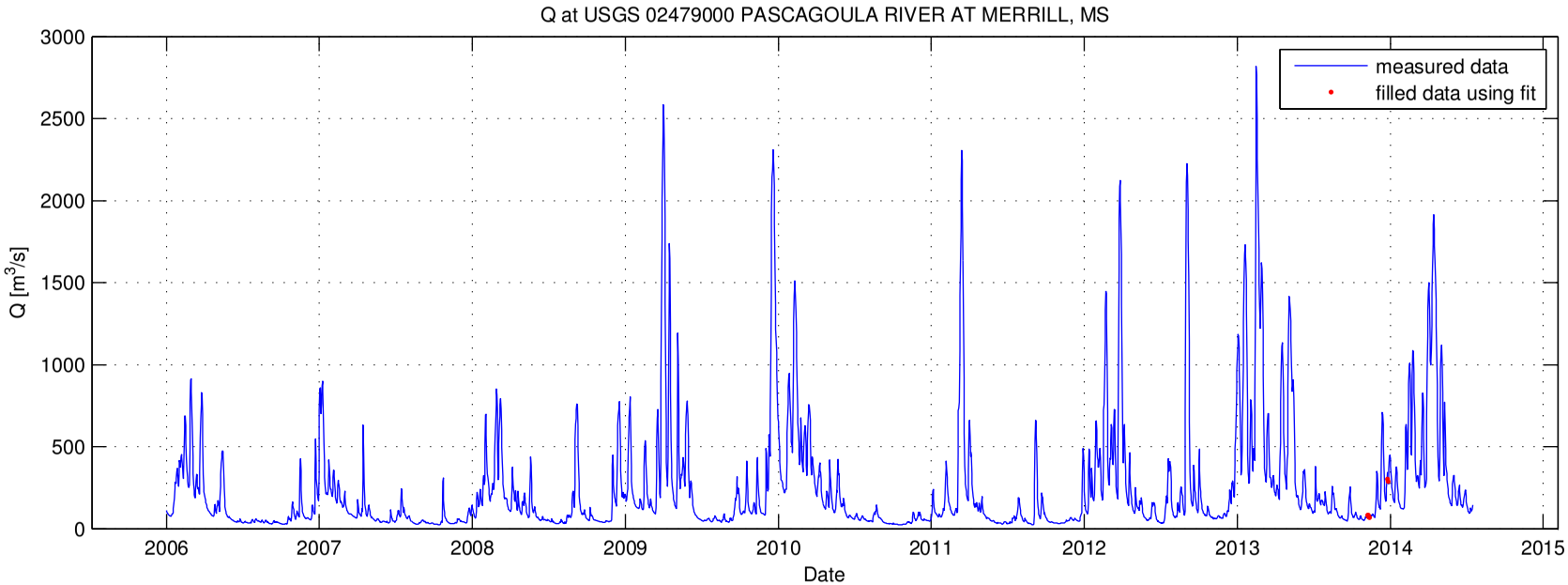

Q at USGS 02471019 TENSAW RIVER NR MOUNT VERNON, ALA
measured data
filled data using fit
Q [m3/s]
Date
2500
2000
1500
1000
500
0
−500
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015


Q at USGS 02471019 TENSAW RIVER NR MOUNT VERNON, ALA
measured data
filled data – linear
Q [m3/s]
Date
2500
2000
1500
1000
500
0
−500
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

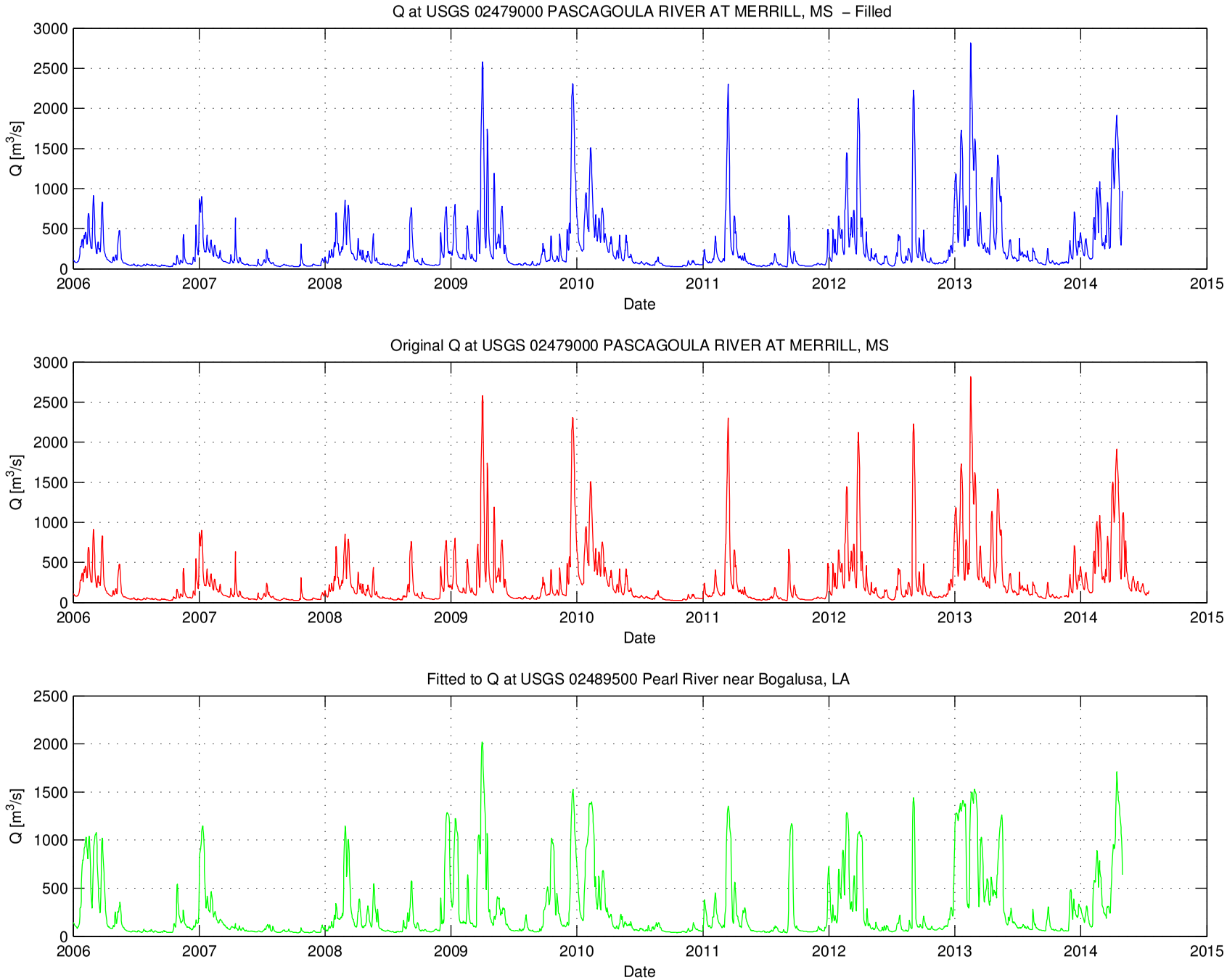

Q at USGS 02471019 TENSAW RIVER NR MOUNT VERNON, ALA – Filled
Q [m3/s]
Date
Original Q at USGS 02471019 TENSAW RIVER NR MOUNT VERNON, ALA
Q [m3/s]
Date
Fitted to Q at USGS 02470629 MOBILE RIVER AT RIVER MILE 31.0 AT BUCKS, AL
Q [m3/s]
Date
2500
2000
1500
1000
500
0
−500
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

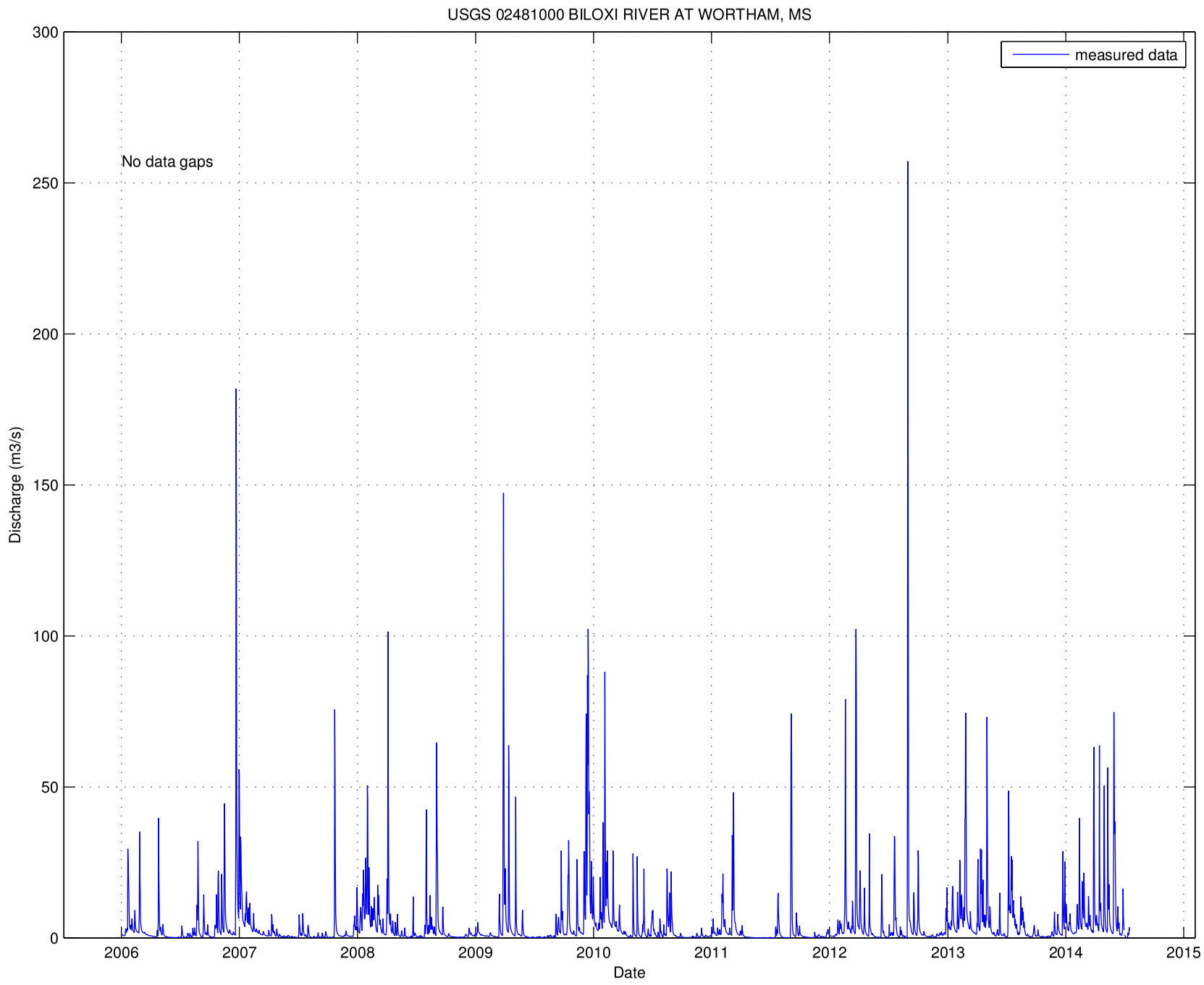

USGS 02479000 PASCAGOULA RIVER AT MERRILL, MS
Total of 7 gaps (99% Complete) with maximum gap length of 5
measured data
data gap
Discharge (m3/s)
Date
0
500
1000
1500
2000
2500
3000
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

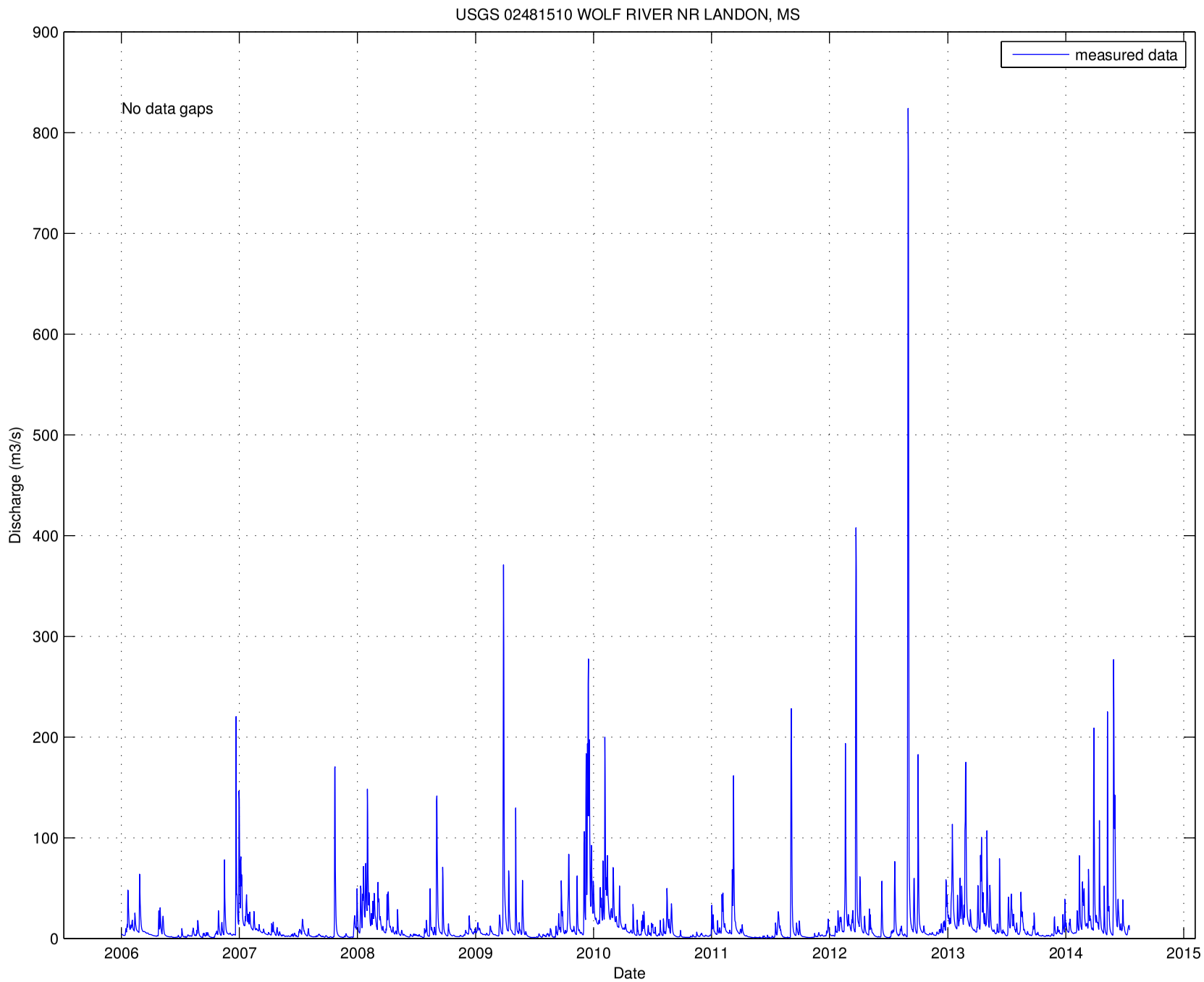

Discharge Ratio between
and Q at USGS 02479000 PASCAGOULA RIVER AT MERRILL, MS
and Q at USGS 02489500 Pearl River near Bogalusa, LA
Q_stream = 0.8302 Q + 23.15
N = 3036
Corr.Coeff = 0.82
Fit Statistics
RMSE = 84%
NS = 0.67
Bias = 0%
Q at USGS 02479000 PASCAGOULA RIVER AT MERRILL, MS
Q at USGS 02489500 Pearl River near Bogalusa, LA
0
500
1000
1500
2000
2500
3000

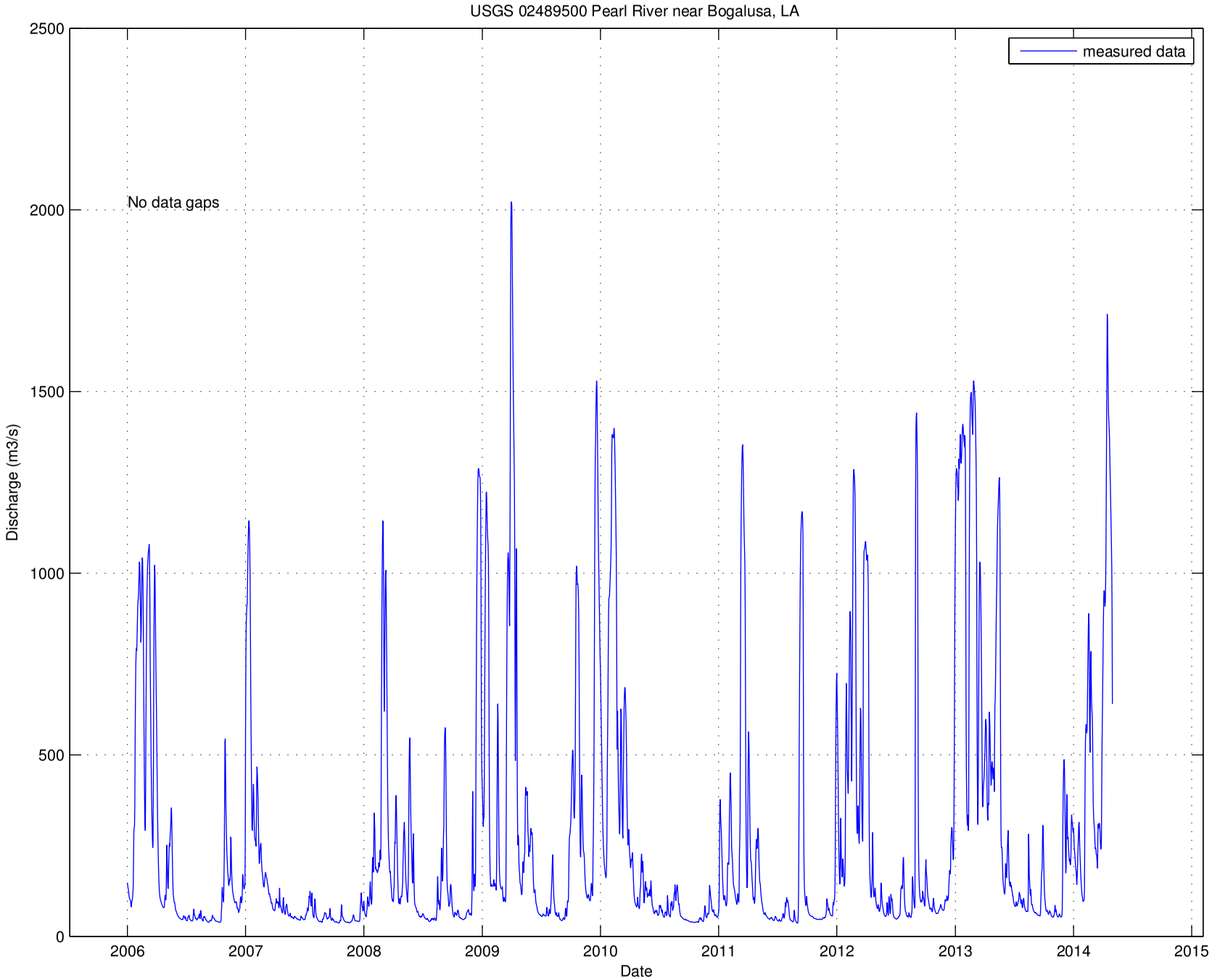


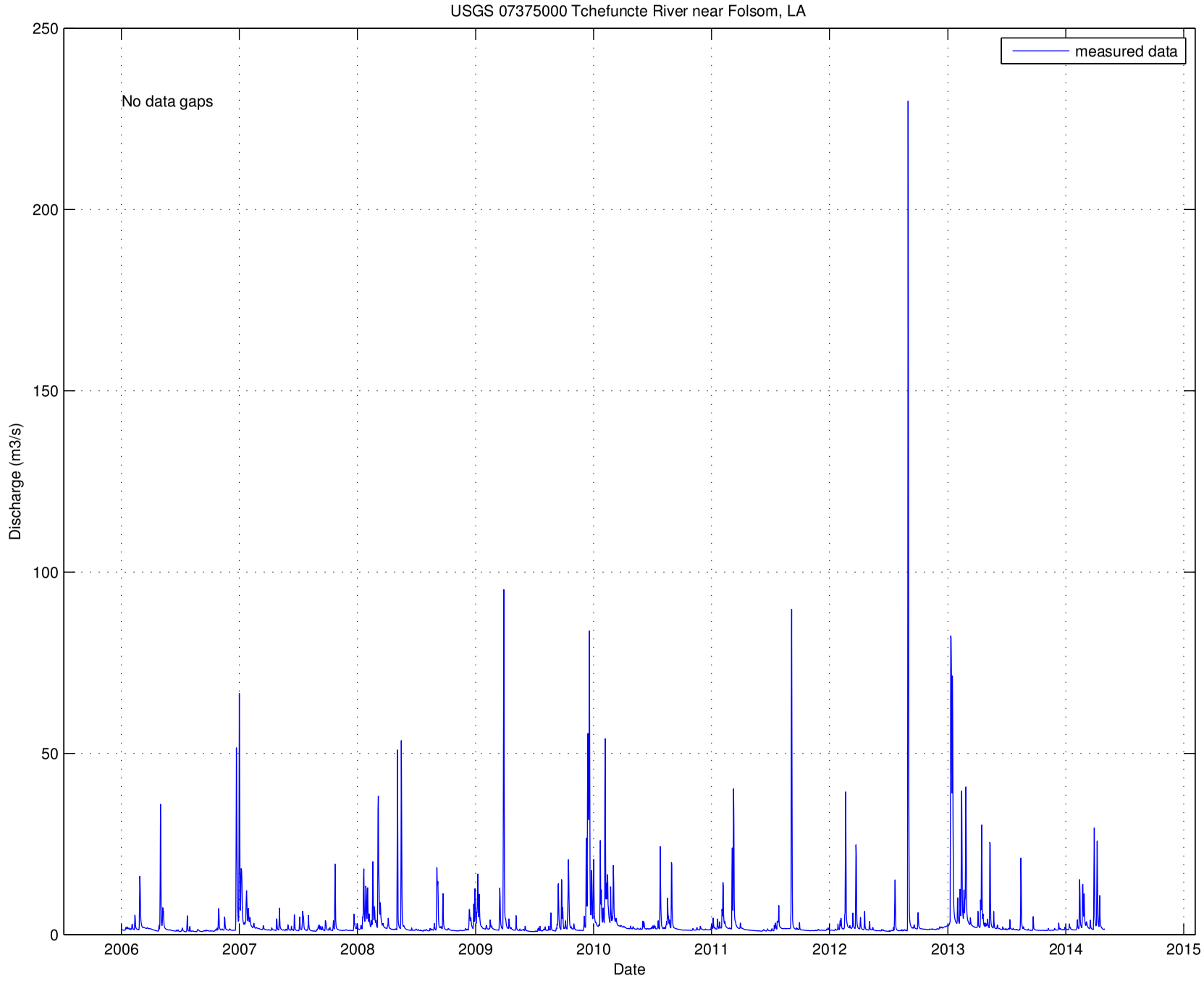
No data filled using linear interpolation

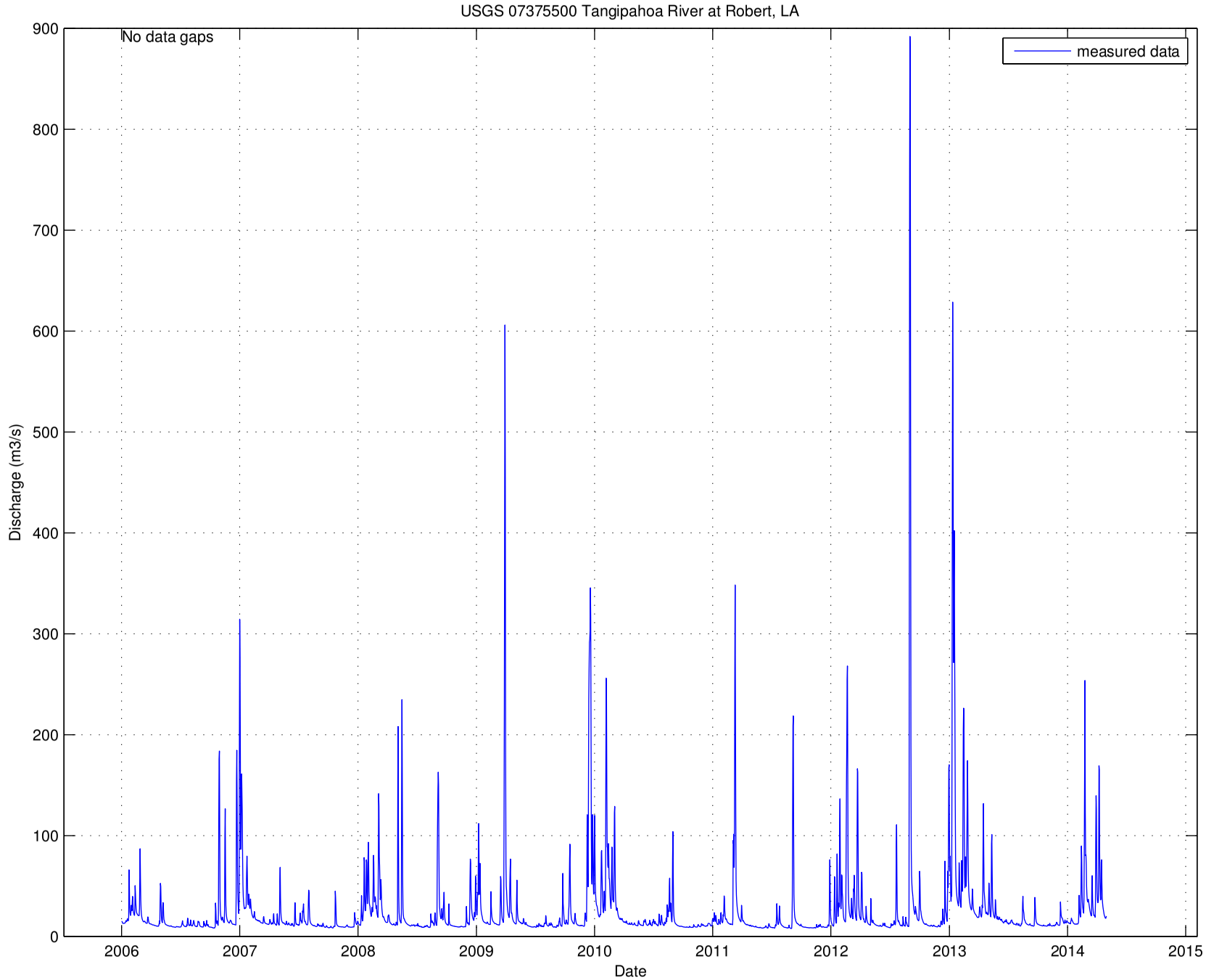

Q at USGS 02479000 PASCAGOULA RIVER AT MERRILL, MS – Filled
Q [m3/s]
Date
Original Q at USGS 02479000 PASCAGOULA RIVER AT MERRILL, MS
Q [m3/s]
Date
Fitted to Q at USGS 02489500 Pearl River near Bogalusa, LA
Q [m3/s]
Date

