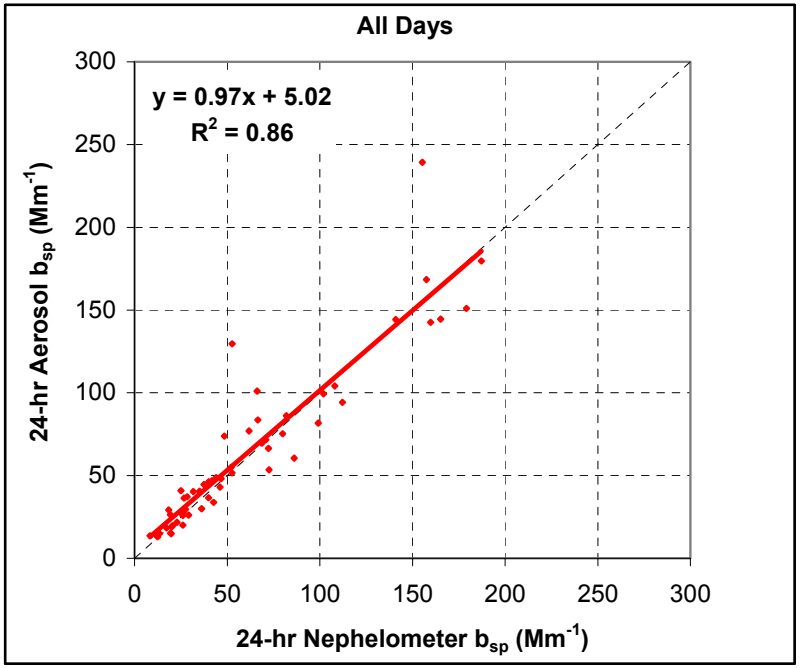
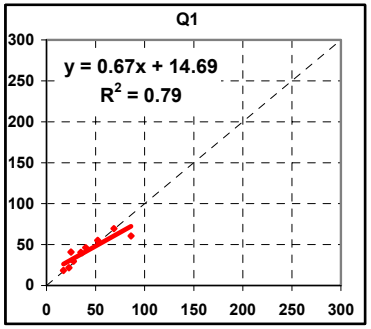
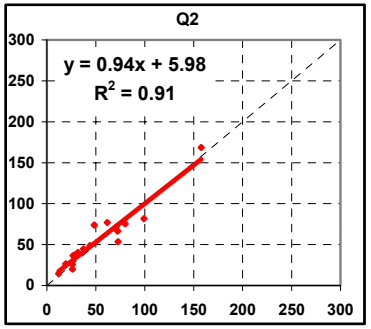
APPENDIX A

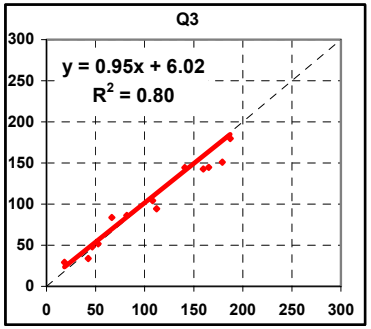
Nephelometer Comparisons

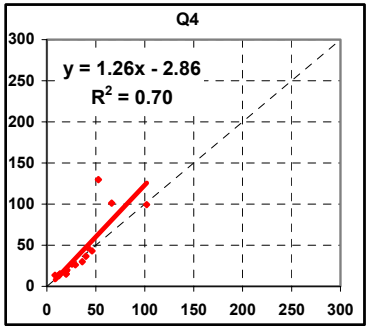
Aerosol Scattering vs. Nephelometer Scattering
Using New IMPROVE Algorithm (nia) and Daily f(RH)
COHU1, 2004