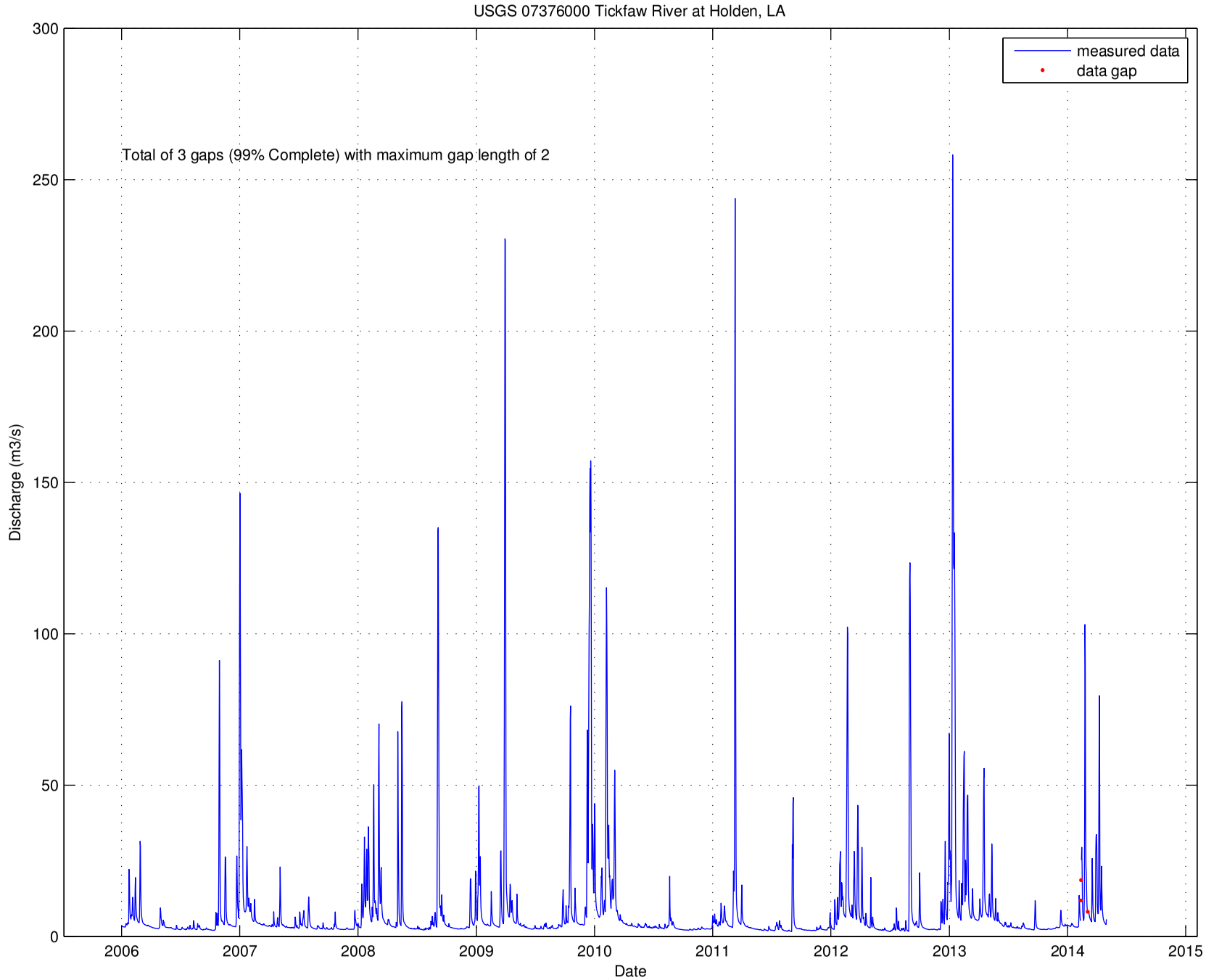

USGS 02481000 BILOXI RIVER AT WORTHAM, MS
measured data
No data gaps
Discharge (m3/s)
Date
0
50
100
150
200
250
300
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015


USGS 02481510 WOLF RIVER NR LANDON, MS
measured data
No data gaps
Discharge (m3/s)
Date
0
100
200
300
400
500
600
700
800
900
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

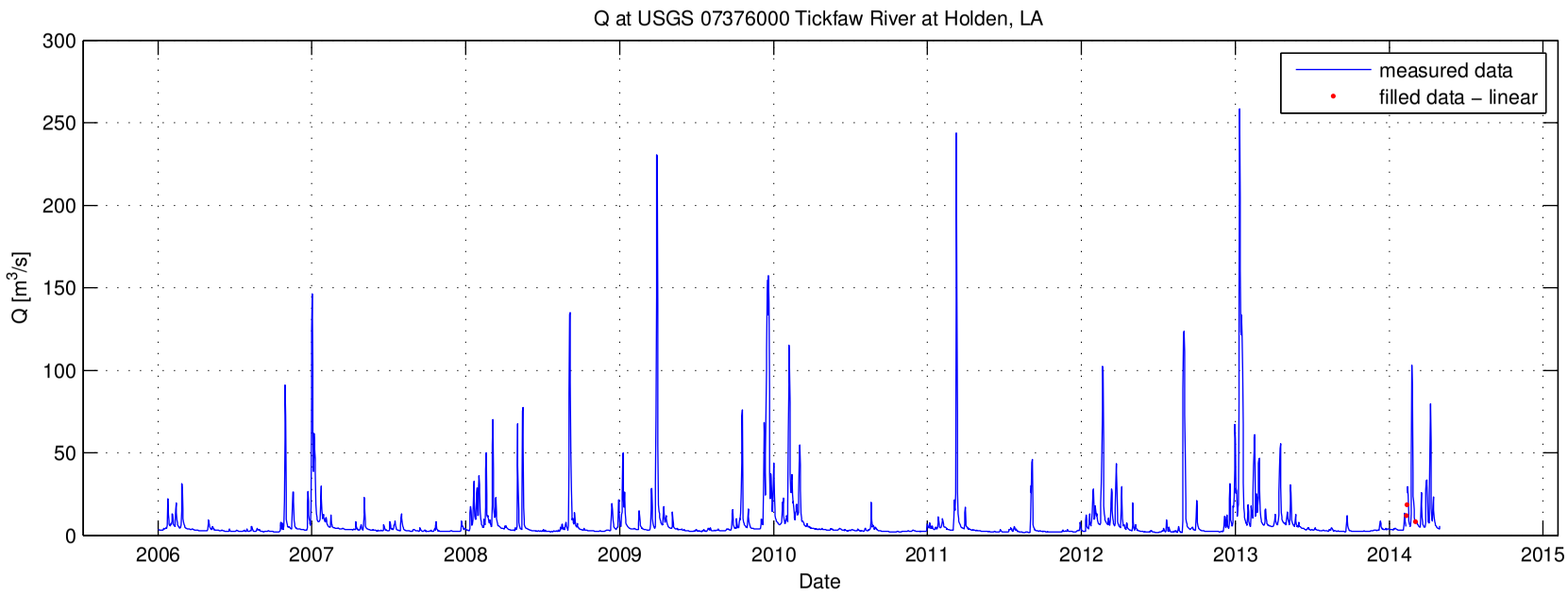

USGS 02489500 Pearl River near Bogalusa, LA
measured data
No data gaps
Discharge (m3/s)
Date
0
500
1000
1500
2000
2500
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

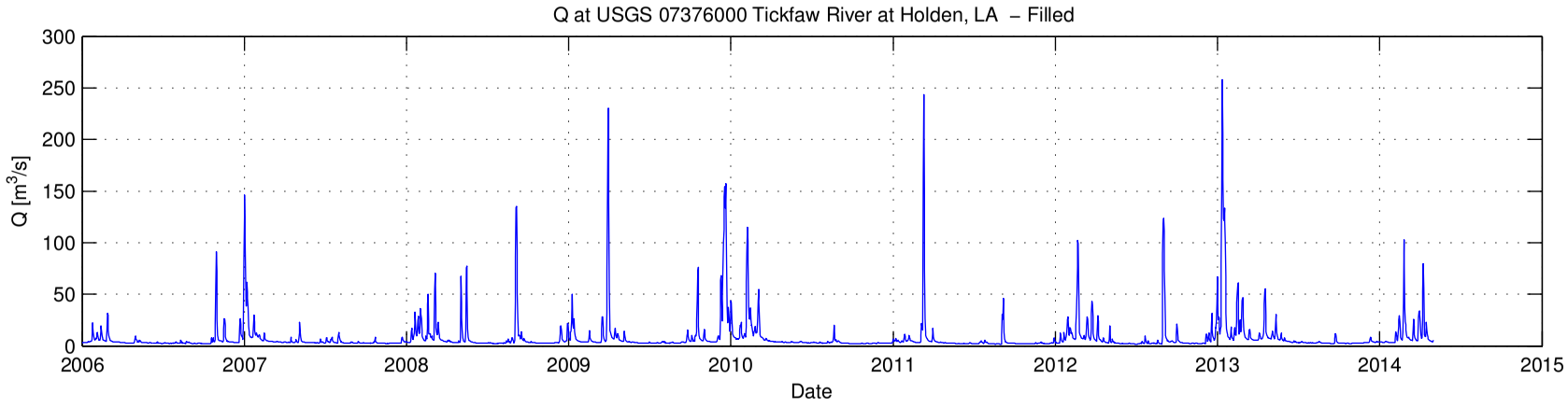

USGS 07375000 Tchefuncte River near Folsom, LA
measured data
No data gaps
Discharge (m3/s)
Date
0
50
100
150
200
250
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

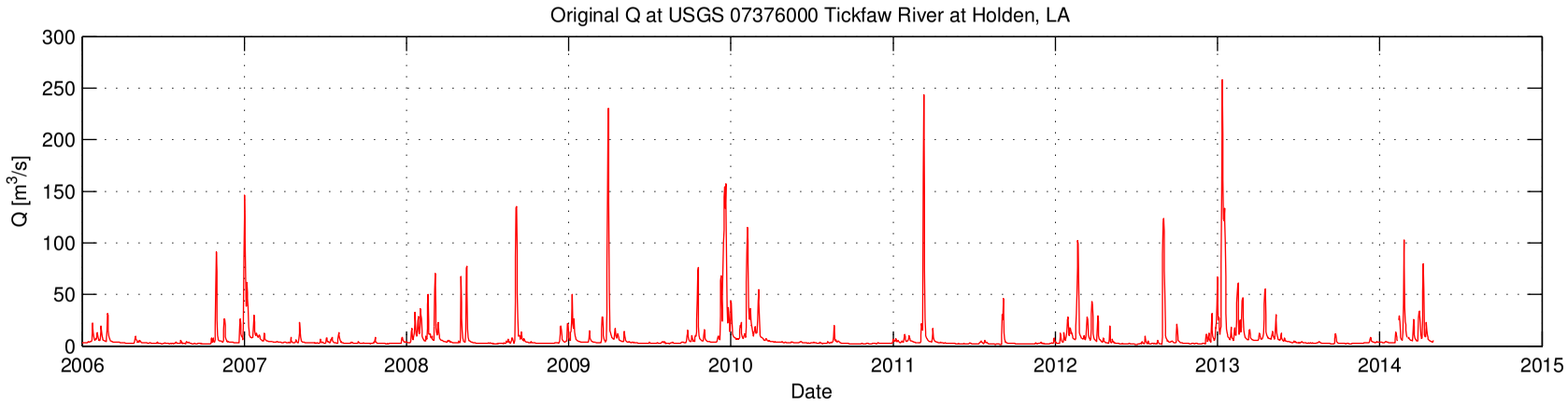

USGS 07375500 Tangipahoa River at Robert, LA
No data gaps
measured data
Discharge (m3/s)
Date
0
100
200
300
400
500
600
700
800
900
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015


USGS 07376000 Tickfaw River at Holden, LA
Total of 3 gaps (99% Complete) with maximum gap length of 2
measured data
data gap
Discharge (m3/s)
Date
0
50
100
150
200
250
300
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

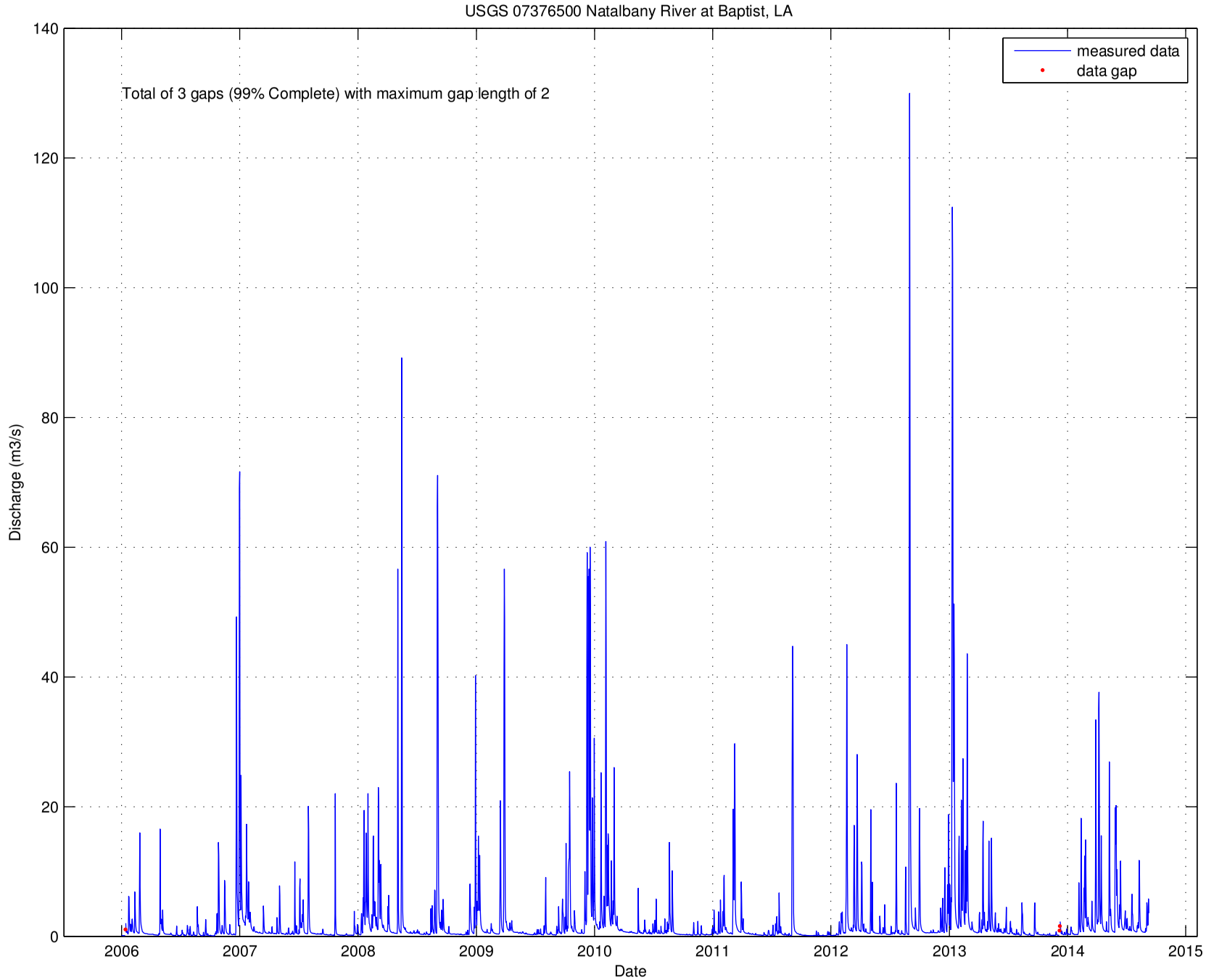
No data filled using rating curve



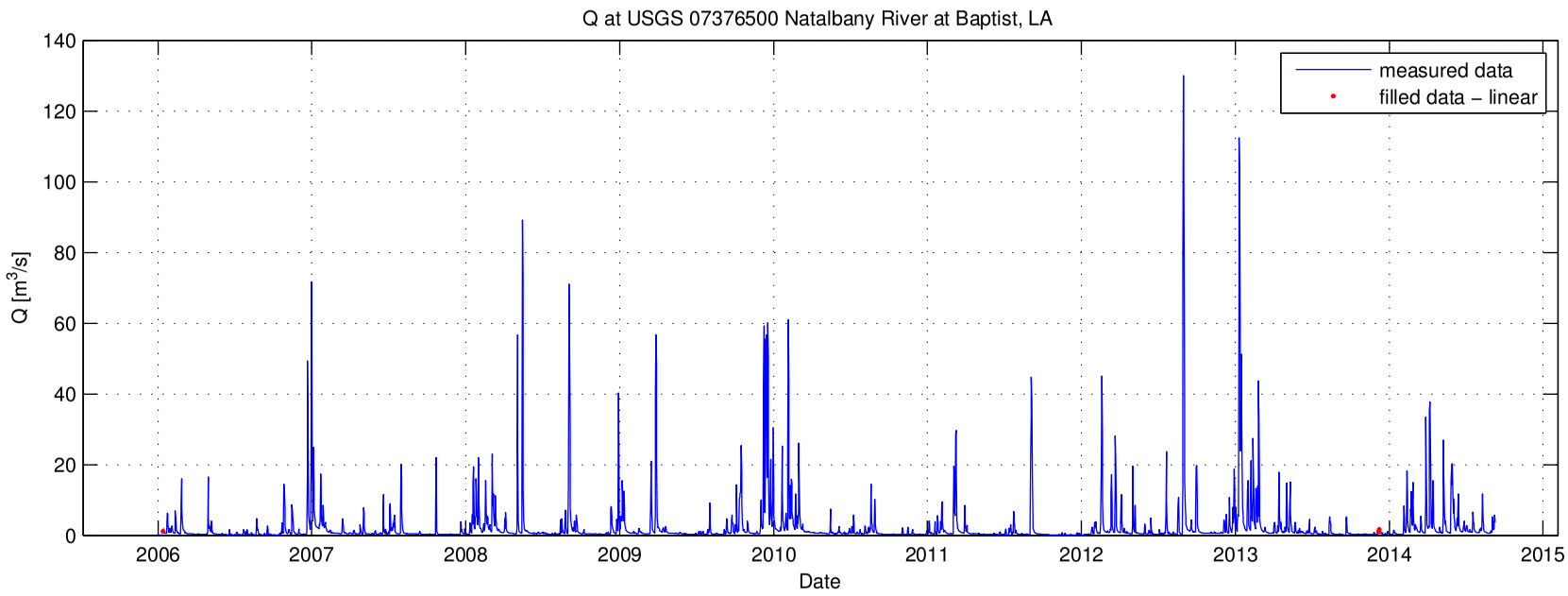


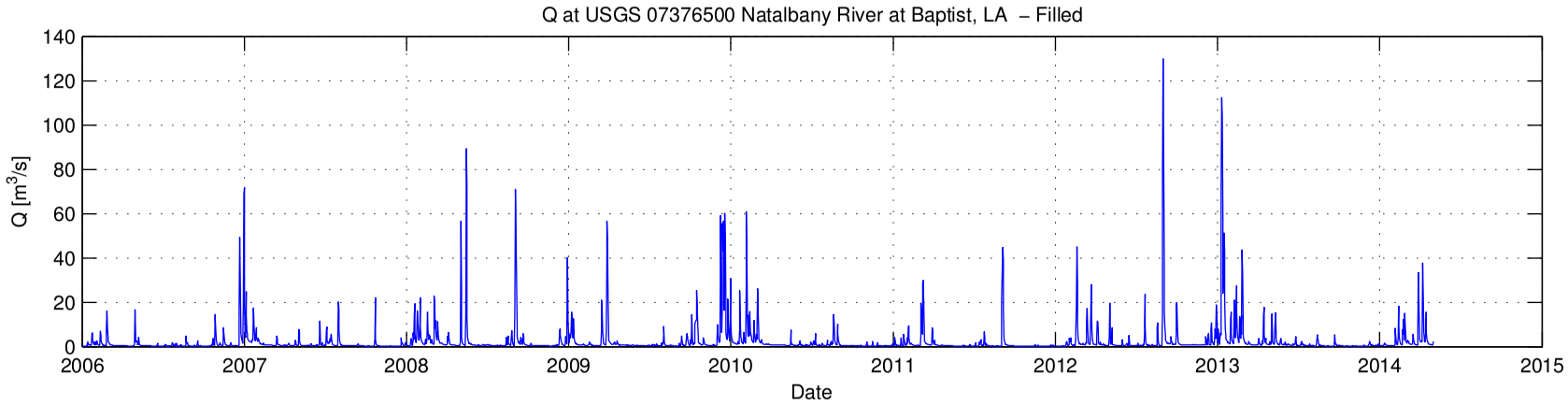


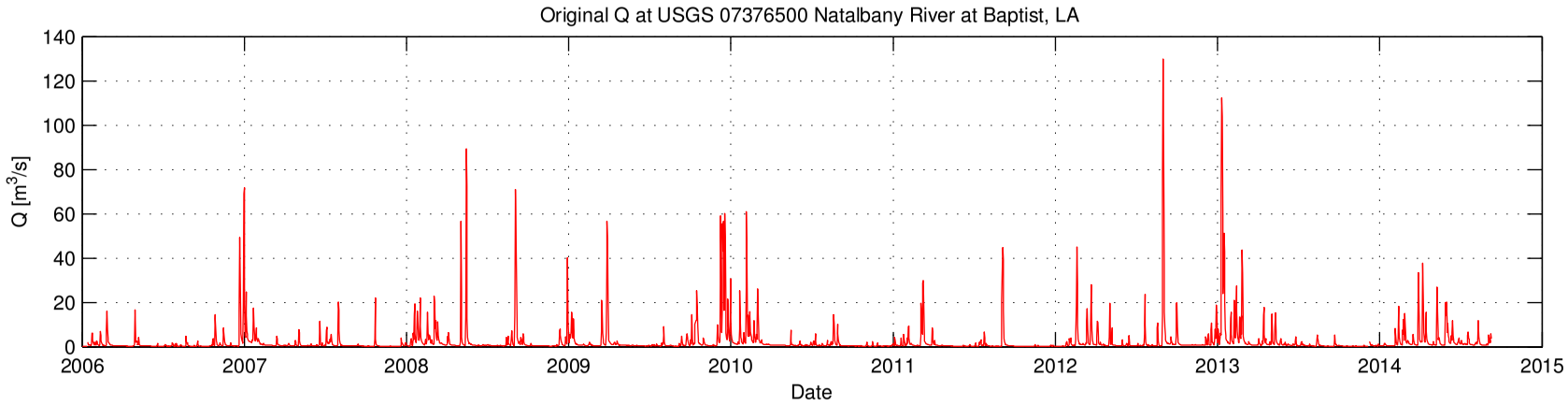
No fitted timeseries


USGS 07376500 Natalbany River at Baptist, LA
Total of 3 gaps (99% Complete) with maximum gap length of 2
measured data
data gap
Discharge (m3/s)
Date
0
20
40
60
80
100
120
140
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

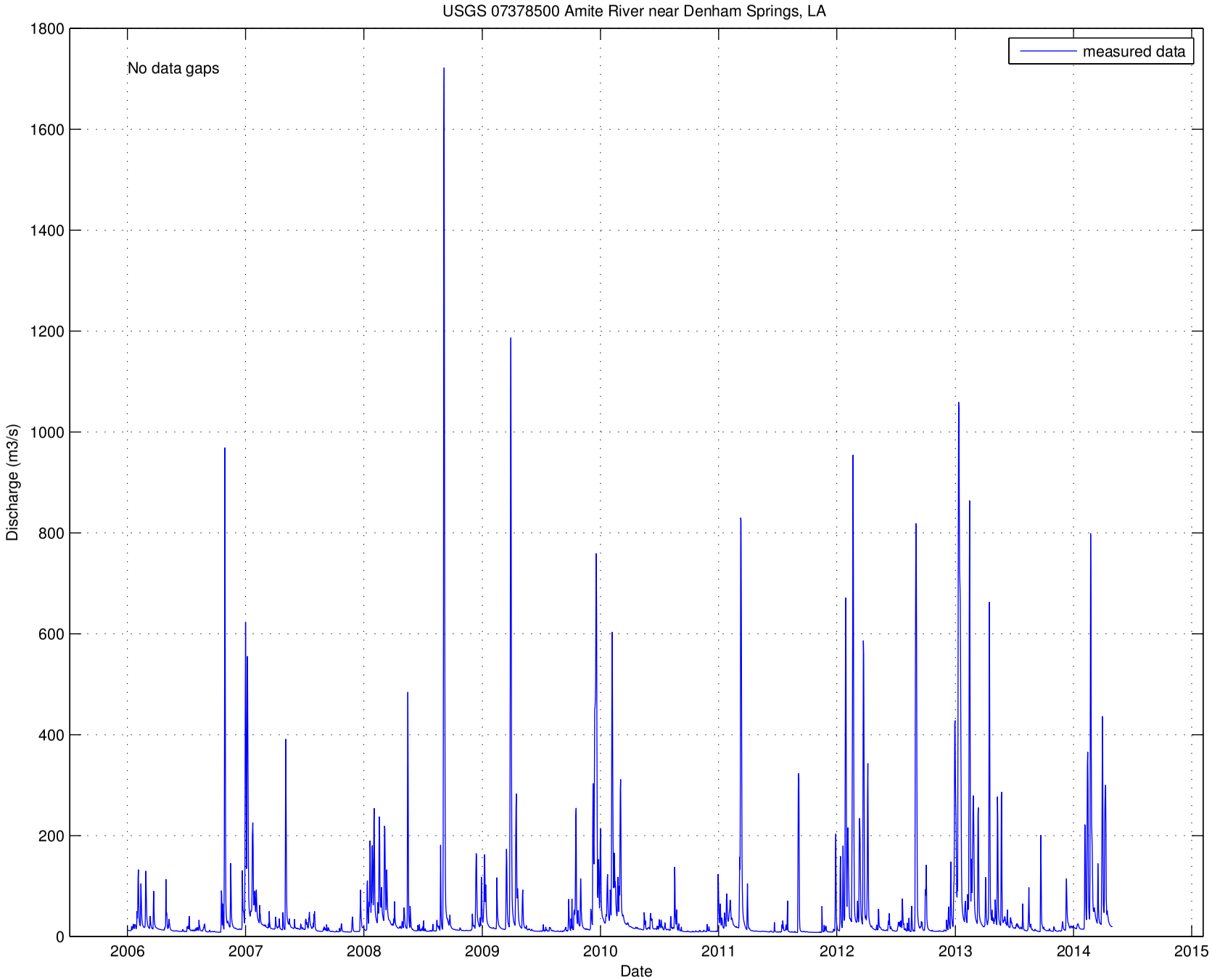
No data filled using rating curve

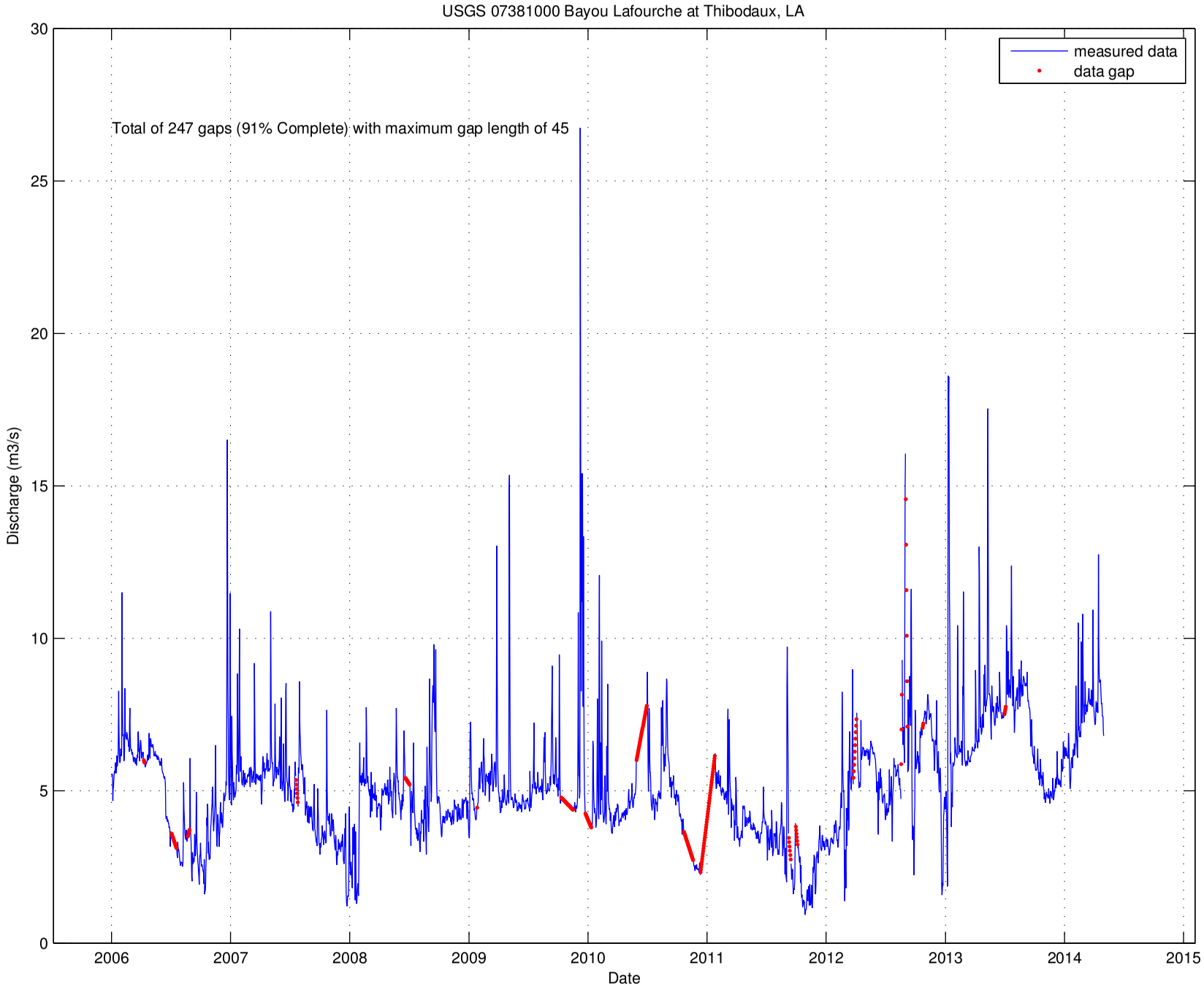


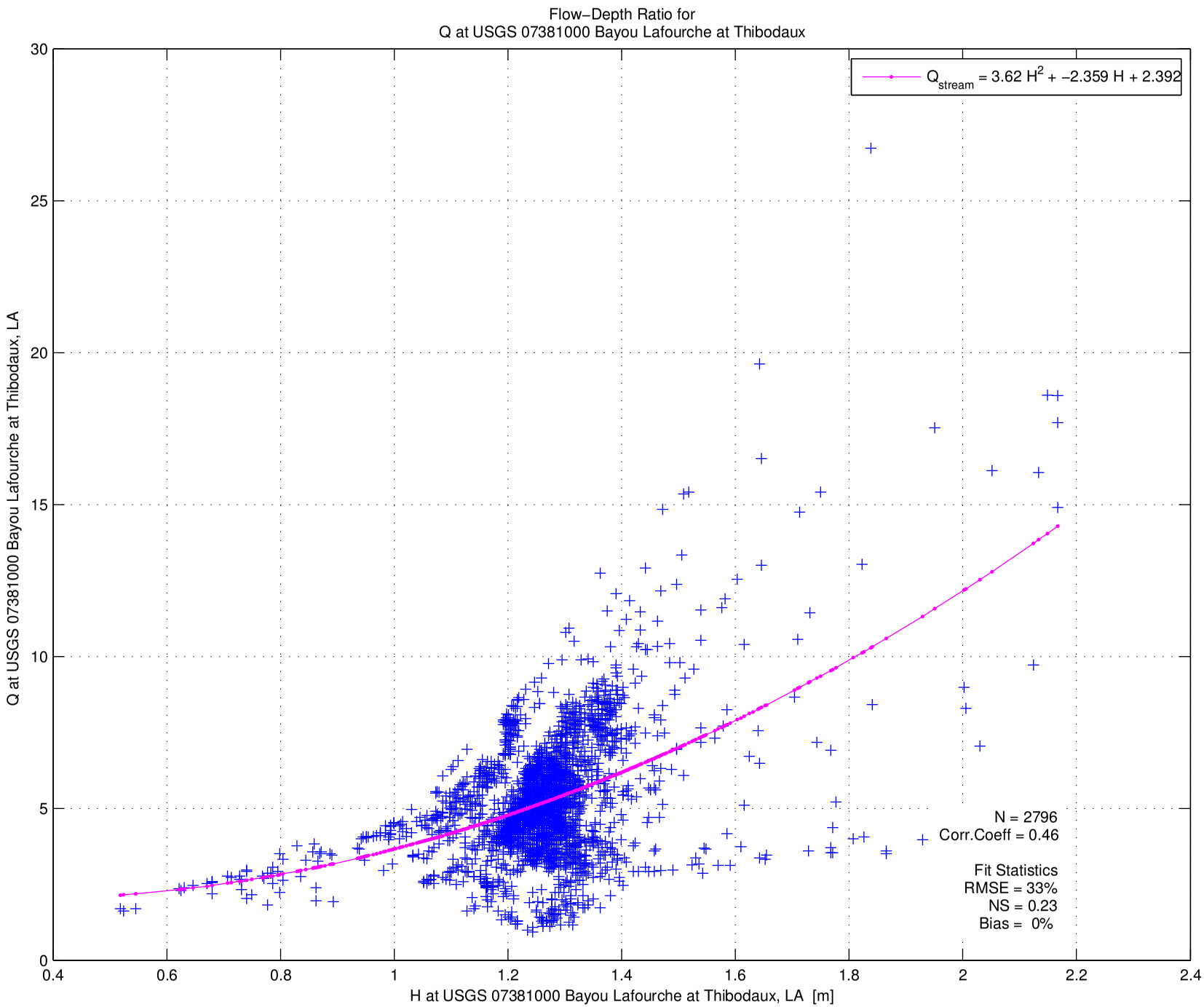


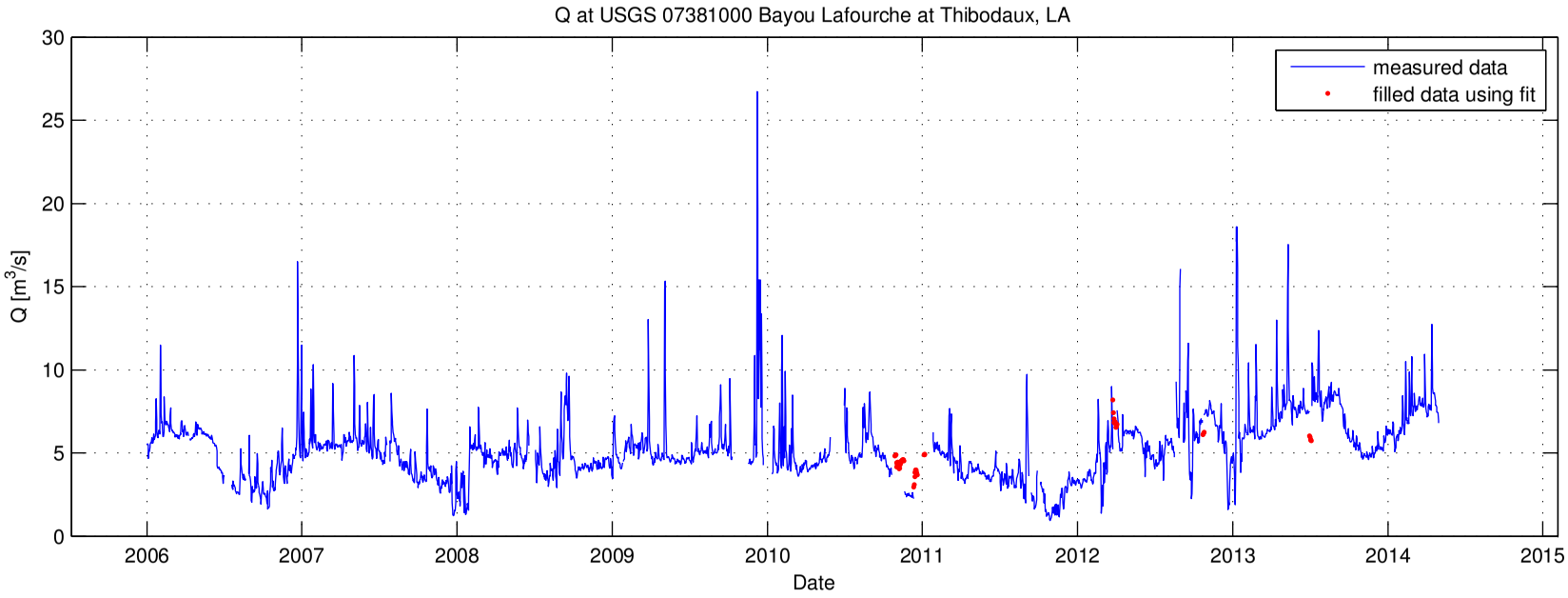


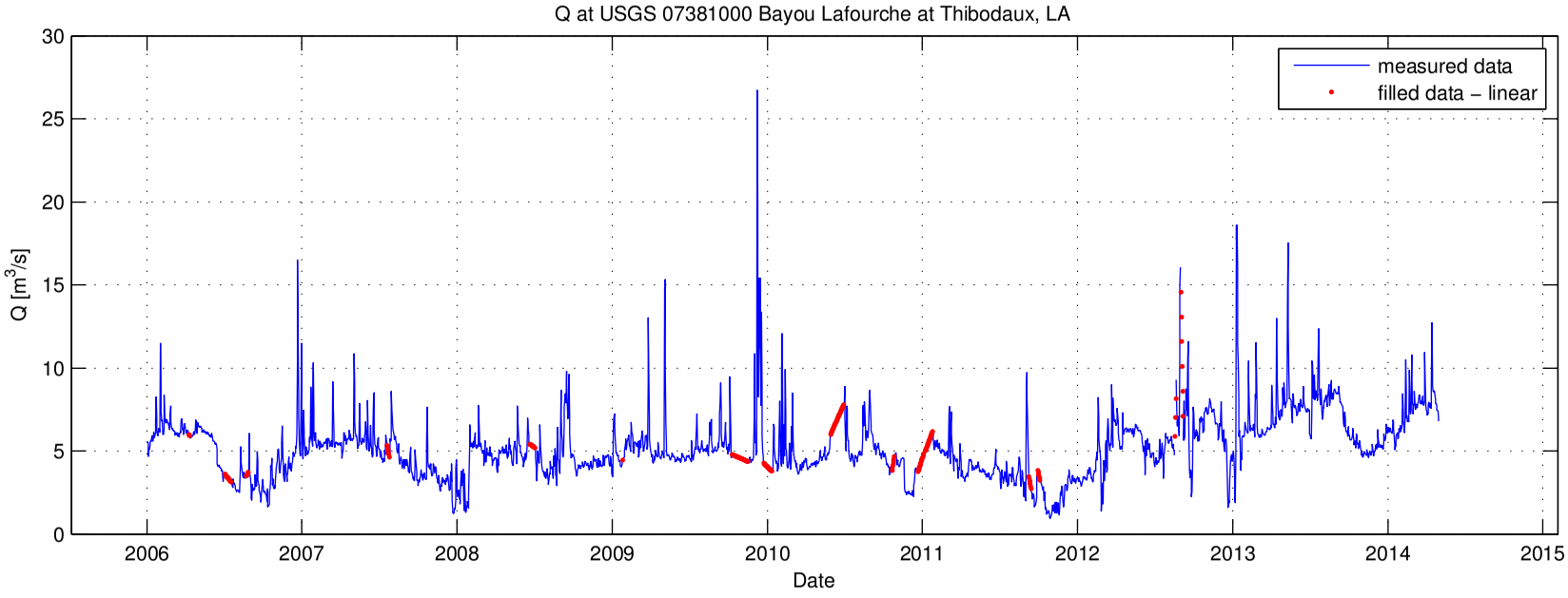
No fitted timeseries

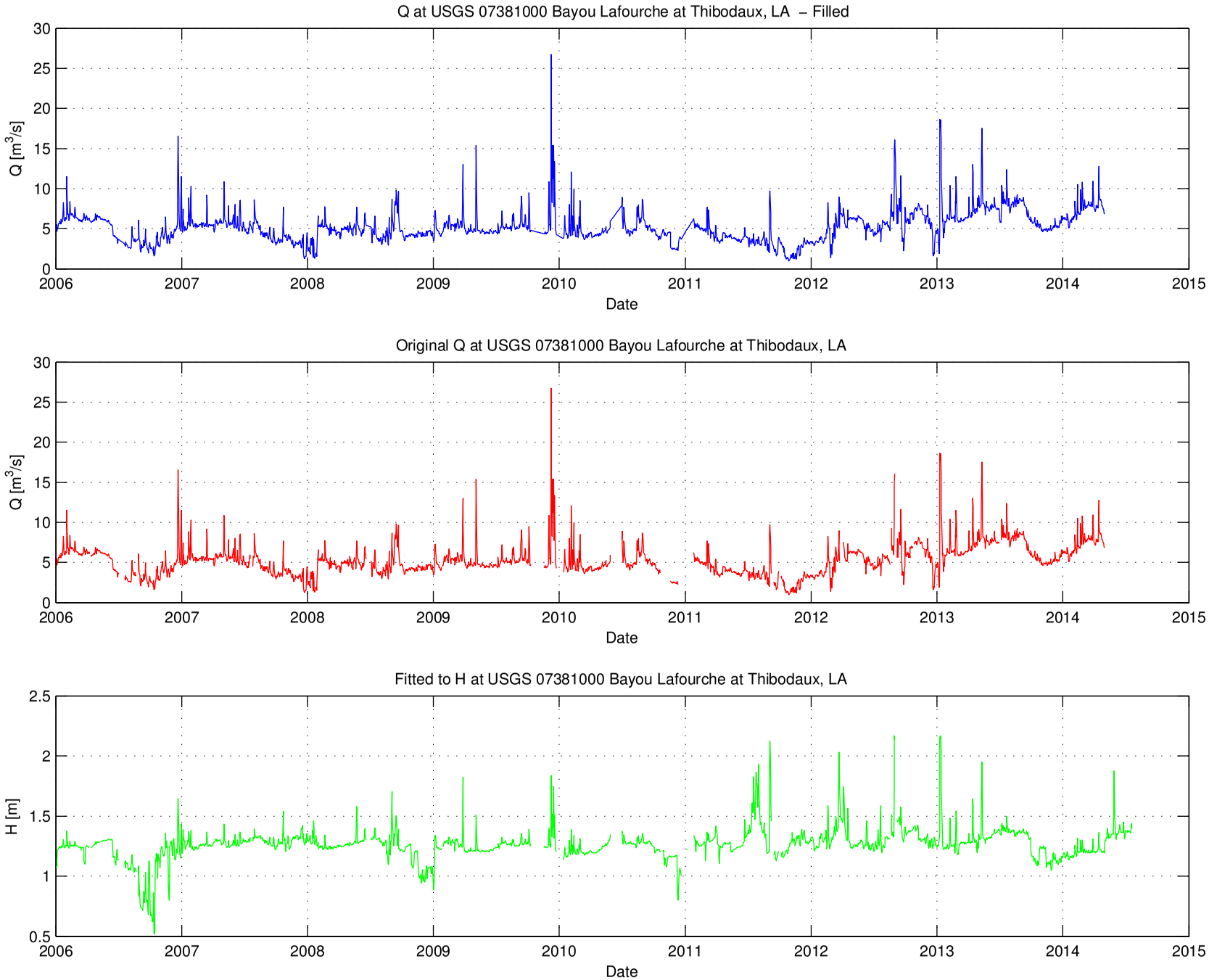

USGS 07378500 Amite River near Denham Springs, LA
No data gaps
measured data
Discharge (m3/s)
Date
0
200
400
600
800
1000
1200
1400
1600
1800
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

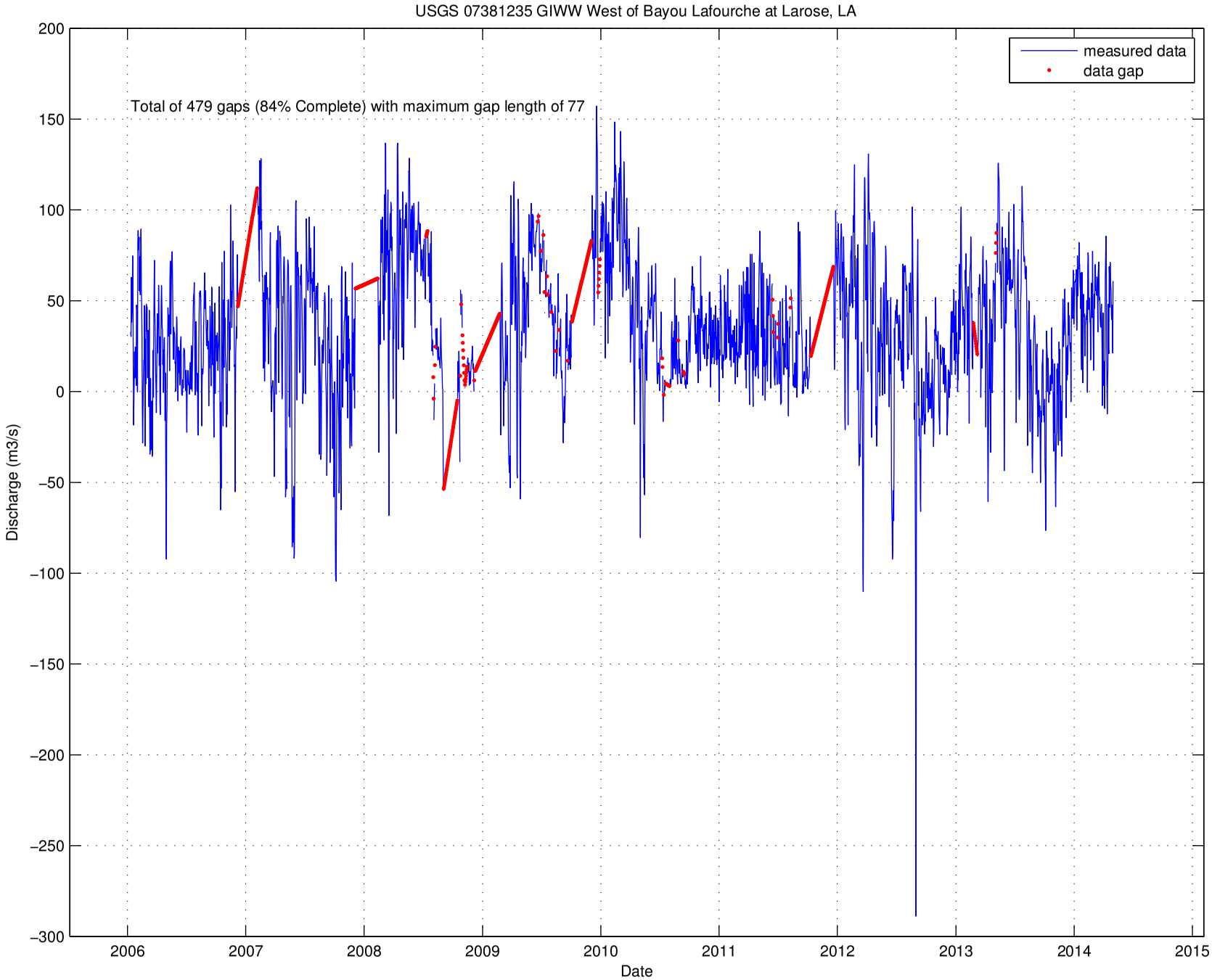

USGS 07381000 Bayou Lafourche at Thibodaux, LA
Total of 247 gaps (91% Complete) with maximum gap length of 45
measured data
data gap
Discharge (m3/s)
Date
0
5
10
15
20
25
30
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

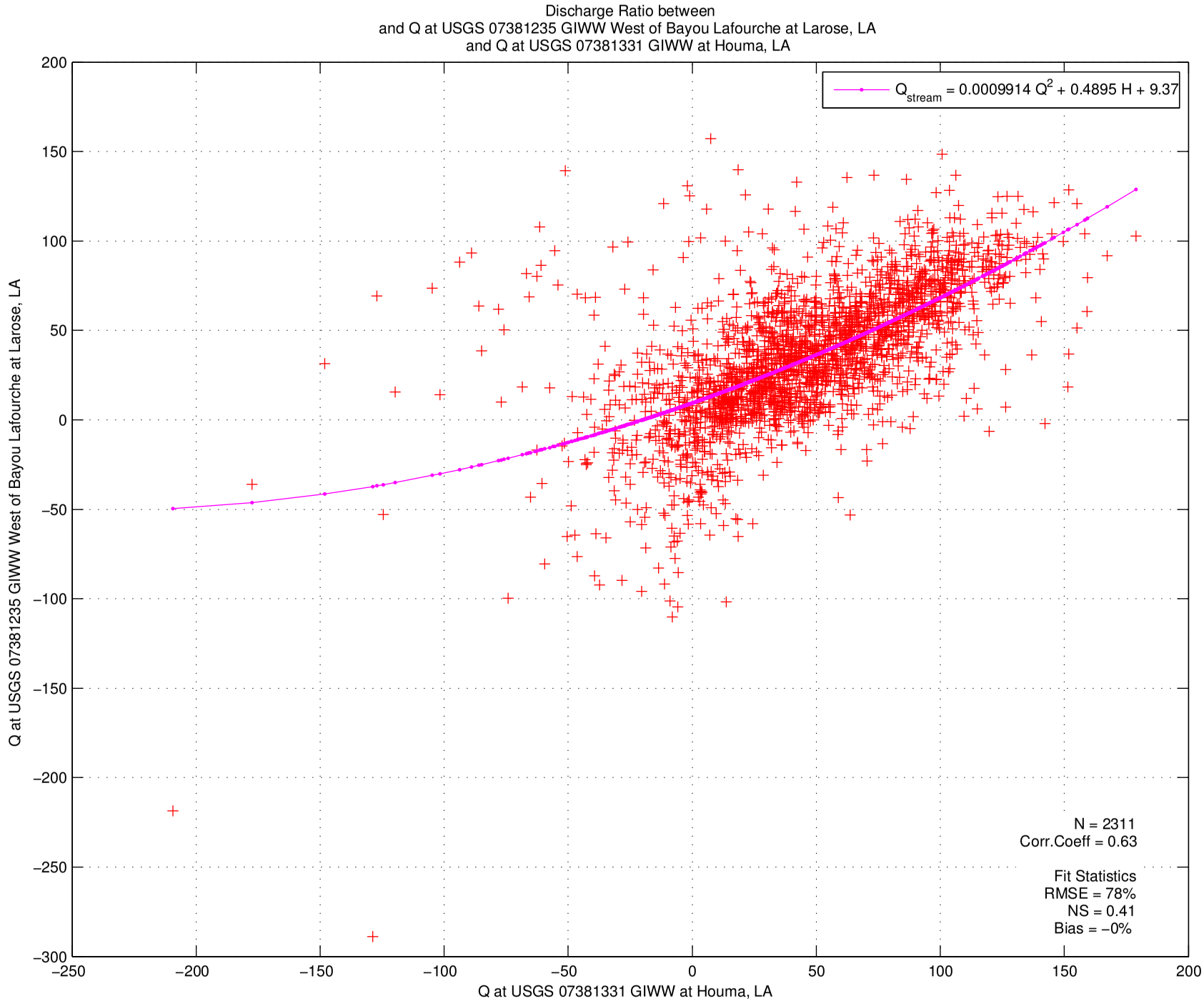

Flow−Depth Ratio for
Q at USGS 07381000 Bayou Lafourche at Thibodaux
Q at USGS 07381000 Bayou Lafourche at Thibodaux, LA
H at USGS 07381000 Bayou Lafourche at Thibodaux, LA [m]
Q_stream = 3.62 H^2 + −2.359 H + 2.392
N = 2796
Corr.Coeff = 0.46
Fit Statistics
RMSE = 33%
NS = 0.23
Bias = 0%
0
5
10
15
20
25
30
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
2.2
2.4