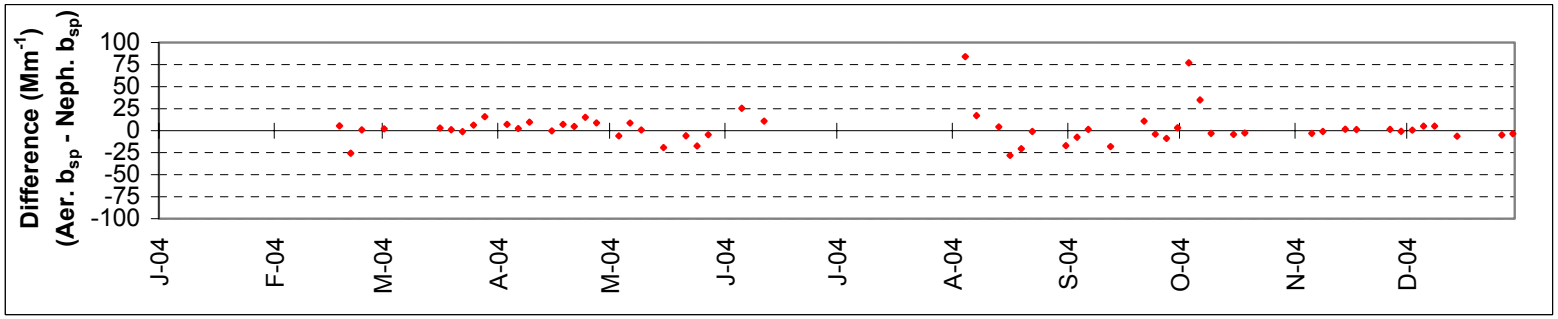




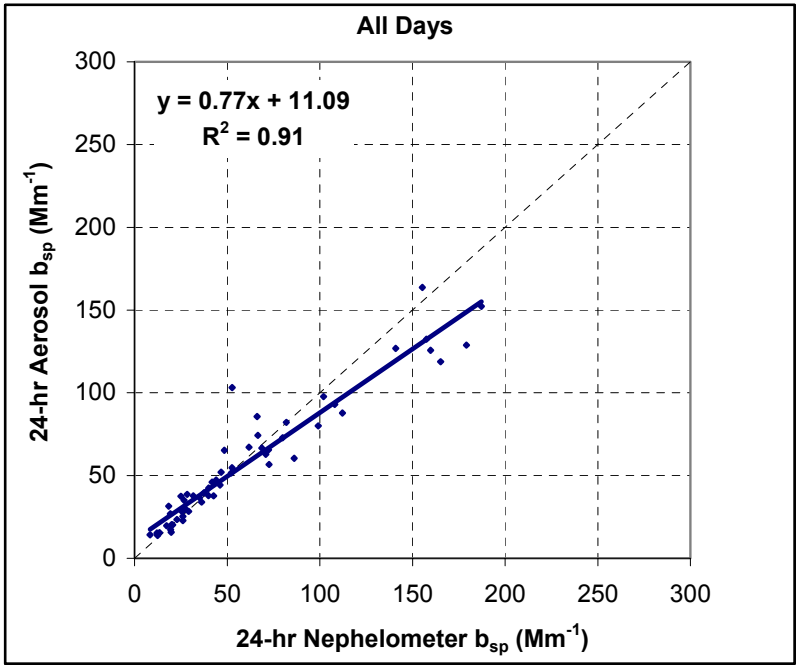


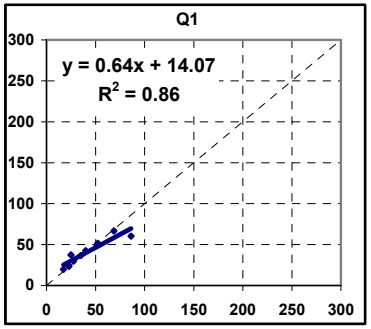


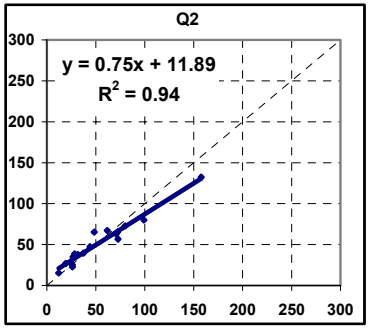


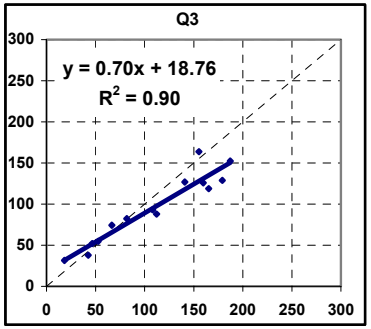


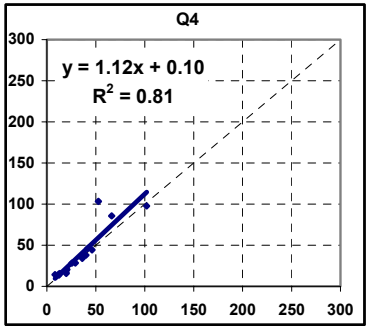
Aerosol Scattering vs. Nephelometer Scattering
Using Old IMPROVE Algorithm (oia) and Daily f(RH)
COHU1, 2004