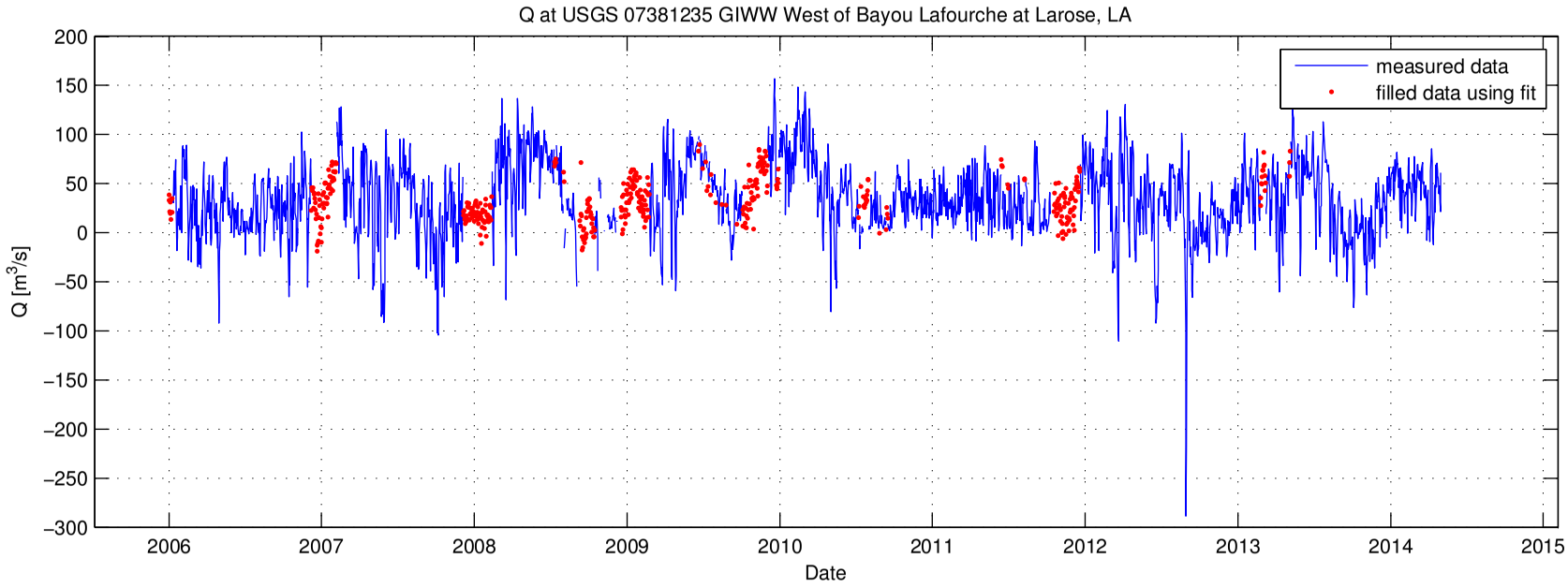

Q at USGS 07381000 Bayou Lafourche at Thibodaux, LA
measured data
filled data using fit
Q [m3/s]
Date
0
5
10
15
20
25
30
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

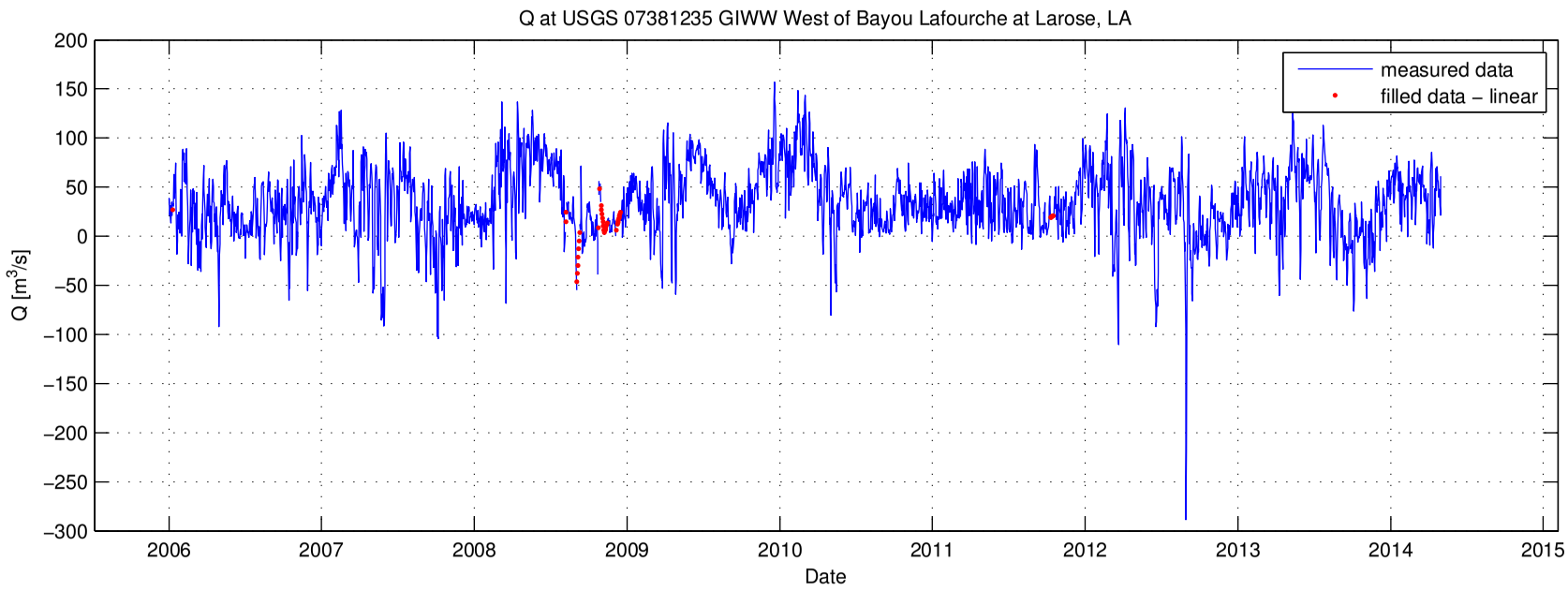

Q at USGS 07381000 Bayou Lafourche at Thibodaux, LA
measured data
filled data – linear
Q [m3/s]
Date
0
5
10
15
20
25
30
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

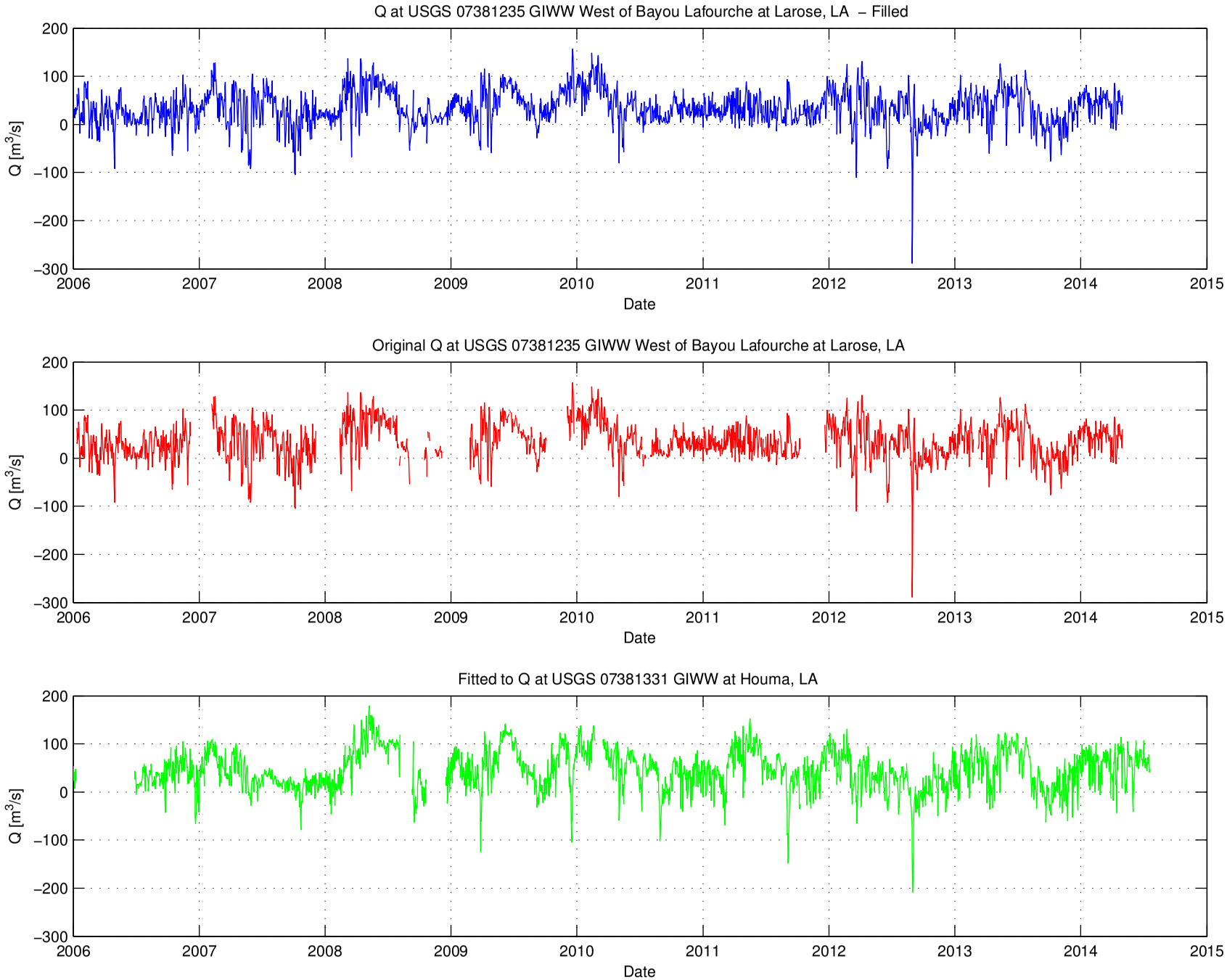

Q at USGS 07381000 Bayou Lafourche at Thibodaux, LA – Filled
Q [m3/s]
Date
Original Q at USGS 07381000 Bayou Lafourche at Thibodaux, LA
Q [m3/s]
Date
Fitted to H at USGS 07381000 Bayou Lafourche at Thibodaux, LA
H [m]
Date

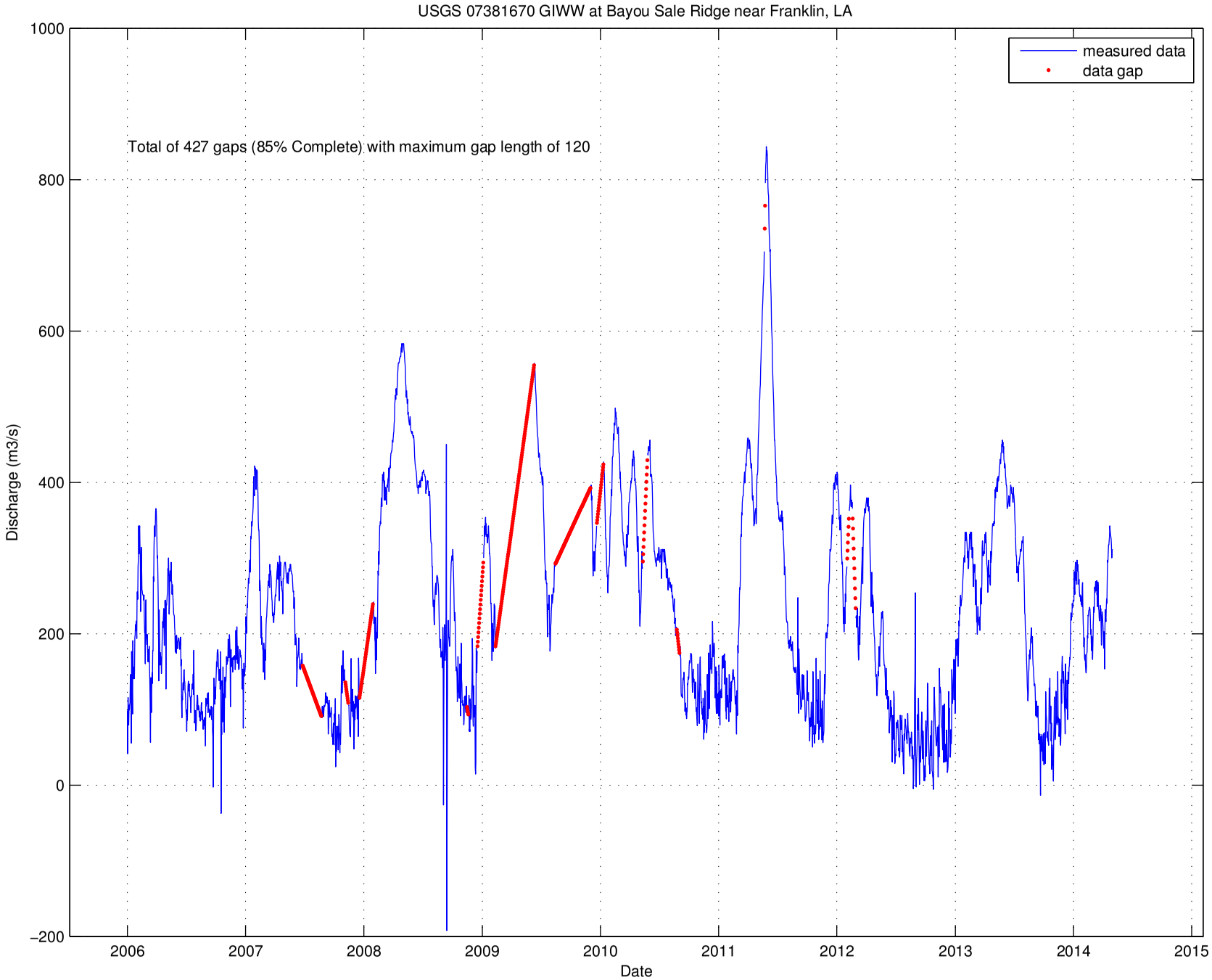

USGS 07381235 GIWW West of Bayou Lafourche at Larose, LA
Total of 479 gaps (84% Complete) with maximum gap length of 77
measured data
data gap
Discharge (m3/s)
Date
200
150
100
50
0
−50
−100
−150
−200
−250
−300
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

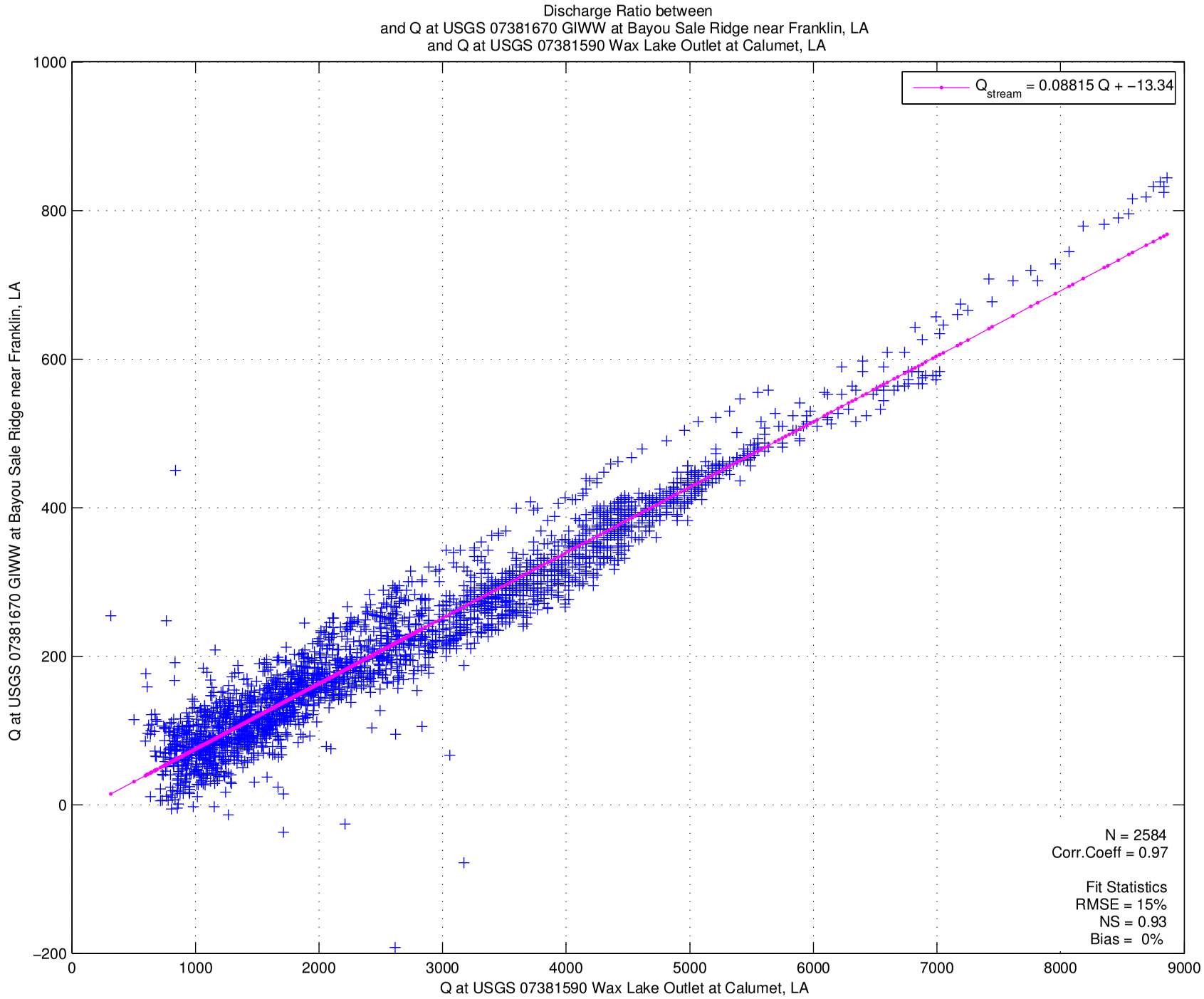

Discharge Ratio between
and Q at USGS 07381235 GIWW West of Bayou Lafourche at Larose, LA
and Q at USGS 07381331 GIWW at Houma, LA
Q_{stream} = 0.0009914 Q^2 + 0.4895 H + 9.37
N = 2311
Corr.Coeff = 0.63
Fit Statistics
RMSE = 78%
NS = 0.41
Bias = −0%
Q at USGS 07381235 GIWW West of Bayou Lafourche at Larose, LA
Q at USGS 07381331 GIWW at Houma, LA
200
150
100
50
0
−50
−100
−150
−200
−250
−300
−250
−200
−150
−100
−50
0
50
100
150
200

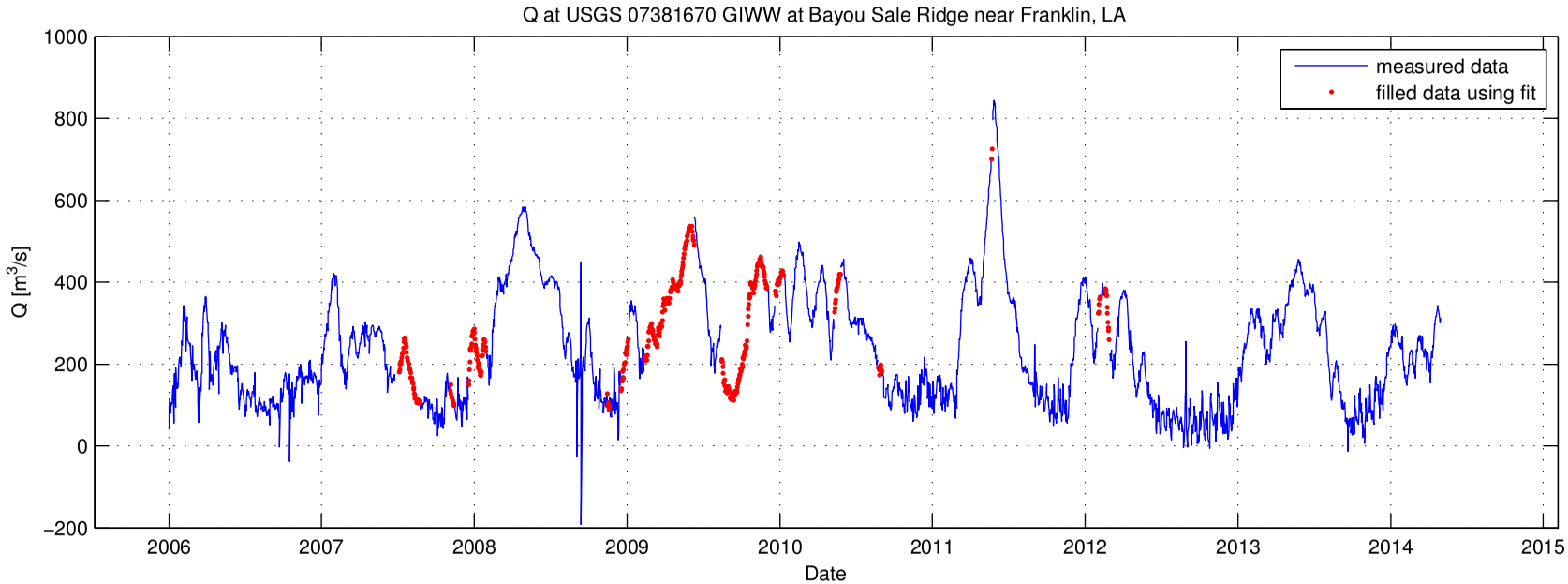

Q at USGS 07381235 GIWW West of Bayou Lafourche at Larose, LA
measured data
filled data using fit
Q [m3/s]
Date
200
150
100
50
0
−50
−100
−150
−200
−250
−300
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

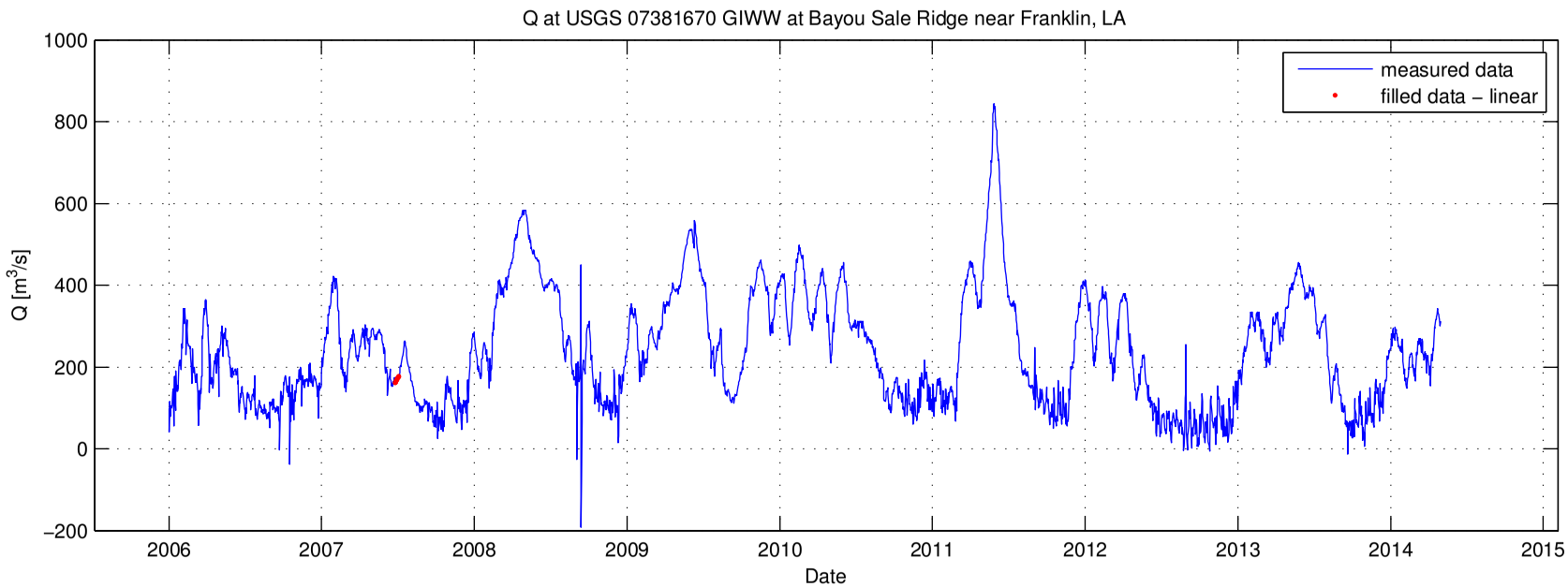

Q at USGS 07381235 GIWW West of Bayou Lafourche at Larose, LA
measured data
filled data − linear
Q [m3/s]
Date
200
150
100
50
0
−50
−100
−150
−200
−250
−300
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

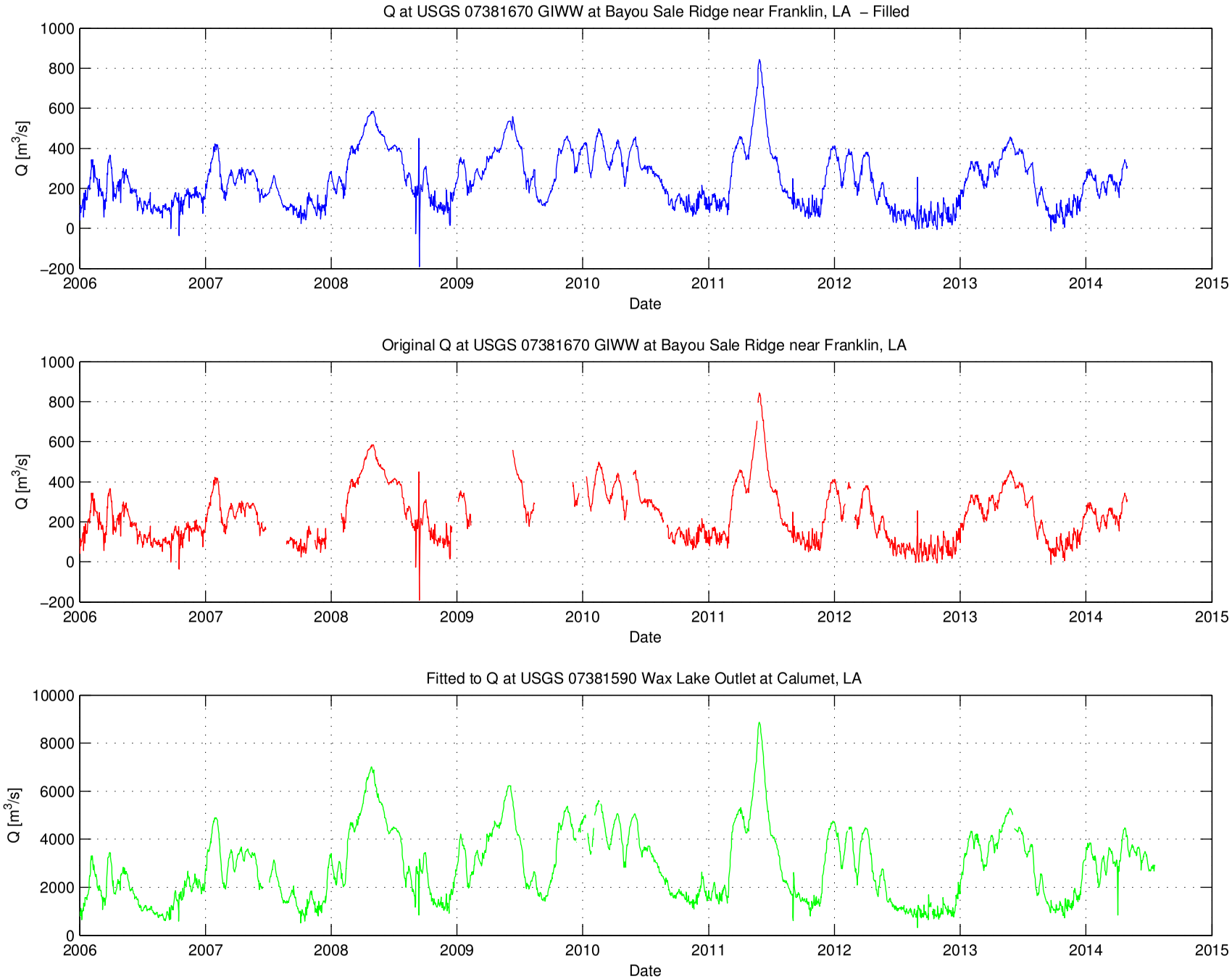

Q at USGS 07381235 GIWW West of Bayou Lafourche at Larose, LA – Filled
Q [m3/s]
Date
Original Q at USGS 07381235 GIWW West of Bayou Lafourche at Larose, LA
Q [m3/s]
Date
Fitted to Q at USGS 07381331 GIWW at Houma, LA
Q [m3/s]
Date
200
100
0
−100
−200
−300
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

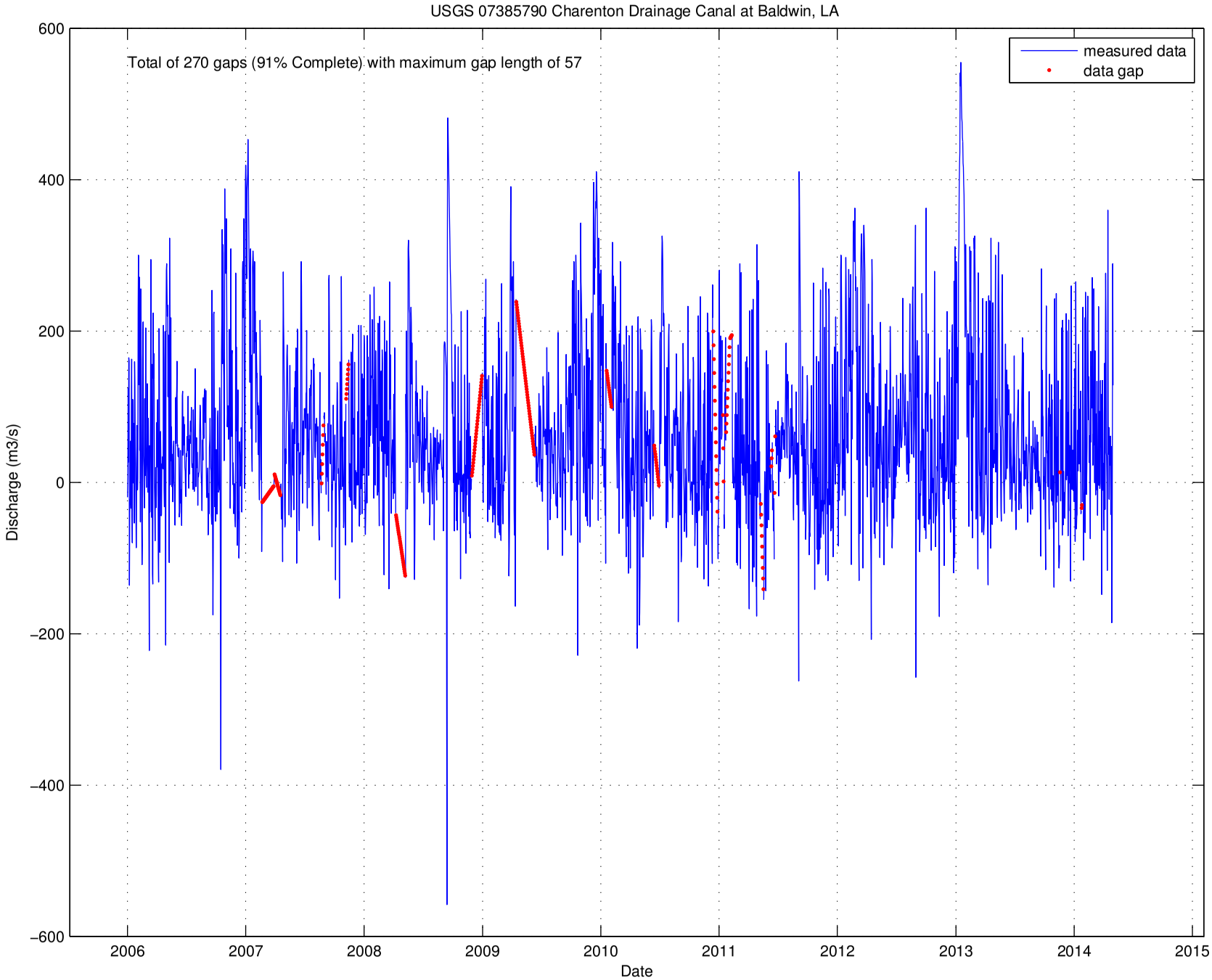

USGS 07381670 GIWW at Bayou Sale Ridge near Franklin, LA
Total of 427 gaps (85% Complete) with maximum gap length of 120
measured data
data gap
Discharge (m3/s)
Date
1000
800
600
400
200
0
−200
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

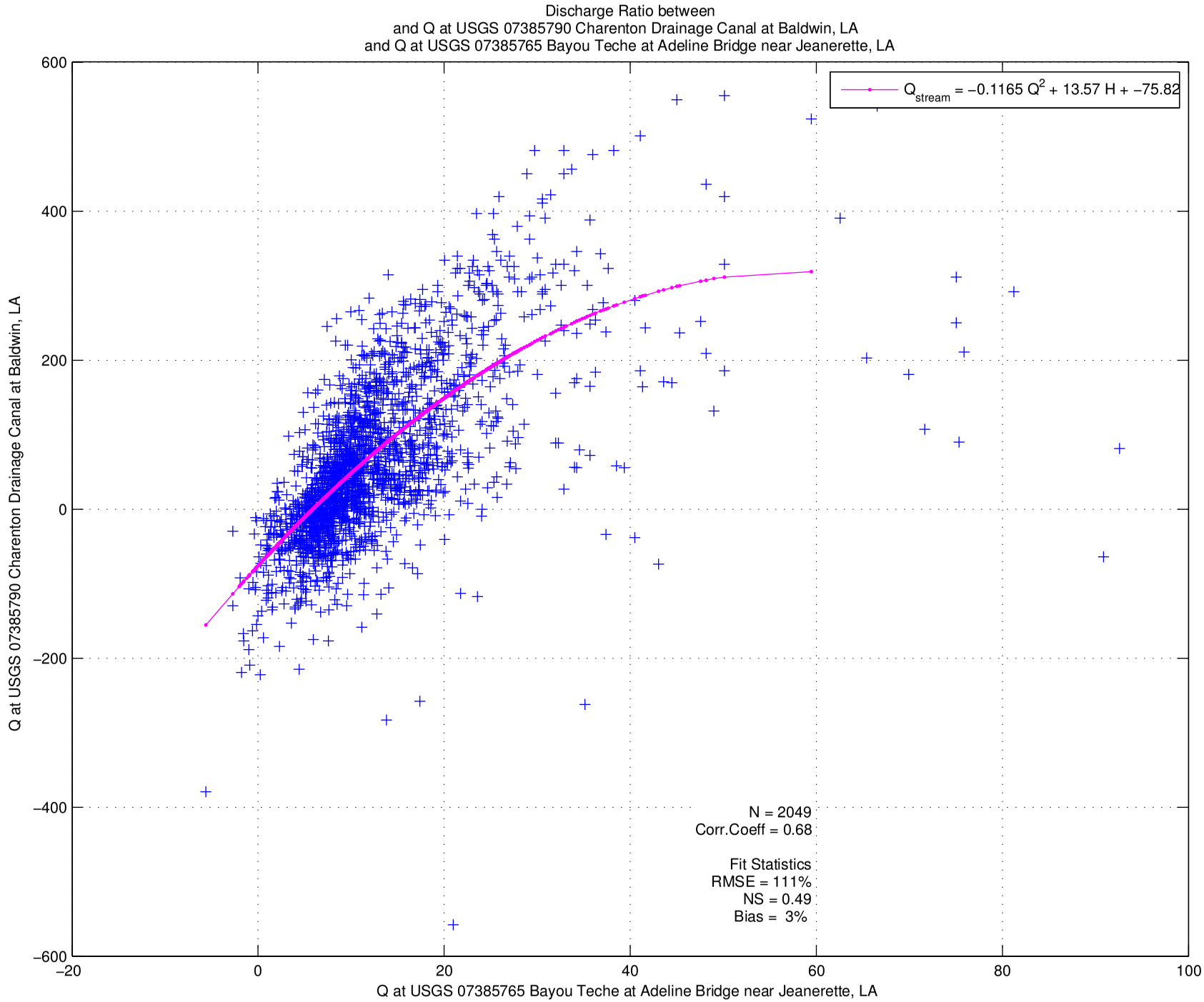

Discharge Ratio between
and Q at USGS 07381670 GIWW at Bayou Sale Ridge near Franklin, LA
and Q at USGS 07381590 Wax Lake Outlet at Calumet, LA
Q_stream = 0.08815 Q + −13.34
N = 2584
Corr.Coeff = 0.97
Fit Statistics
RMSE = 15%
NS = 0.93
Bias = 0%
Q at USGS 07381670 GIWW at Bayou Sale Ridge near Franklin, LA
Q at USGS 07381590 Wax Lake Outlet at Calumet, LA
1000
800
600
400
200
0
−200
0
1000
2000
3000
4000
5000
6000
7000
8000
9000

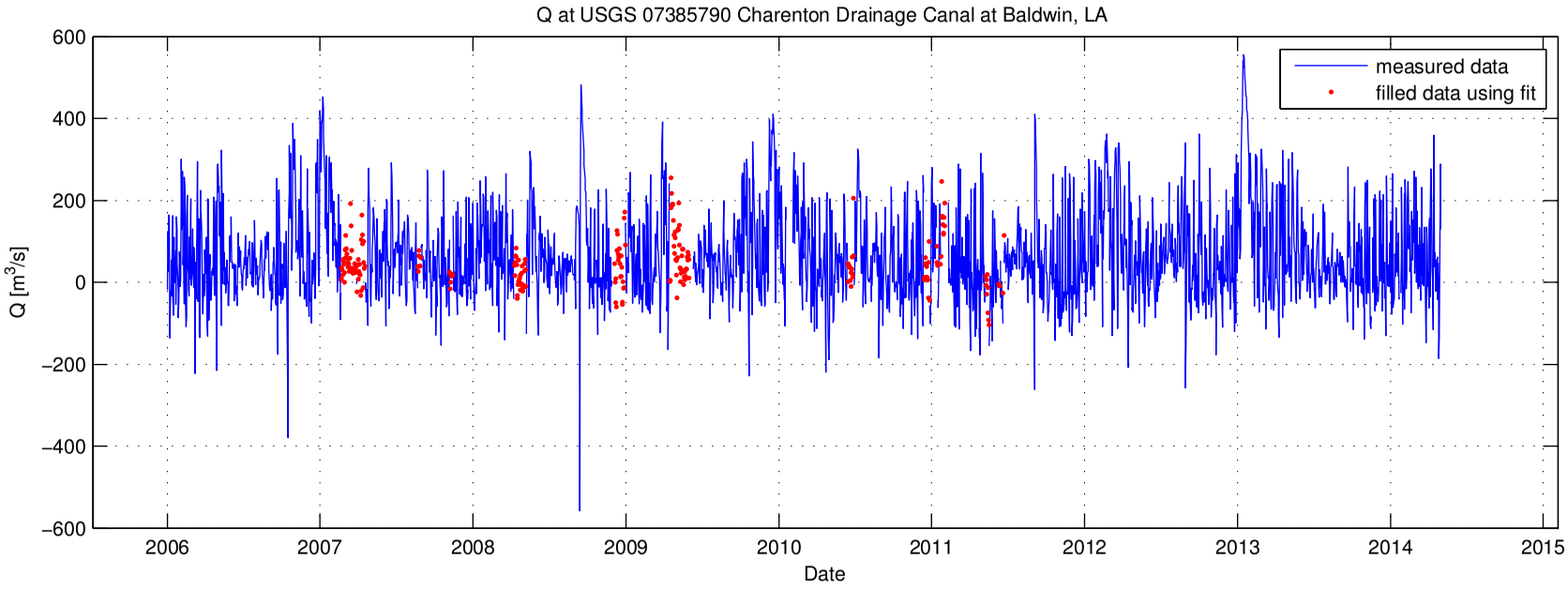

Q at USGS 07381670 GIWW at Bayou Sale Ridge near Franklin, LA
measured data
filled data using fit
Q [m3/s]
Date
1000
800
600
400
200
0
−200
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

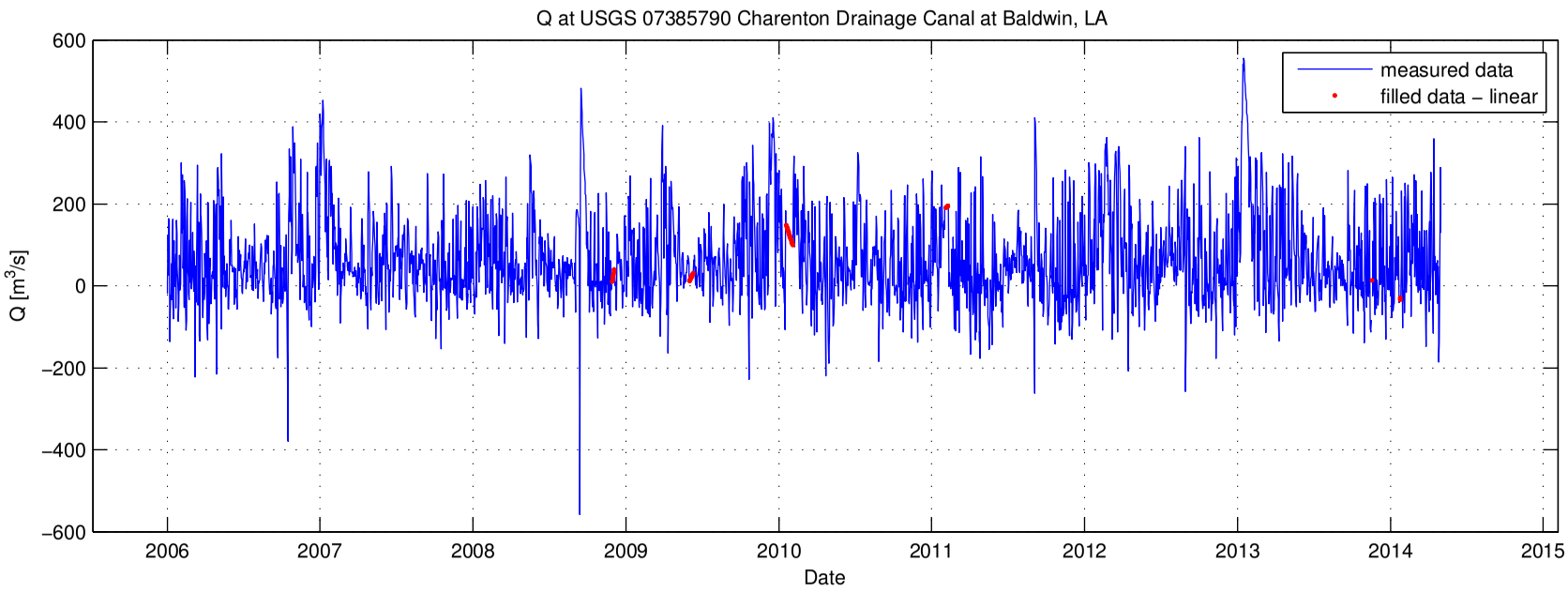

Q at USGS 07381670 GIWW at Bayou Sale Ridge near Franklin, LA
measured data
filled data – linear
Q [m3/s]
Date
1000
800
600
400
200
0
−200
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

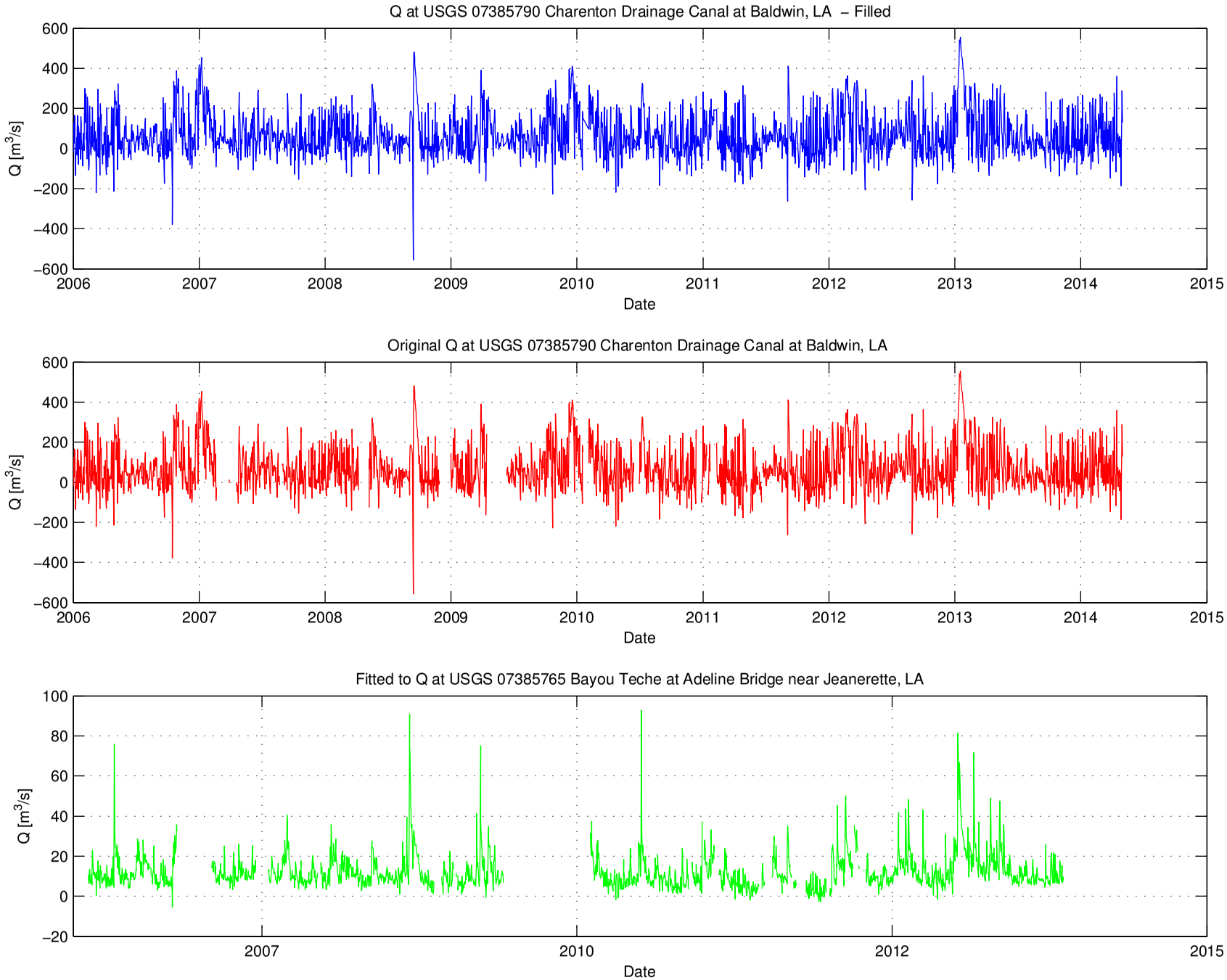

Q at USGS 07381670 GIWW at Bayou Sale Ridge near Franklin, LA – Filled
Q [m3/s]
Date
Original Q at USGS 07381670 GIWW at Bayou Sale Ridge near Franklin, LA
Q [m3/s]
Date
Fitted to Q at USGS 07381590 Wax Lake Outlet at Calumet, LA
Q [m3/s]
Date

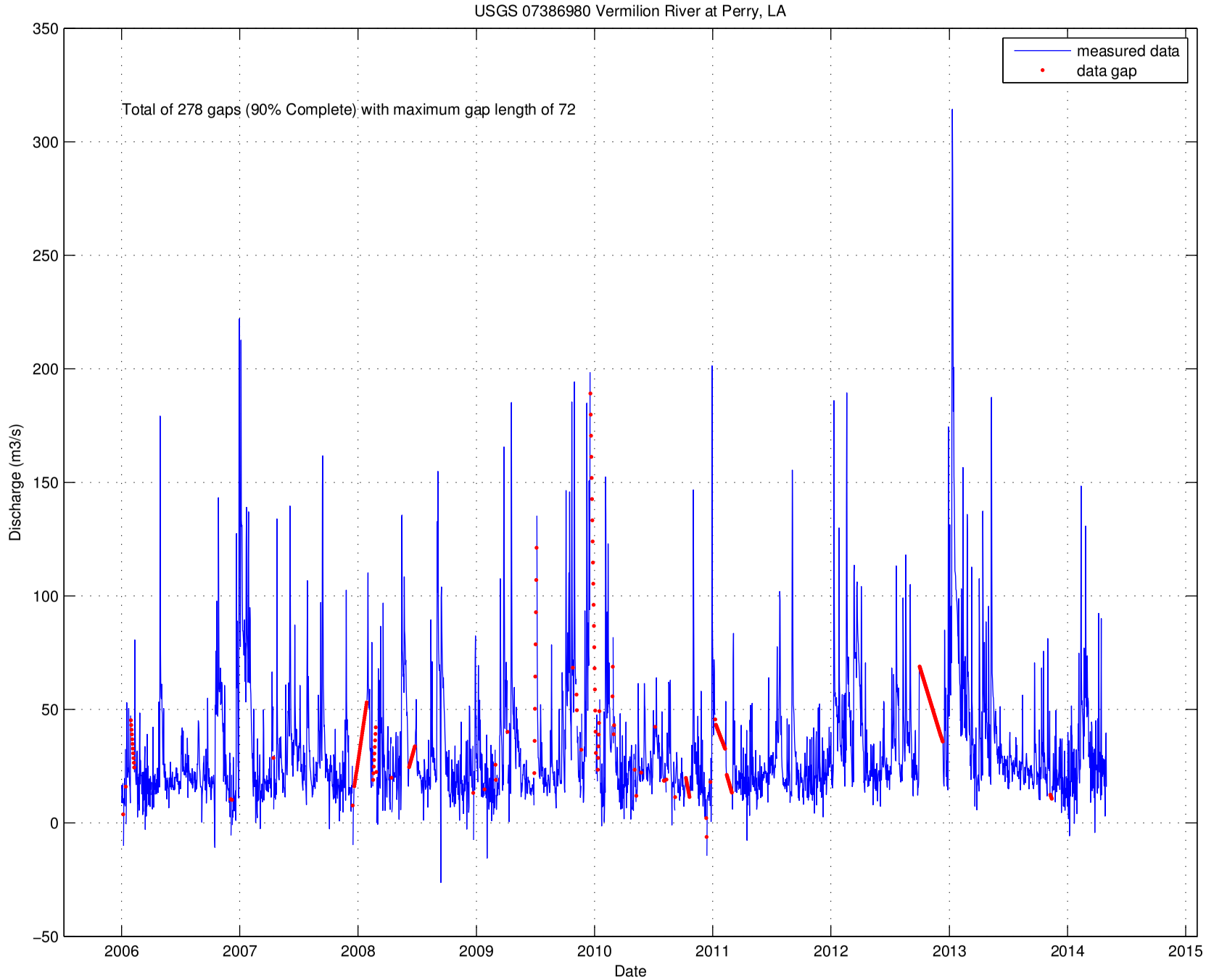

USGS 07385790 Charenton Drainage Canal at Baldwin, LA
Total of 270 gaps (91% Complete) with maximum gap length of 57
measured data
data gap
Discharge (m3/s)
600
400
200
0
−200
−400
−600
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Date