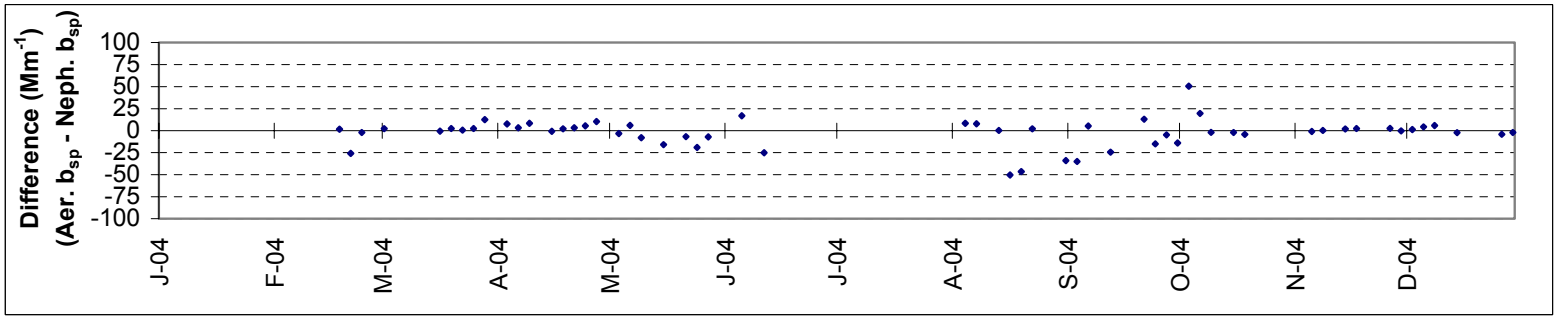


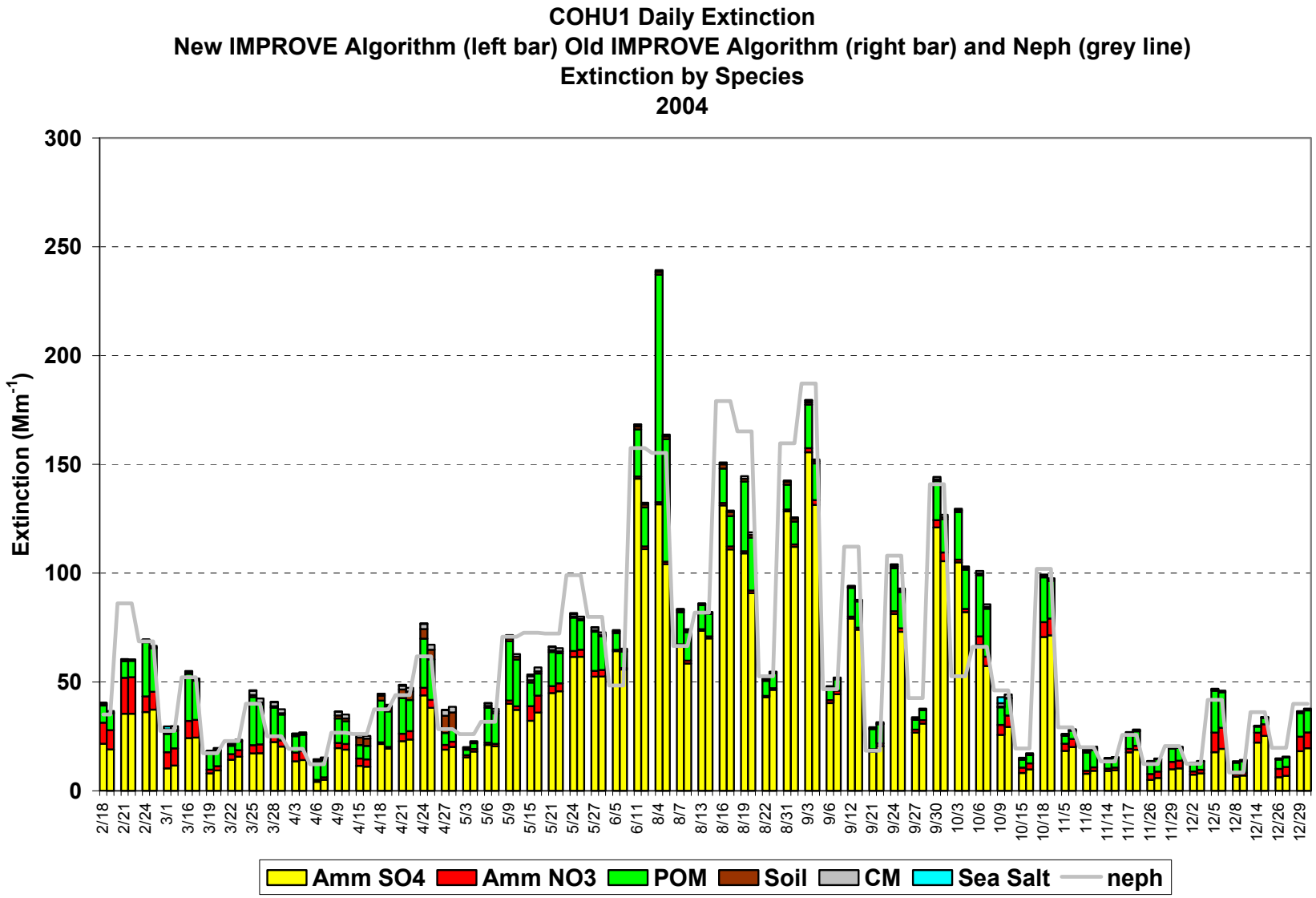




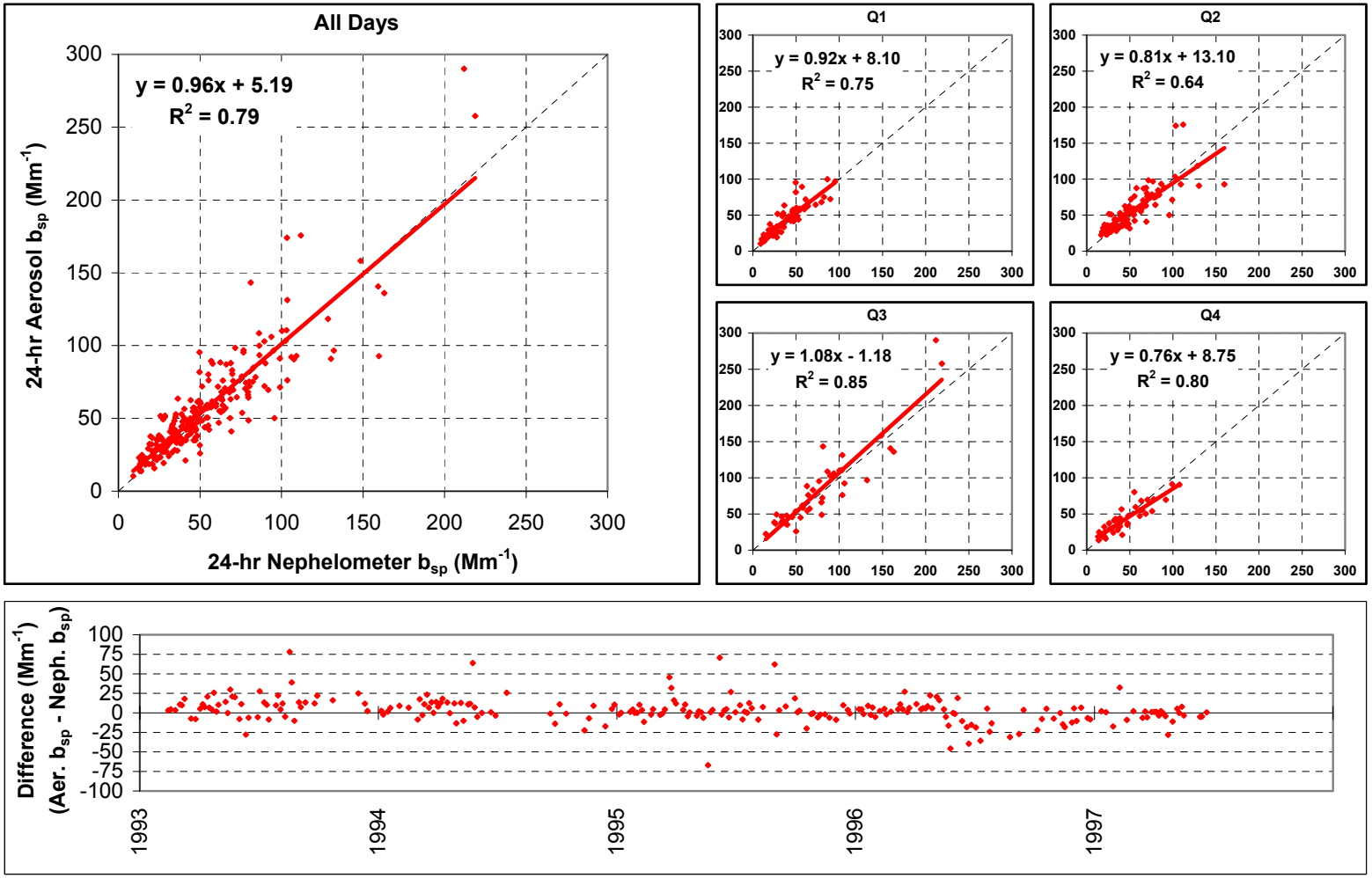




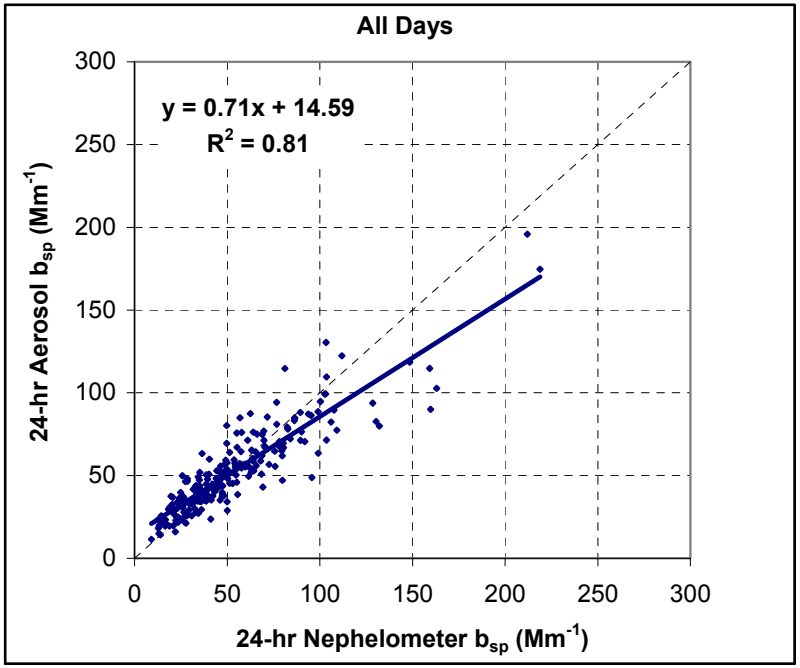


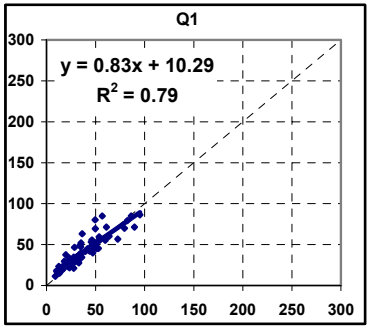

COHU1 Daily Extinction
New IMPROVE Algorithm (left bar) Old IMPROVE Algorithm (right bar) and Neph (grey line)
Extinction by Species
2004