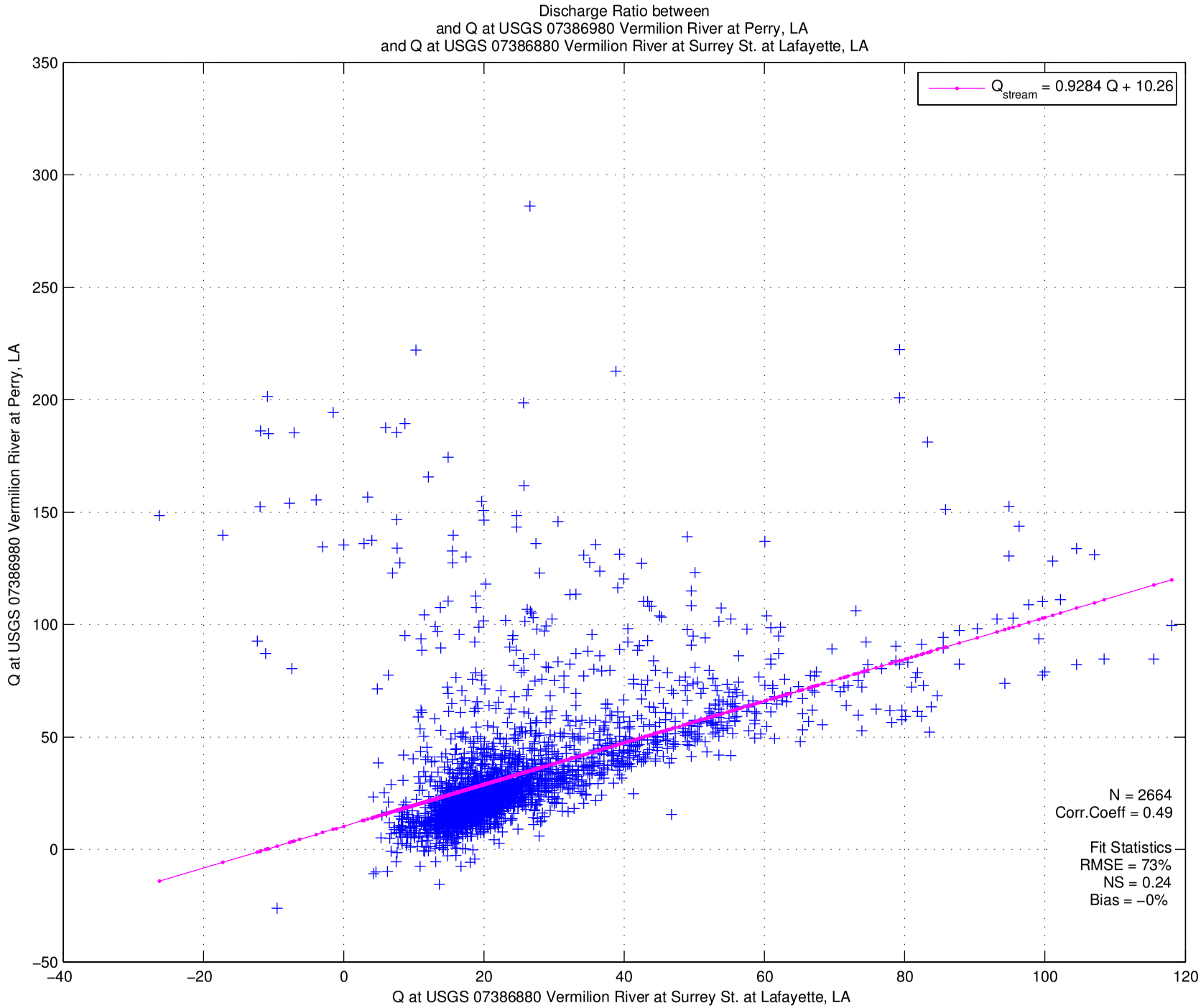

Discharge Ratio between
and Q at USGS 07385790 Charenton Drainage Canal at Baldwin, LA
and Q at USGS 07385765 Bayou Teche at Adeline Bridge near Jeanerette, LA
Q at USGS 07385790 Charenton Drainage Canal at Baldwin, LA
Q at USGS 07385765 Bayou Teche at Adeline Bridge near Jeanerette, LA
Q_stream = −0.1165 Q^2 + 13.57 H + −75.82
N = 2049
Corr.Coeff = 0.68
Fit Statistics
RMSE = 111%
NS = 0.49
Bias = 3%
600
400
200
0
−200
−400
−600
−20
0
20
40
60
80
100

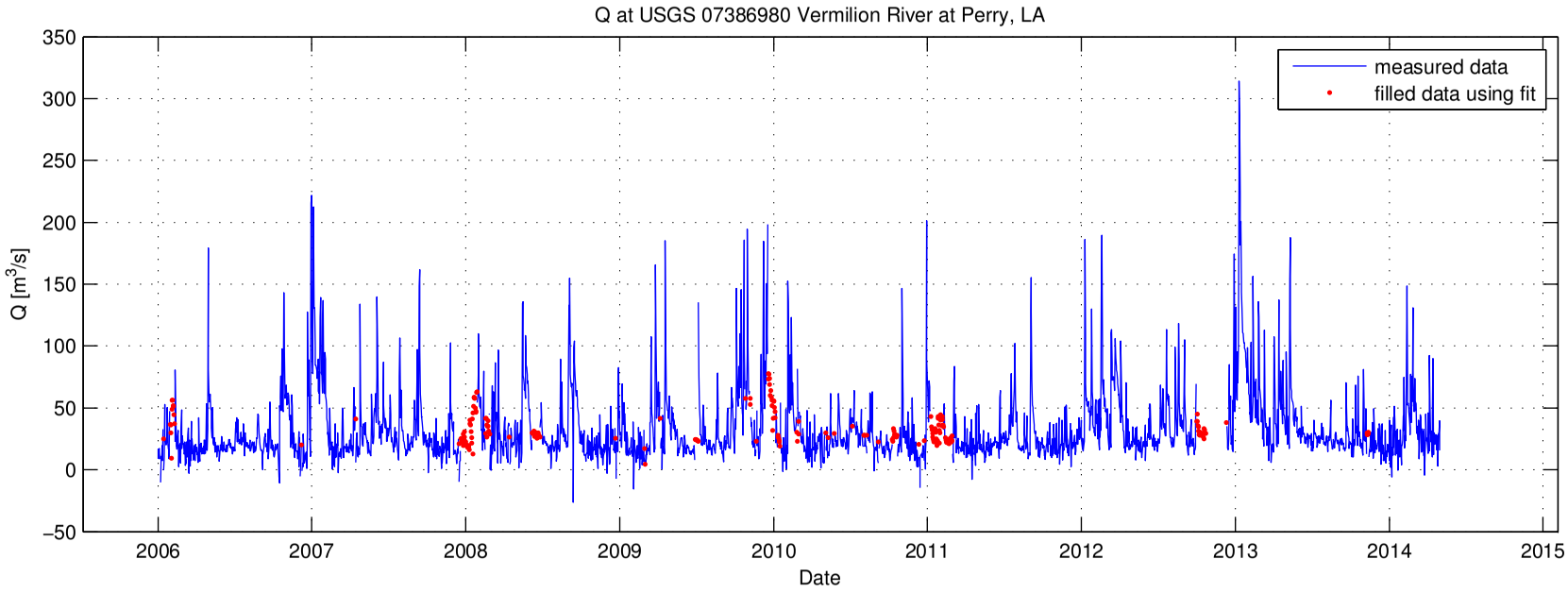

Q at USGS 07385790 Charenton Drainage Canal at Baldwin, LA
measured data
filled data using fit
Q [m3/s]
600
400
200
0
−200
−400
−600
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Date

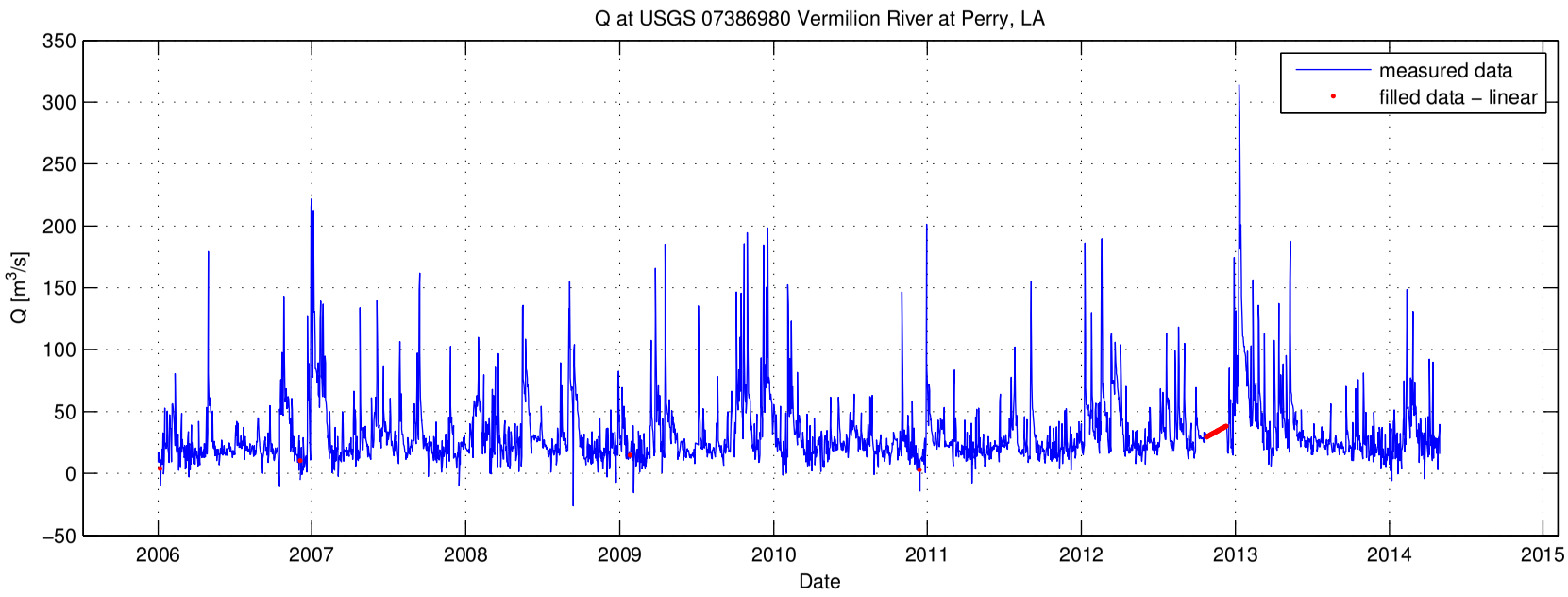

Q at USGS 07385790 Charenton Drainage Canal at Baldwin, LA
measured data
filled data – linear
Q [m3/s]
600
400
200
0
−200
−400
−600
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Date

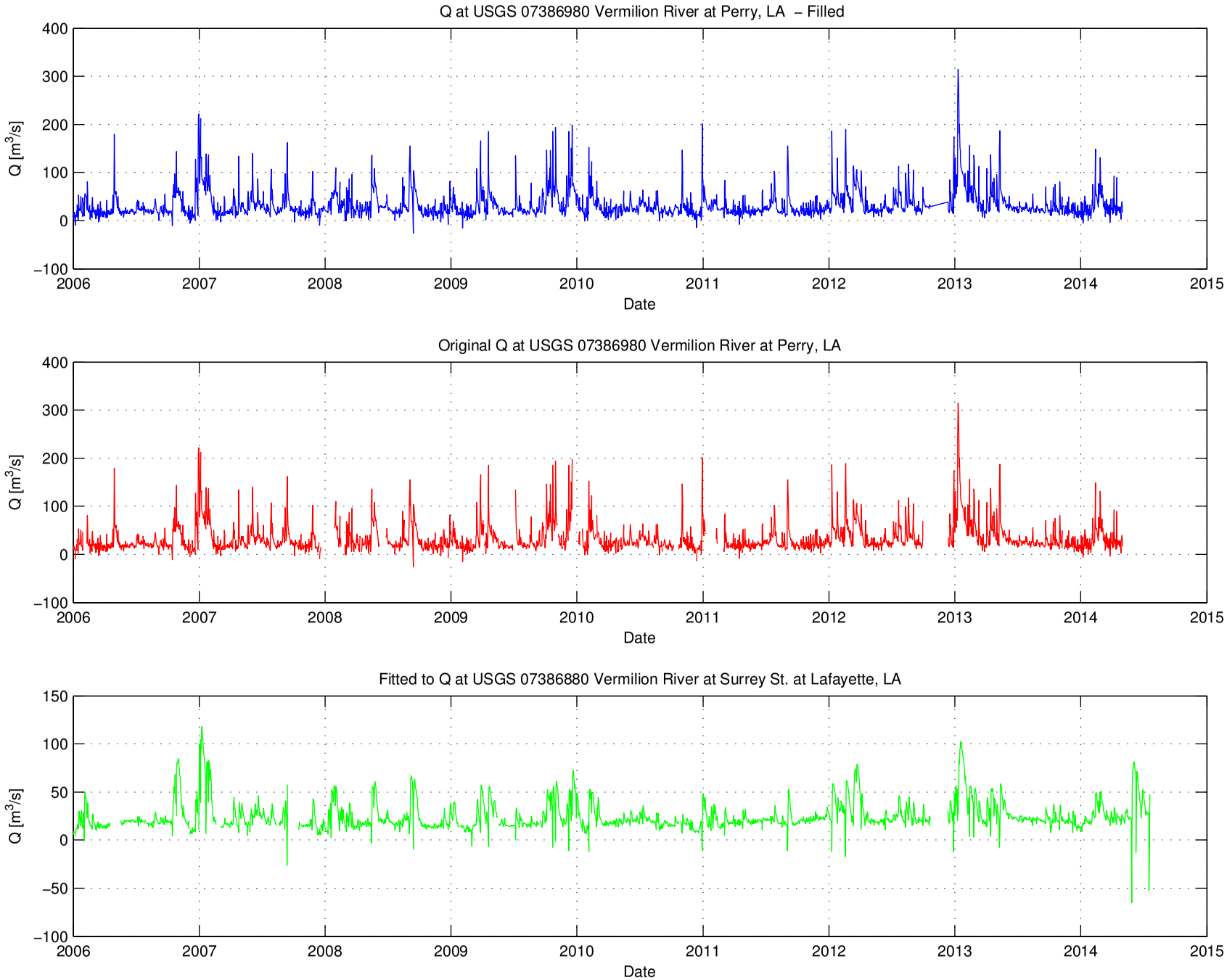

Q at USGS 07385790 Charenton Drainage Canal at Baldwin, LA – Filled
Q [m3/s]
Date
Original Q at USGS 07385790 Charenton Drainage Canal at Baldwin, LA
Q [m3/s]
Date
Fitted to Q at USGS 07385765 Bayou Teche at Adeline Bridge near Jeanerette, LA
Q [m3/s]
Date

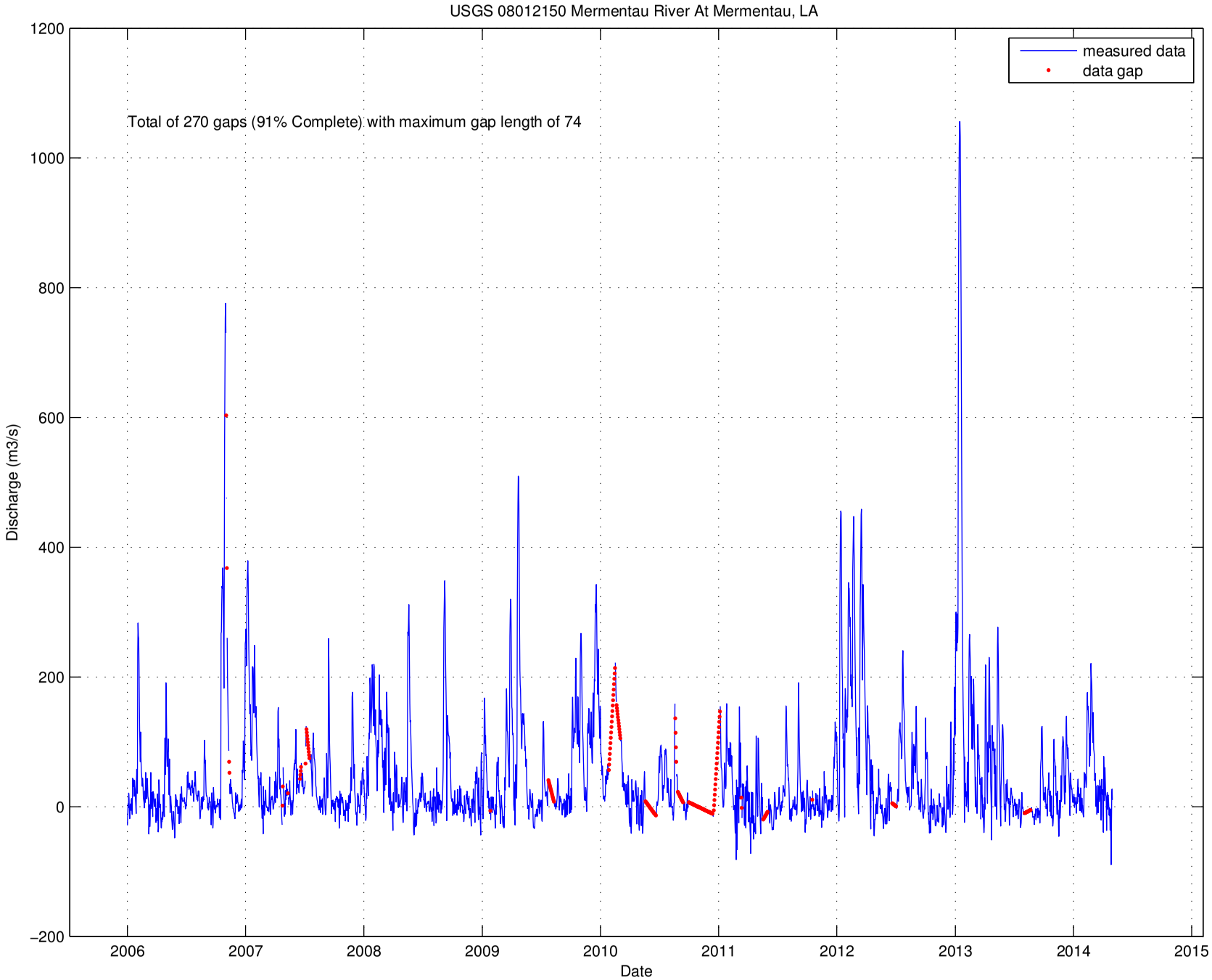

USGS 07386980 Vermilion River at Perry, LA
Total of 278 gaps (90% Complete) with maximum gap length of 72
measured data
data gap
Discharge (m3/s)
Date
350
300
250
200
150
100
50
0
−50
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

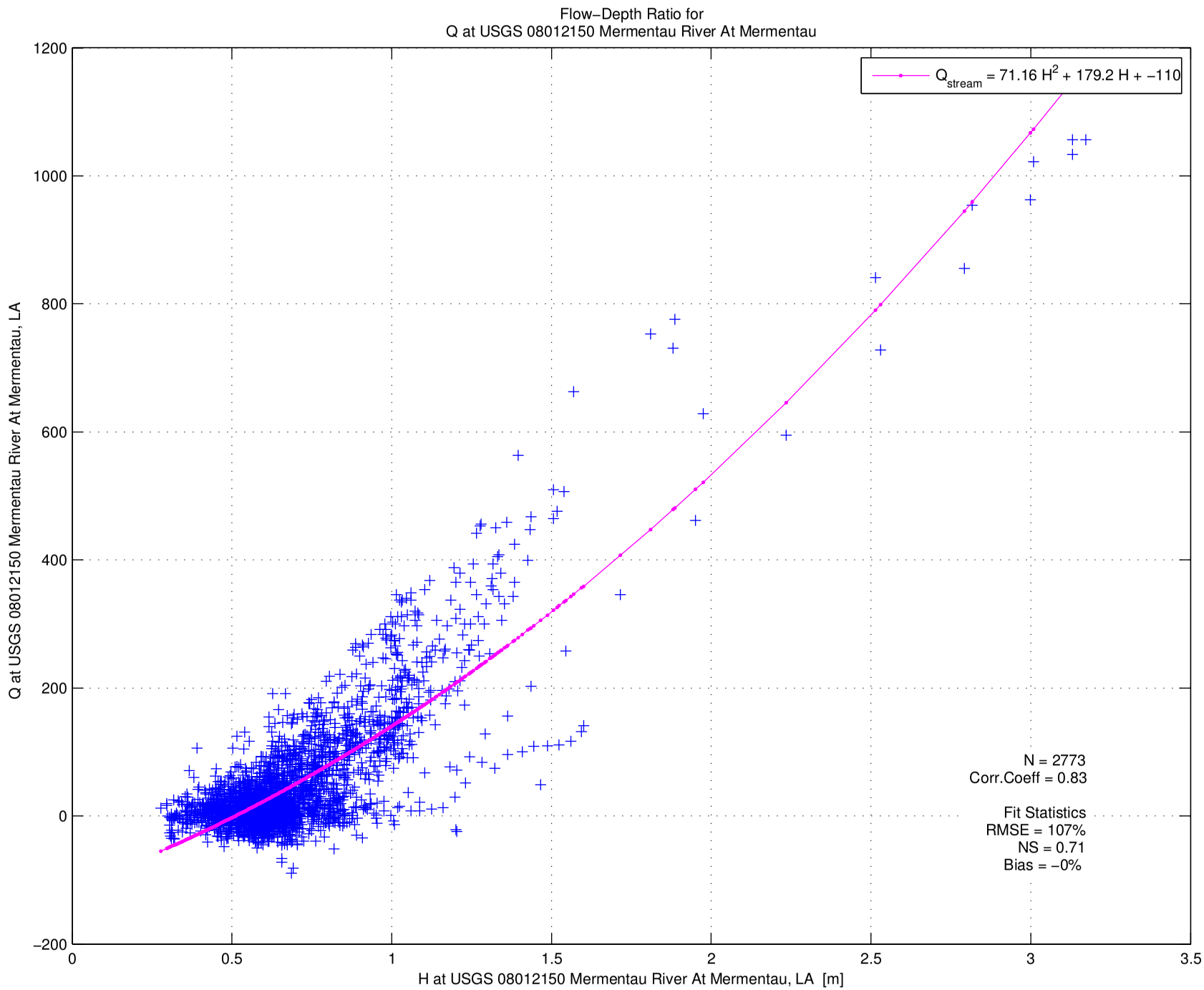

Discharge Ratio between
and Q at USGS 07386980 Vermilion River at Perry, LA
and Q at USGS 07386880 Vermilion River at Surrey St. at Lafayette, LA
Q at USGS 07386980 Vermilion River at Perry, LA
Q at USGS 07386880 Vermilion River at Surrey St. at Lafayette, LA
Q_stream = 0.9284 Q + 10.26
N = 2664
Corr.Coeff = 0.49
Fit Statistics
RMSE = 73%
NS = 0.24
Bias = −0%
350
300
250
200
150
100
50
0
−50
−40
−20
0
20
40
60
80
100
120

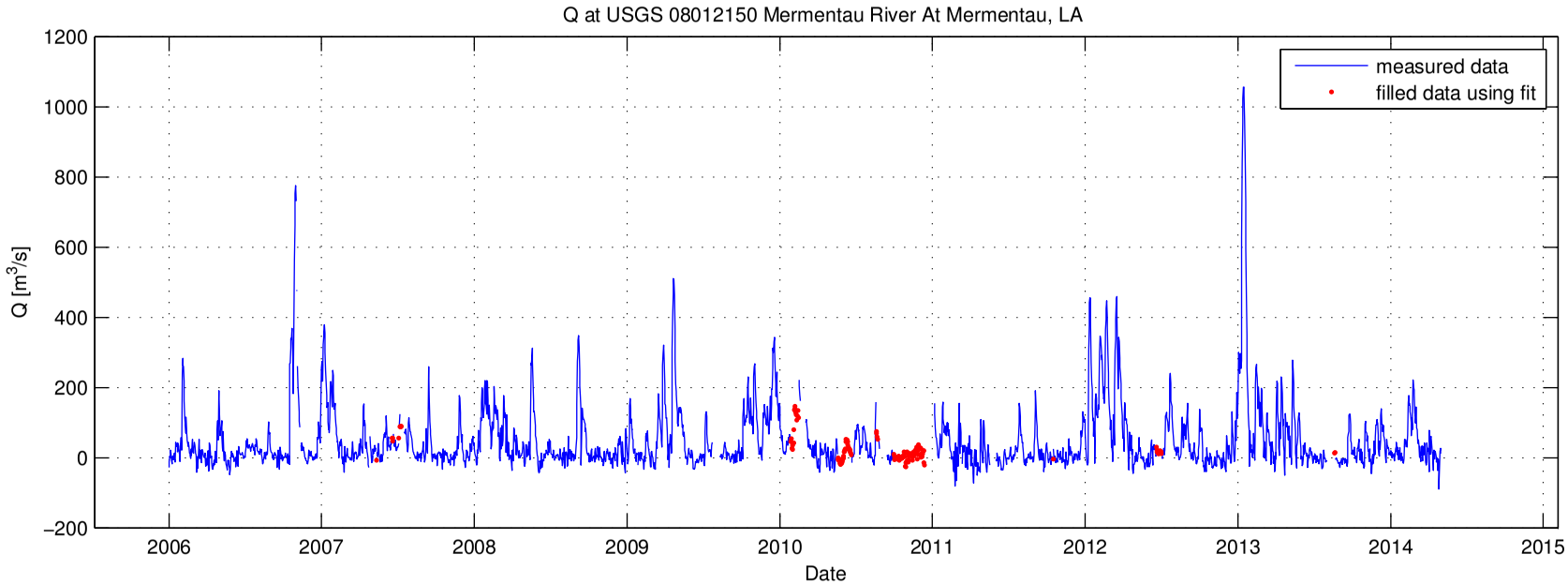

Q at USGS 07386980 Vermilion River at Perry, LA
measured data
filled data using fit
Q [m3/s]
Date
350
300
250
200
150
100
50
0
−50
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

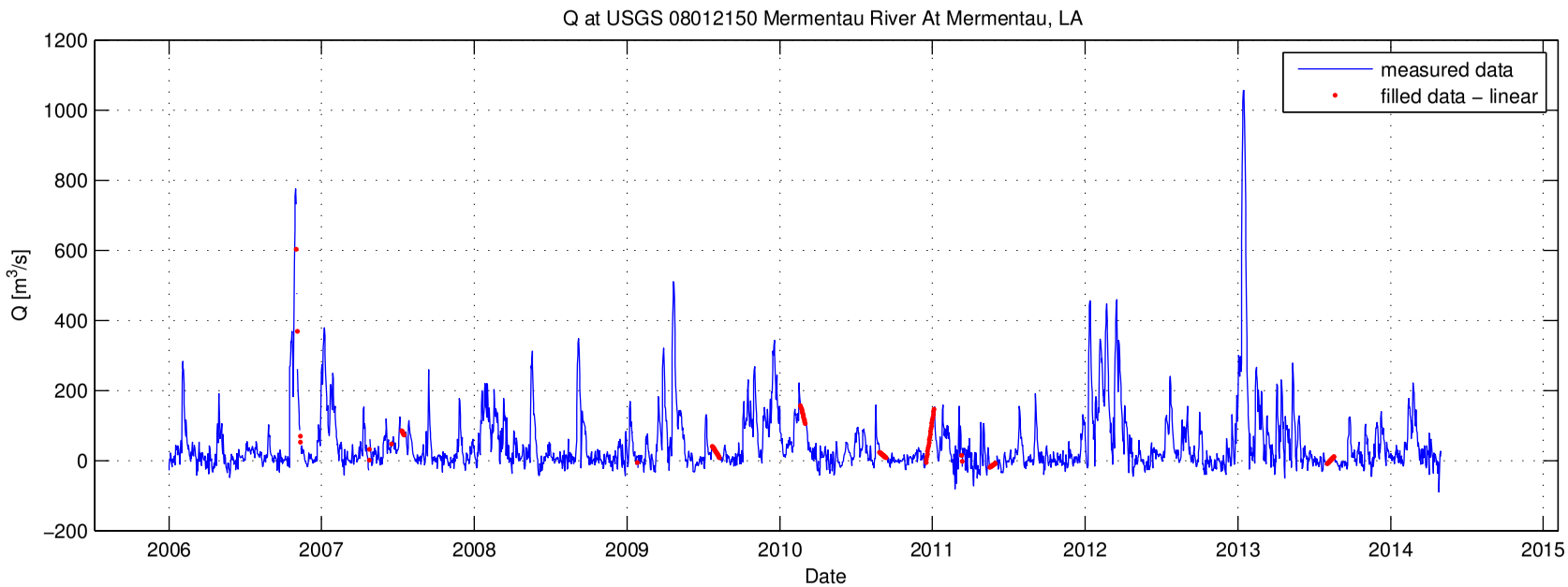

Q at USGS 07386980 Vermilion River at Perry, LA
measured data
filled data – linear
Q [m3/s]
Date
350
300
250
200
150
100
50
0
−50
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

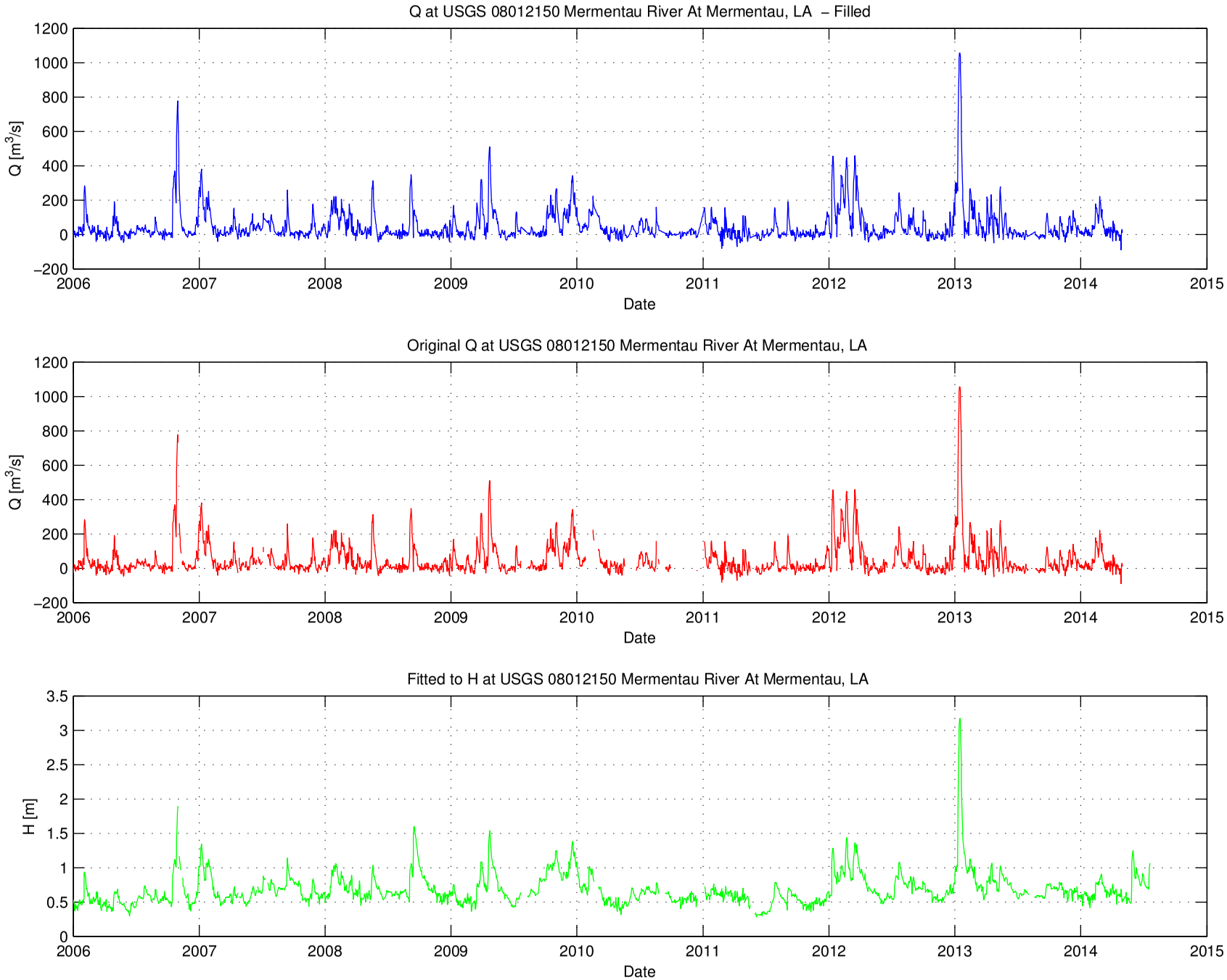

Q at USGS 07386980 Vermilion River at Perry, LA – Filled
Q [m3/s]
Date
Original Q at USGS 07386980 Vermilion River at Perry, LA
Q [m3/s]
Date
Fitted to Q at USGS 07386880 Vermilion River at Surrey St. at Lafayette, LA
Q [m3/s]
Date

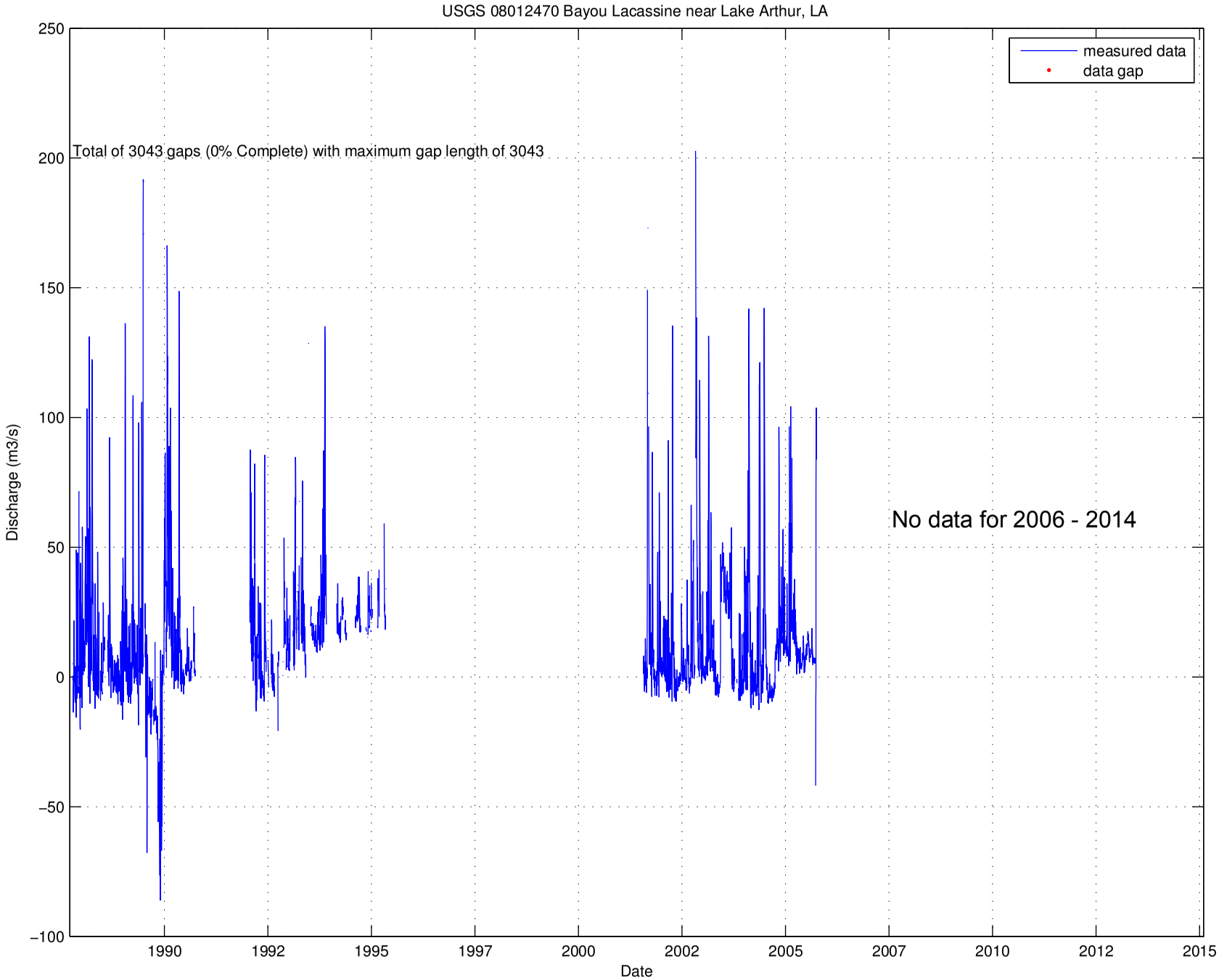

USGS 08012150 Mermentau River At Mermentau, LA
Total of 270 gaps (91% Complete) with maximum gap length of 74
measured data
data gap
Discharge (m3/s)
Date
1200
1000
800
600
400
200
0
−200
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

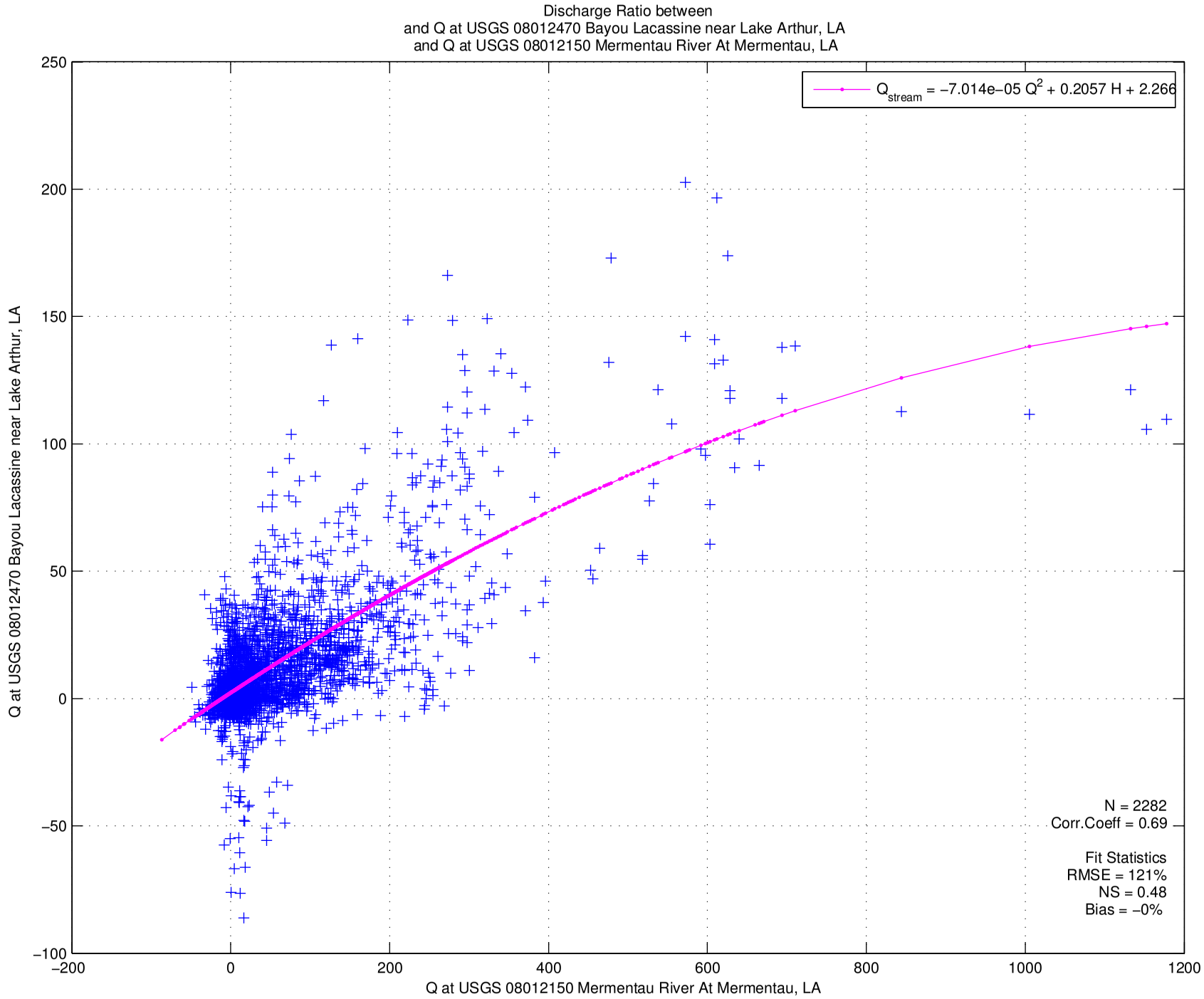

Flow−Depth Ratio for
Q at USGS 08012150 Mermentau River At Mermentau
Q_stream = 71.16 H^2 + 179.2 H + −110
N = 2773
Corr.Coeff = 0.83
Fit Statistics
RMSE = 107%
NS = 0.71
Bias = −0%
Q at USGS 08012150 Mermentau River At Mermentau, LA
H at USGS 08012150 Mermentau River At Mermentau, LA [m]
1200
1000
800
600
400
200
0
−200
0
0.5
1
1.5
2
2.5
3
3.5

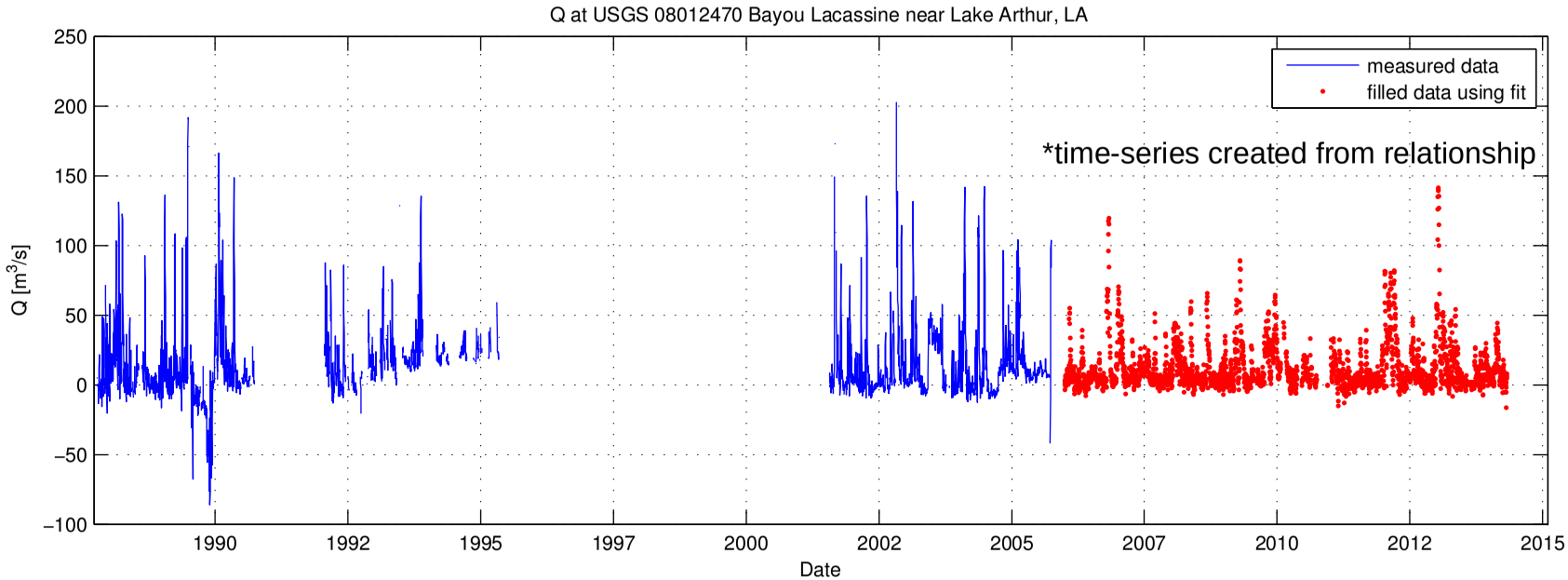

Q at USGS 08012150 Mermentau River At Mermentau, LA
measured data
filled data using fit
Q [m3/s]
Date
1200
1000
800
600
400
200
0
−200
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

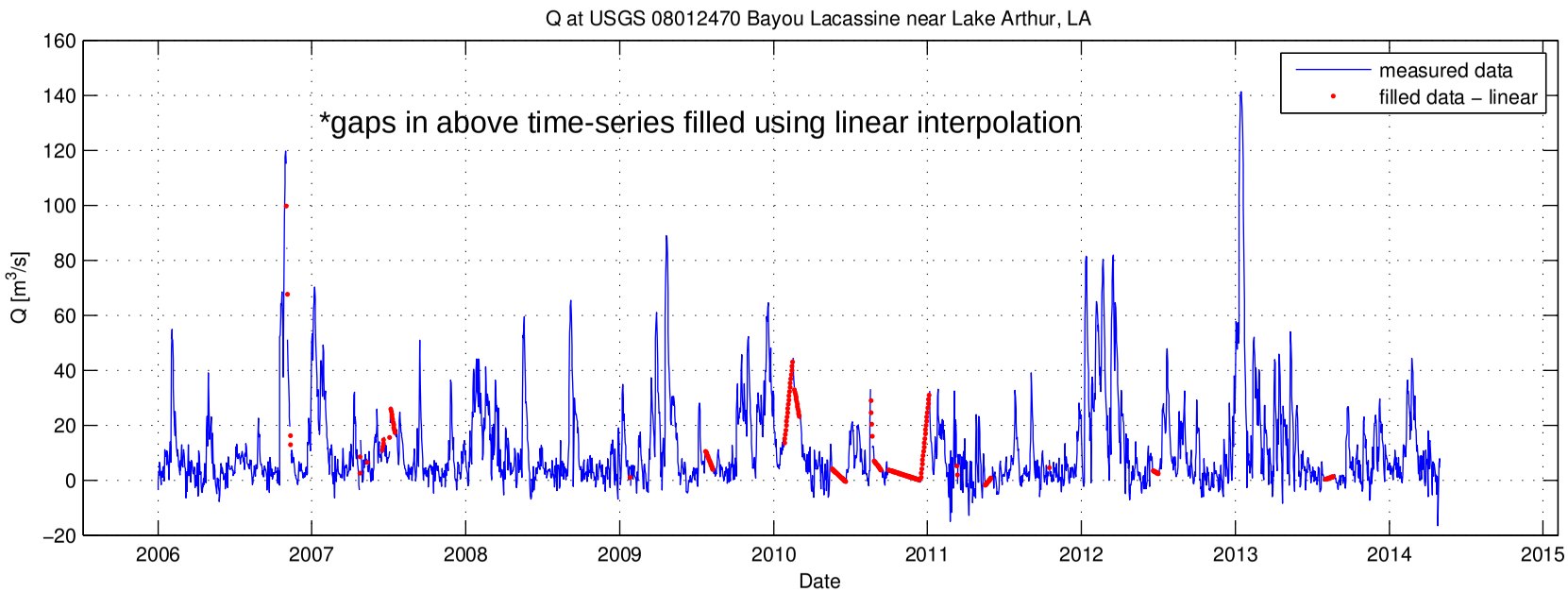

Q at USGS 08012150 Mermentau River At Mermentau, LA
measured data
filled data – linear
Q [m3/s]
Date
1200
1000
800
600
400
200
0
−200
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

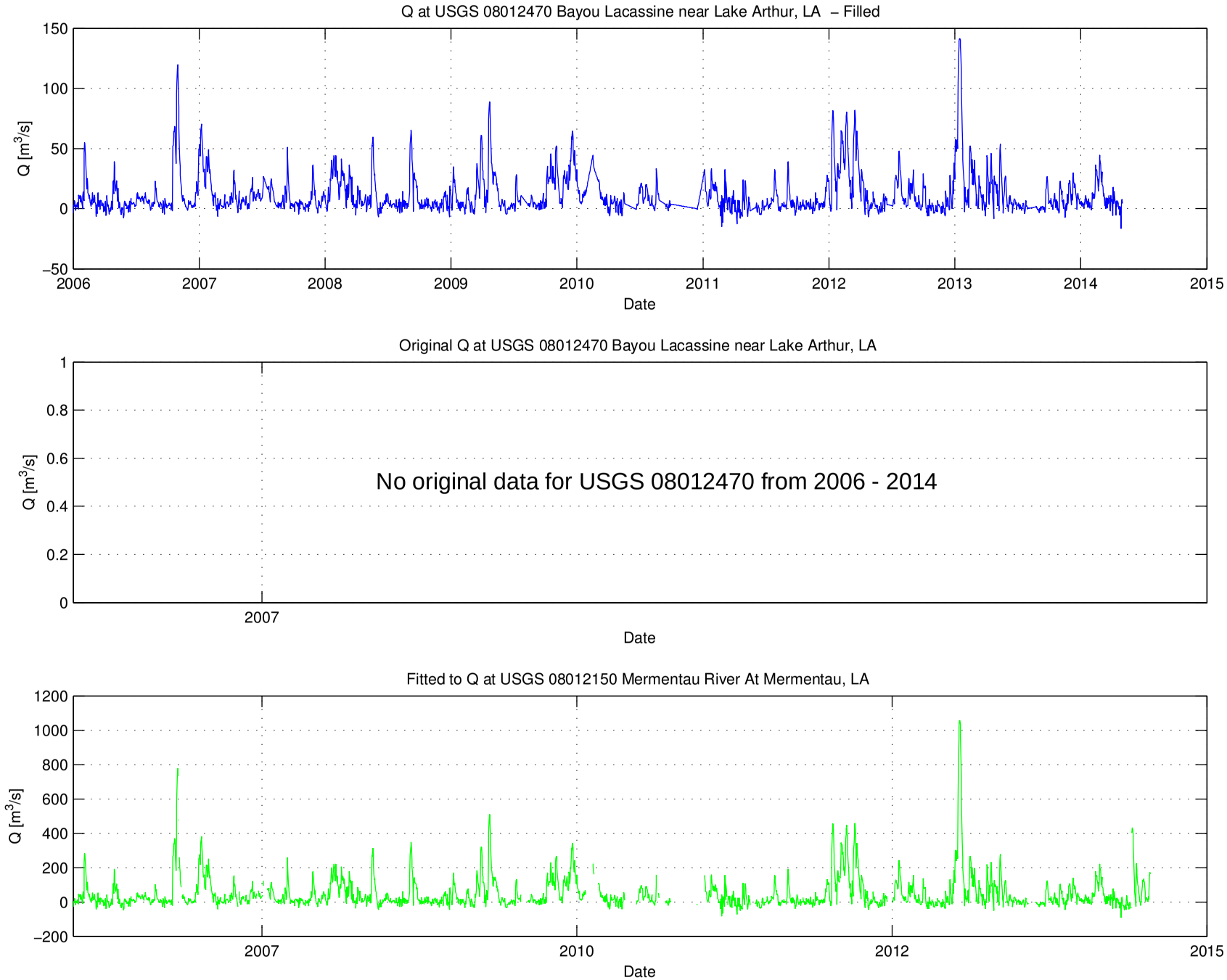

Q at USGS 08012150 Mermentau River At Mermentau, LA – Filled
Q [m3/s]
Date
Original Q at USGS 08012150 Mermentau River At Mermentau, LA
Q [m3/s]
Date
Fitted to H at USGS 08012150 Mermentau River At Mermentau, LA
H [m]
Date