Extinction (Mm-1)
300
250
200
150
100
50
0
2/18
2/21
2/24
3/1
3/16
3/19
3/22
3/25
3/28
4/3
4/6
4/9
4/15
4/18
4/21
4/24
4/27
5/3
5/6
5/9
5/15
5/21
5/24
5/27
6/5
6/11
8/4
8/7
8/13
8/16
8/19
8/22
8/31
9/3
9/6
9/12
9/21
9/24
9/27
9/30
10/3
10/6
10/9
10/15
10/18
11/5
11/8
11/14
11/17
11/26
11/29
12/2
12/5
12/8
12/14
12/26
12/29
Amm SO4
Amm NO3
POM
Soil
CM
Sea Salt
neph

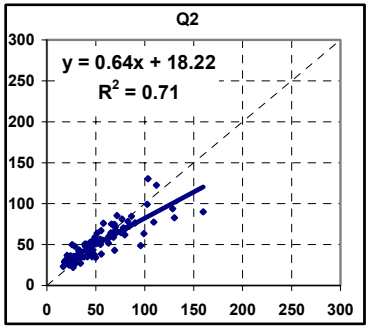
Aerosol Scattering vs. Nephelometer Scattering
Using New IMPROVE Algorithm (nia) and Daily f(RH)
OKEF1, 1993 - 1997

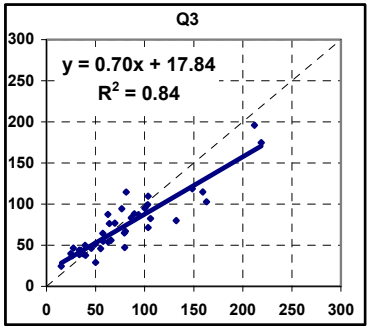


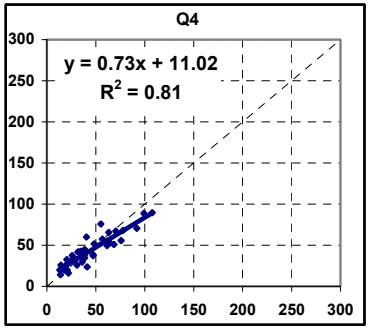
Aerosol Scattering vs. Nephelometer Scattering
Using Old IMPROVE Algorithm (oia) and Daily f(RH)
OKEF1, 1993 - 1997