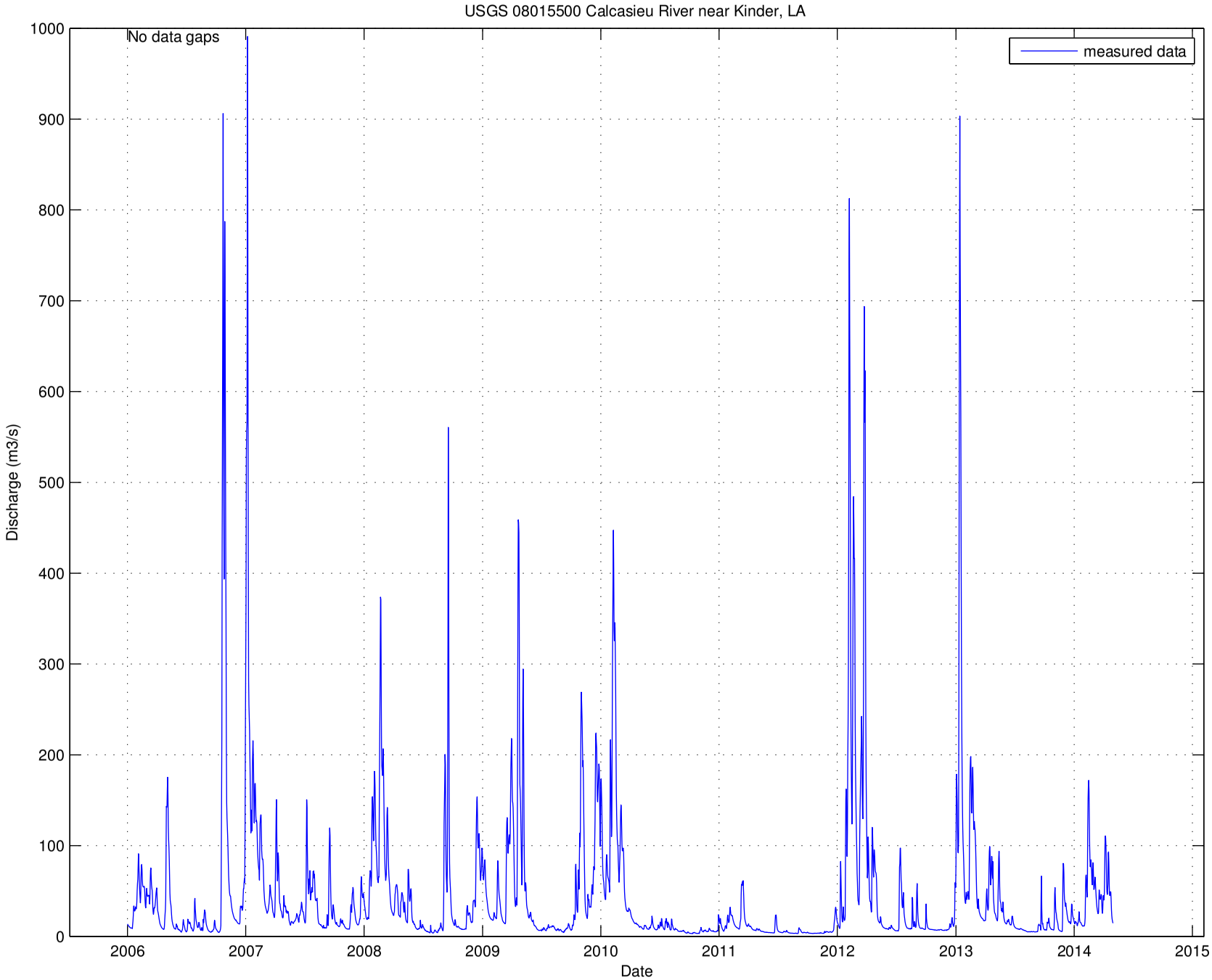

USGS 08012470 Bayou Lacassine near Lake Arthur, LA
measured data
data gap
Total of 3043 gaps (0% Complete) with maximum gap length of 3043
No data for 2006 - 2014
Discharge (m3/s)
Date
250
200
150
100
50
0
−50
−100
1990
1992
1995
1997
2000
2002
2005
2007
2010
2012
2015

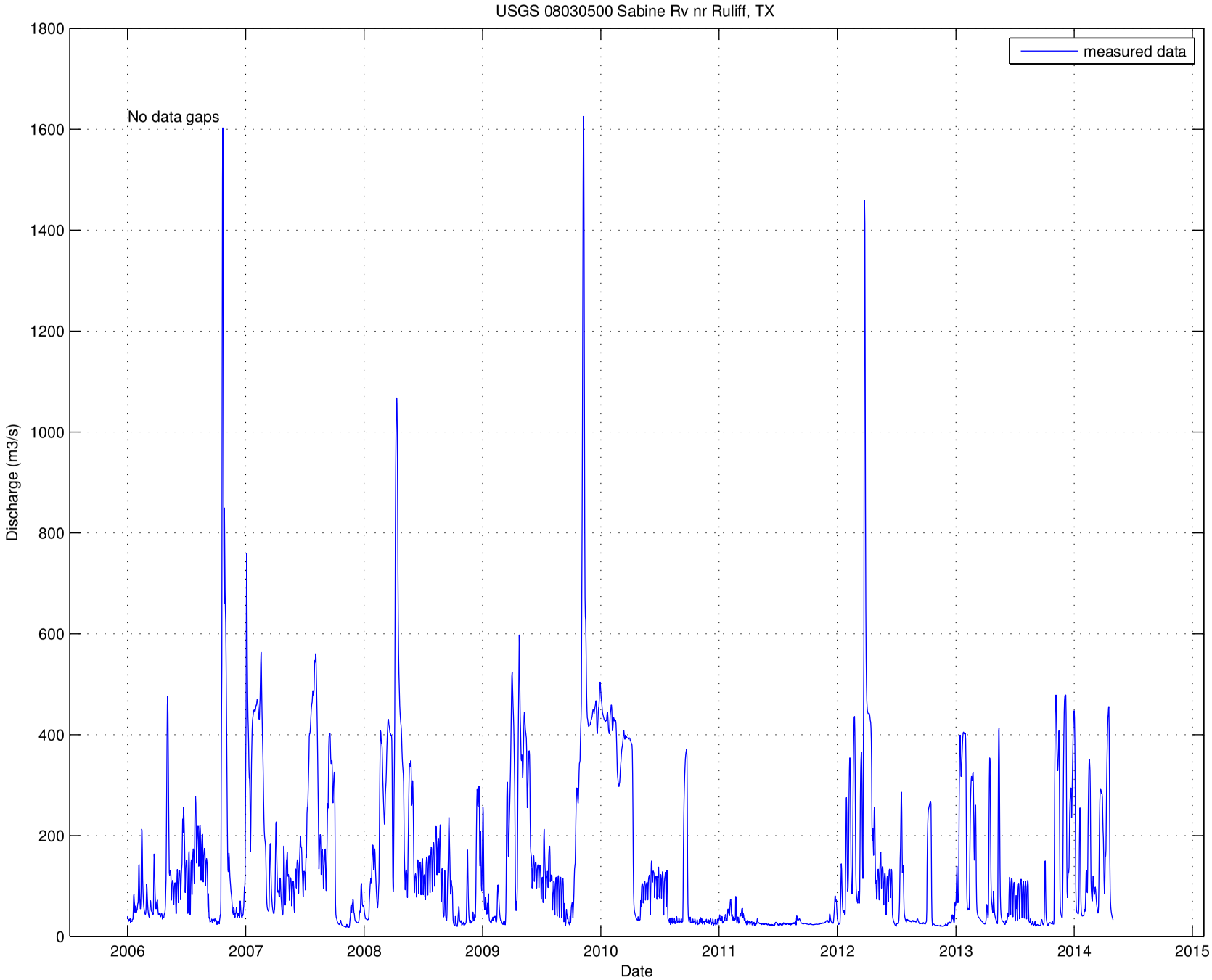

Discharge Ratio between
and Q at USGS 08012470 Bayou Lacassine near Lake Arthur, LA
and Q at USGS 08012150 Mermentau River At Mermentau, LA
Q_stream = −7.014e−05 Q^2 + 0.2057 H + 2.266
N = 2282
Corr.Coeff = 0.69
Fit Statistics
RMSE = 121%
NS = 0.48
Bias = −0%
Q at USGS 08012470 Bayou Lacassine near Lake Arthur, LA
Q at USGS 08012150 Mermentau River At Mermentau, LA
250
200
150
100
50
0
−50
−100
−200
0
200
400
600
800
1000
1200

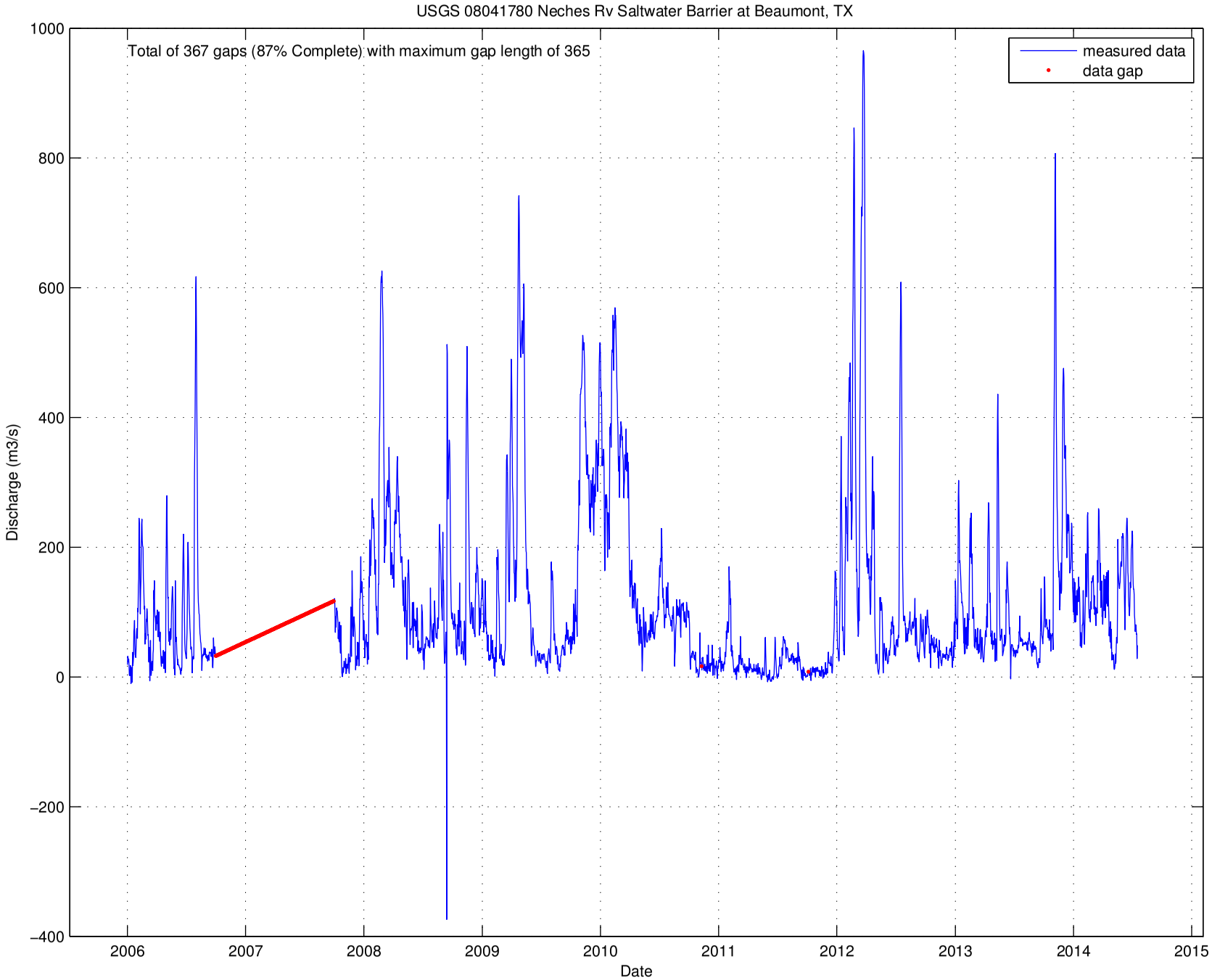

Q at USGS 08012470 Bayou Lacassine near Lake Arthur, LA
measured data
filled data using fit
*time-series created from relationship
Q [m3/s]
Date
250
200
150
100
50
0
−50
−100
1990
1992
1995
1997
2000
2002
2005
2007
2010
2012
2015

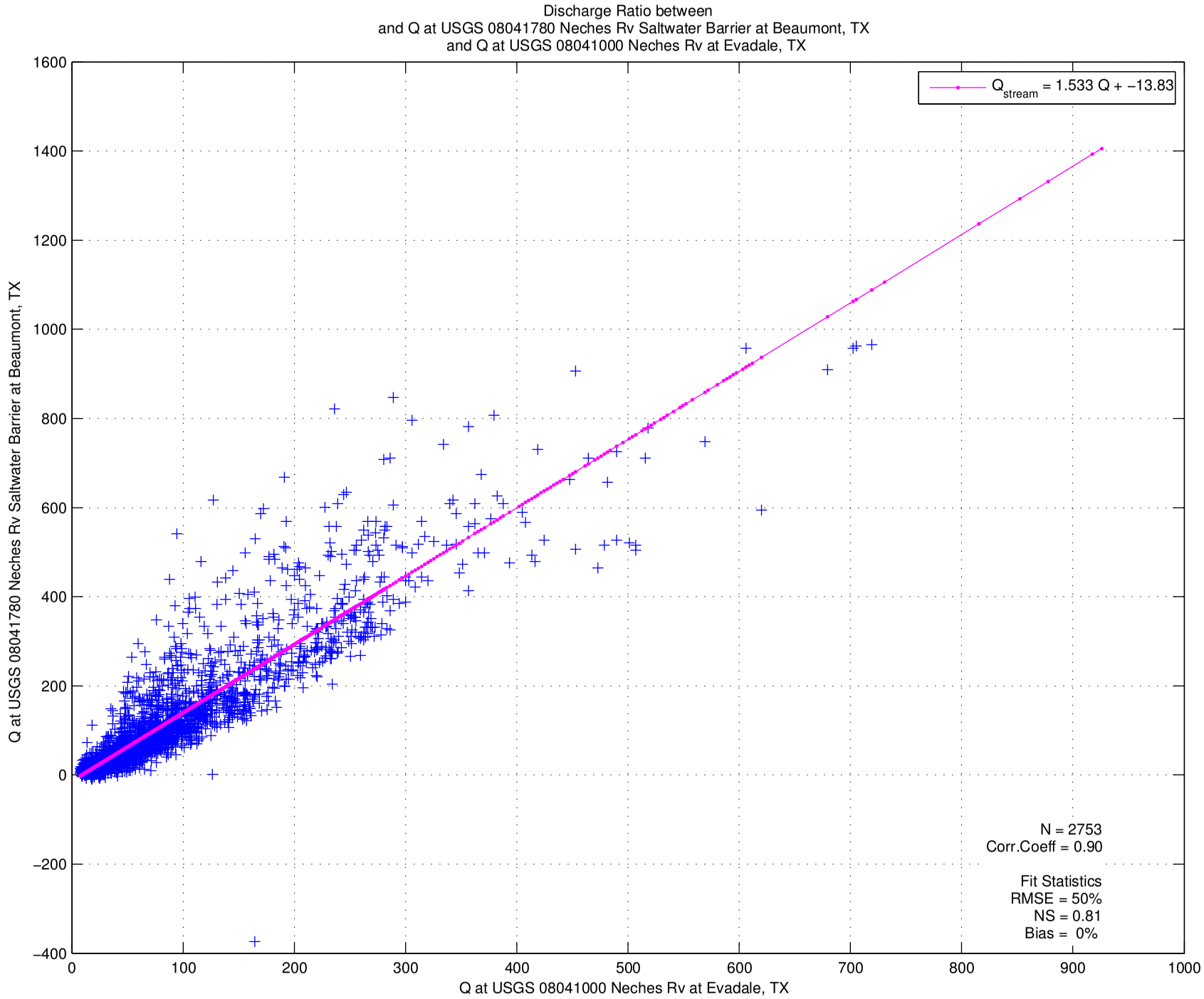

Q at USGS 08012470 Bayou Lacassine near Lake Arthur, LA
measured data
filled data – linear
*gaps in above time-series filled using linear interpolation
Q [m3/s]
Date
160
140
120
100
80
60
40
20
0
−20
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

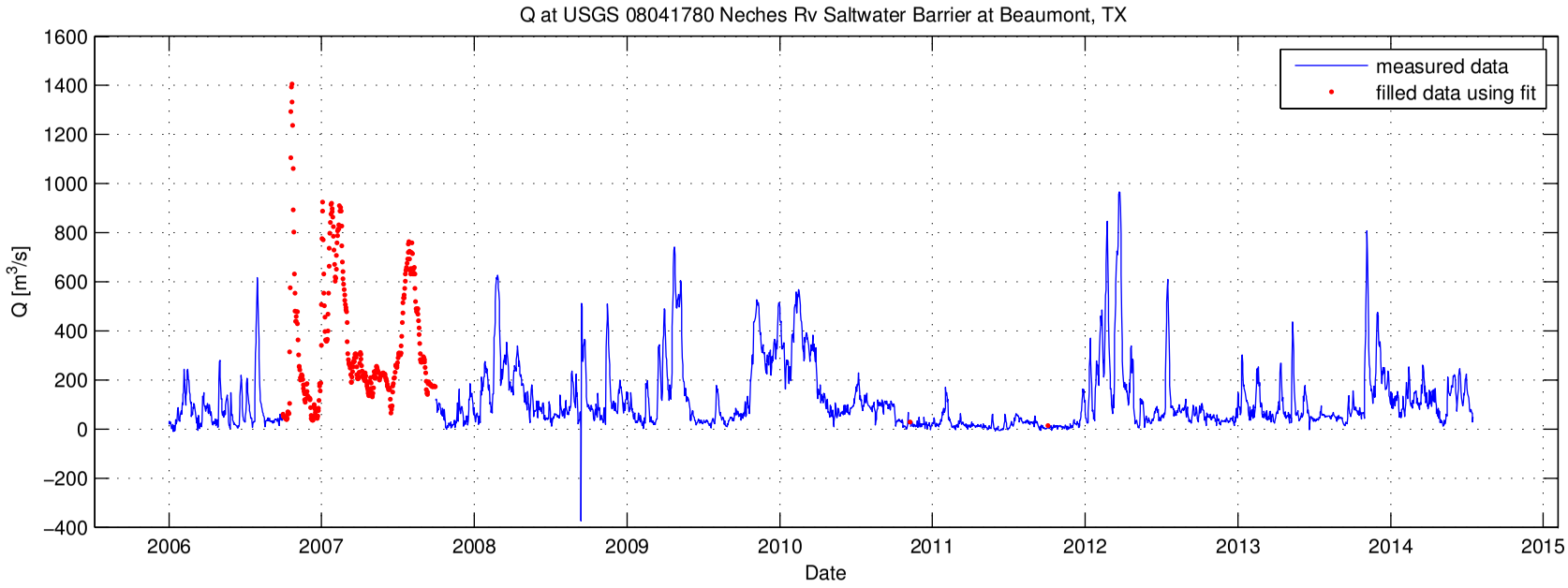

Q at USGS 08012470 Bayou Lacassine near Lake Arthur, LA – Filled
Q [m3/s]
Date
Original Q at USGS 08012470 Bayou Lacassine near Lake Arthur, LA
No original data for USGS 08012470 from 2006 - 2014
Q [m3/s]
Date
Fitted to Q at USGS 08012150 Mermentau River At Mermentau, LA
Q [m3/s]
Date


USGS 08015500 Calcasieu River near Kinder, LA
No data gaps
measured data
Discharge (m3/s)
Date
0
100
200
300
400
500
600
700
800
900
1000
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

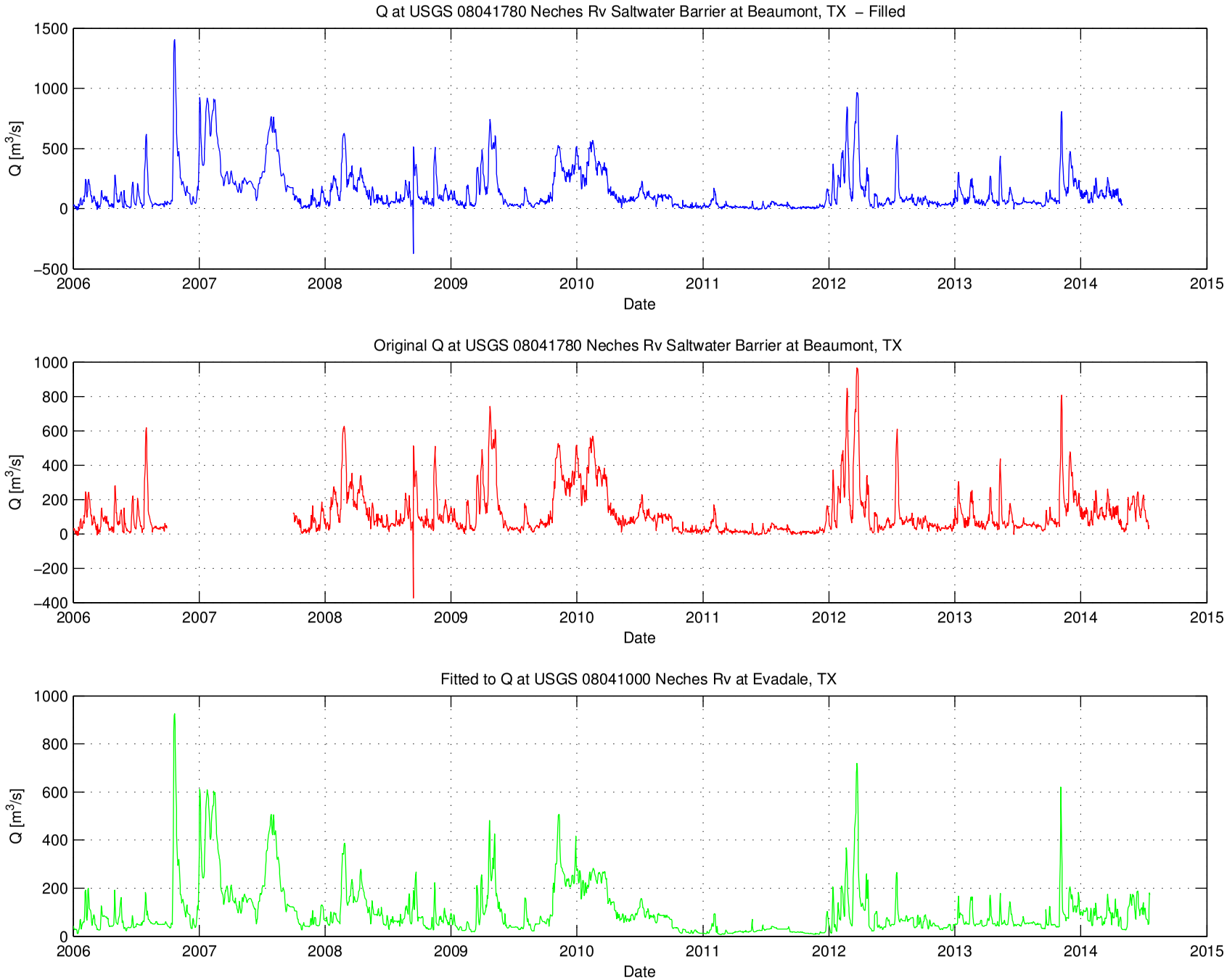

USGS 08030500 Sabine Rv nr Ruliff, TX
measured data
No data gaps
Discharge (m3/s)
Date
0
200
400
600
800
1000
1200
1400
1600
1800
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015


USGS 08041780 Neches Rv Saltwater Barrier at Beaumont, TX
Total of 367 gaps (87% Complete) with maximum gap length of 365
measured data
data gap
Discharge (m3/s)
1000
800
600
400
200
0
−200
−400
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Date


Discharge Ratio between
and Q at USGS 08041780 Neches Rv Saltwater Barrier at Beaumont, TX
and Q at USGS 08041000 Neches Rv at Evadale, TX
Q at USGS 08041780 Neches Rv Saltwater Barrier at Beaumont, TX
Q at USGS 08041000 Neches Rv at Evadale, TX
Q stream = 1.533 Q + −13.83
N = 2753
Corr.Coeff = 0.90
Fit Statistics
RMSE = 50%
NS = 0.81
Bias = 0%
1600
1400
1200
1000
800
600
400
200
0
−200
−400
0
100
200
300
400
500
600
700
800
900
1000



No data filled using linear interpolation


Q at USGS 08041780 Neches Rv Saltwater Barrier at Beaumont, TX – Filled
Q [m3/s]
1500
1000
500
0
−500
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Date
Original Q at USGS 08041780 Neches Rv Saltwater Barrier at Beaumont, TX
Q [m3/s]
1000
800
600
400
200
0
−200
−400
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Date
Fitted to Q at USGS 08041000 Neches Rv at Evadale, TX
Q [m3/s]
1000
800
600
400
200
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Date