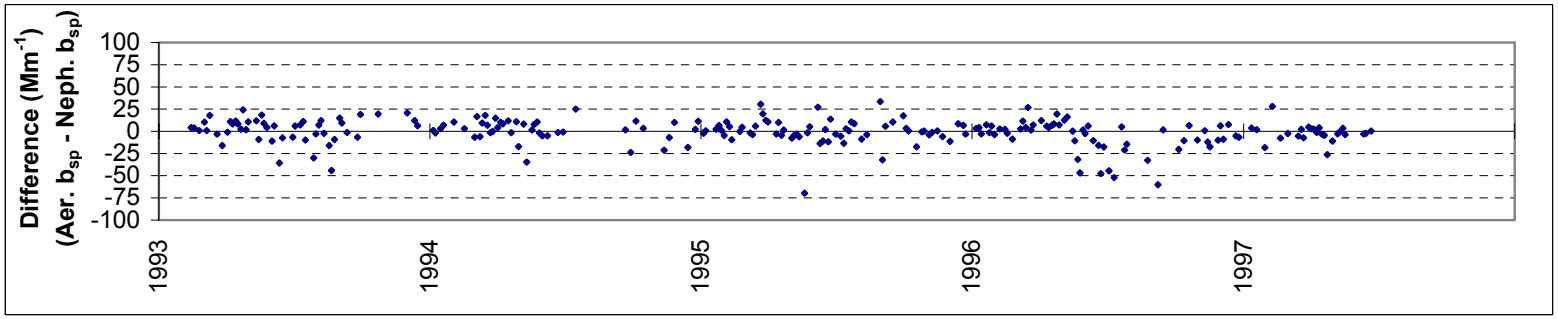


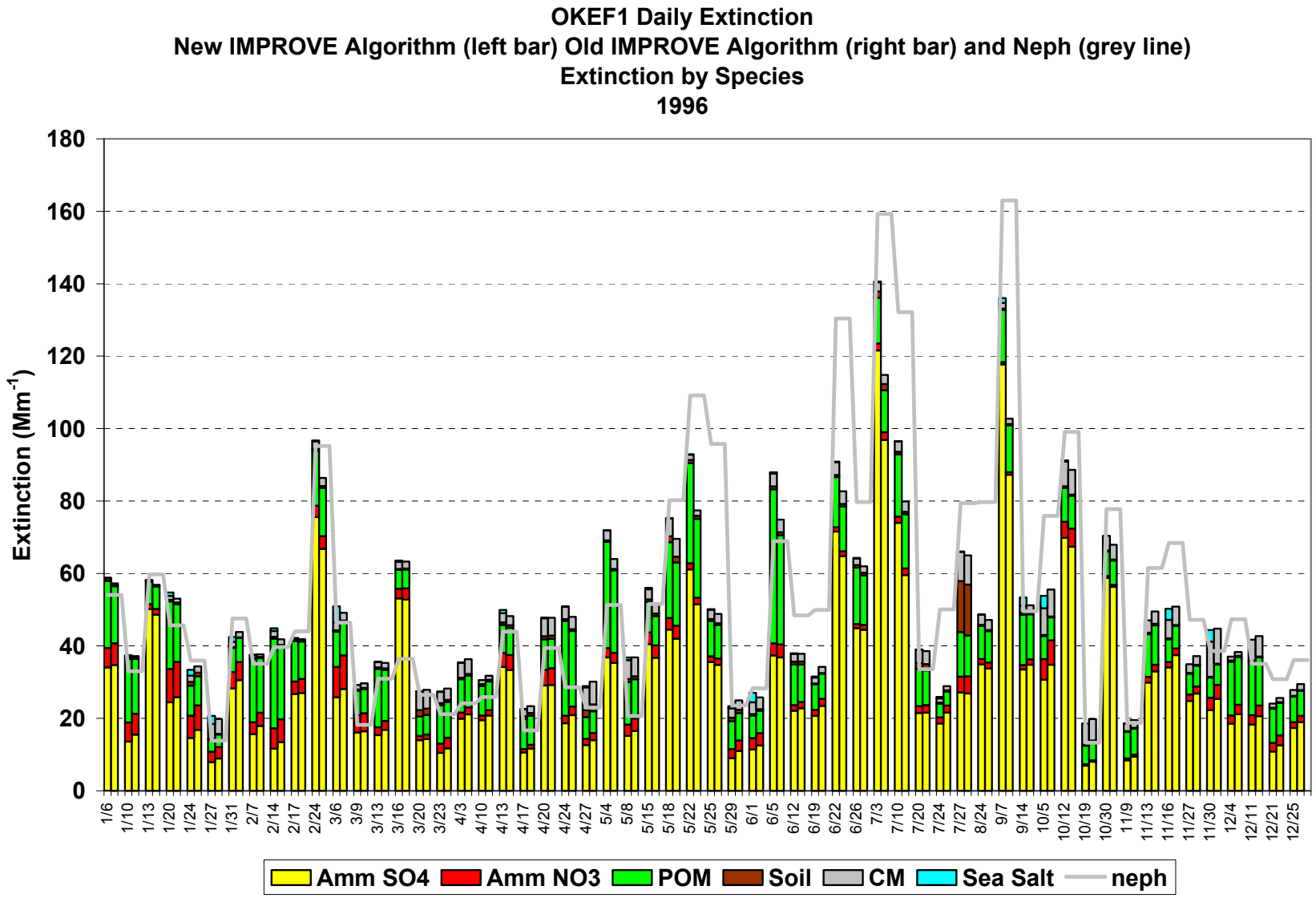




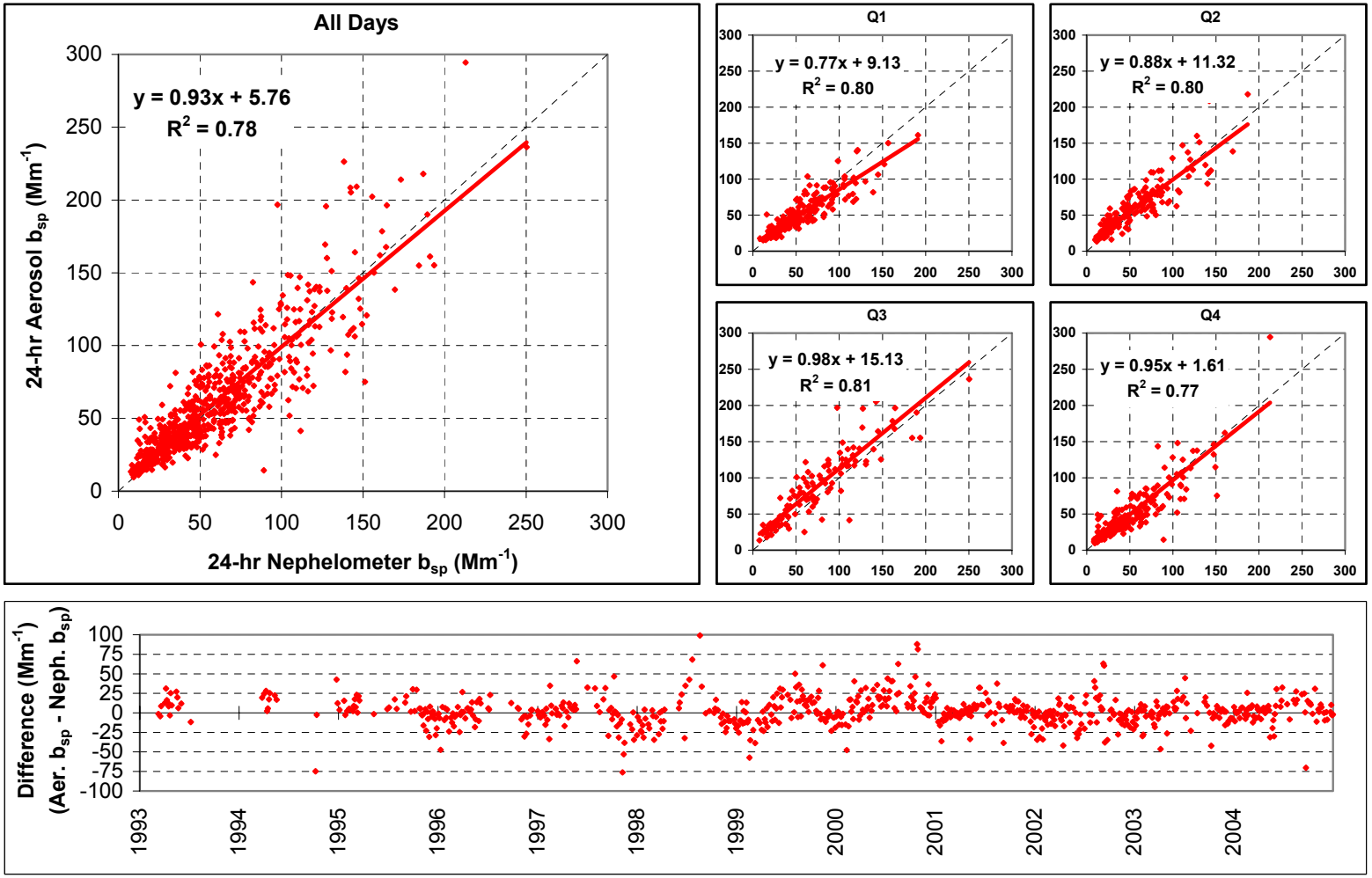




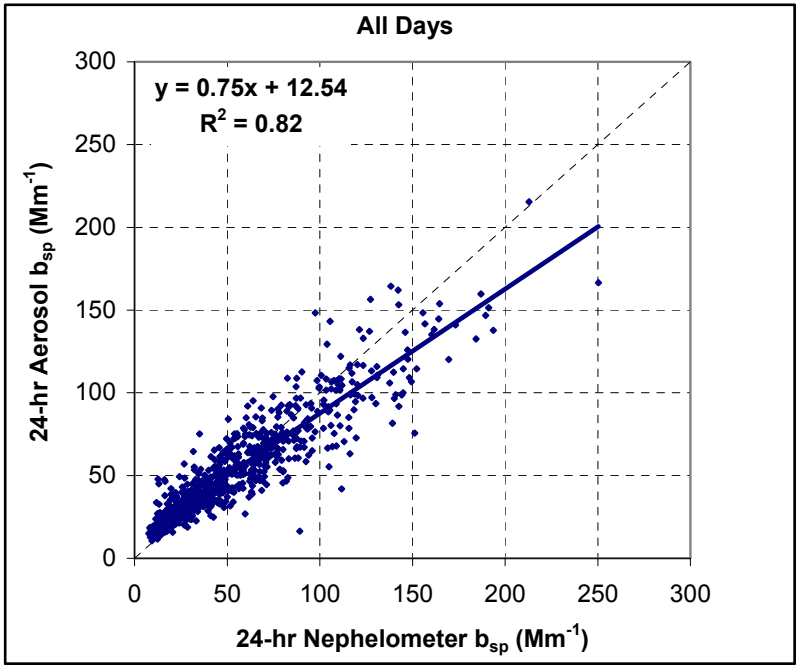


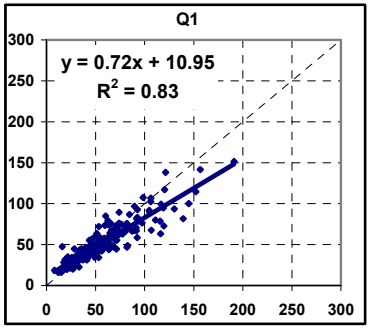

OKEF1 Daily Extinction
New IMPROVE Algorithm (left bar) Old IMPROVE Algorithm (right bar) and Neph (grey line)
Extinction by Species
1996
Extinction (Mm-1)
180
160
140
120
100
80
60
40
20
0
1/6
1/10
1/13
1/20
1/24
1/27
1/31
2/7
2/14
2/17
2/24
3/6
3/9
3/13
3/16
3/20
3/23
4/3
4/10
4/13
4/17
4/20
4/24
4/27
5/4
5/8
5/15
5/18
5/22
5/25
5/29
6/1
6/5
6/12
6/19
6/22
6/26
7/3
7/10
7/20
7/24
7/27
8/24
9/7
9/14
10/5
10/12
10/19
10/30
11/9
11/13
11/16
11/27
11/30
12/4
12/11
12/21
12/25
Amm SO4
Amm NO3
POM
Soil
CM
Sea Salt
neph

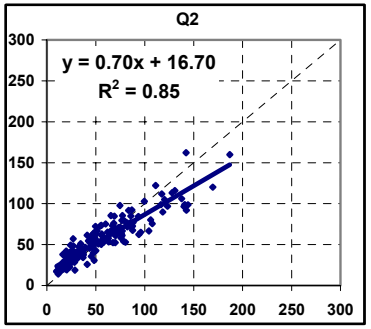
Aerosol Scattering vs. Nephelometer Scattering
Using New IMPROVE Algorithm (nia) and Daily f(RH)
MACA1, 1993 - 2004

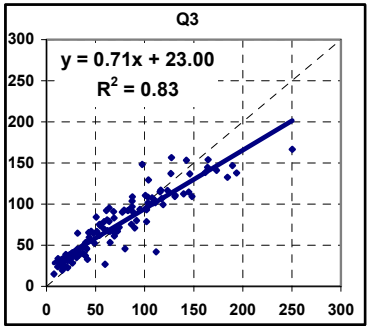


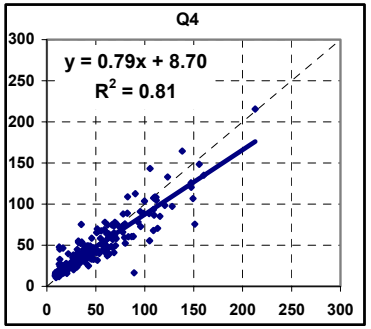
Aerosol Scattering vs. Nephelometer Scattering
Using Old IMPROVE Algorithm (oia) and Daily f(RH)
MACA1, 1993 - 2004

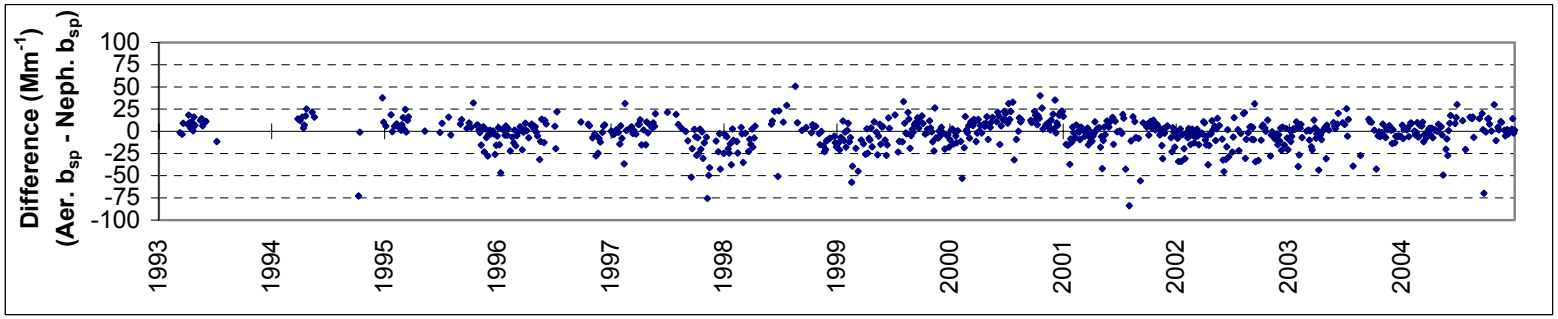


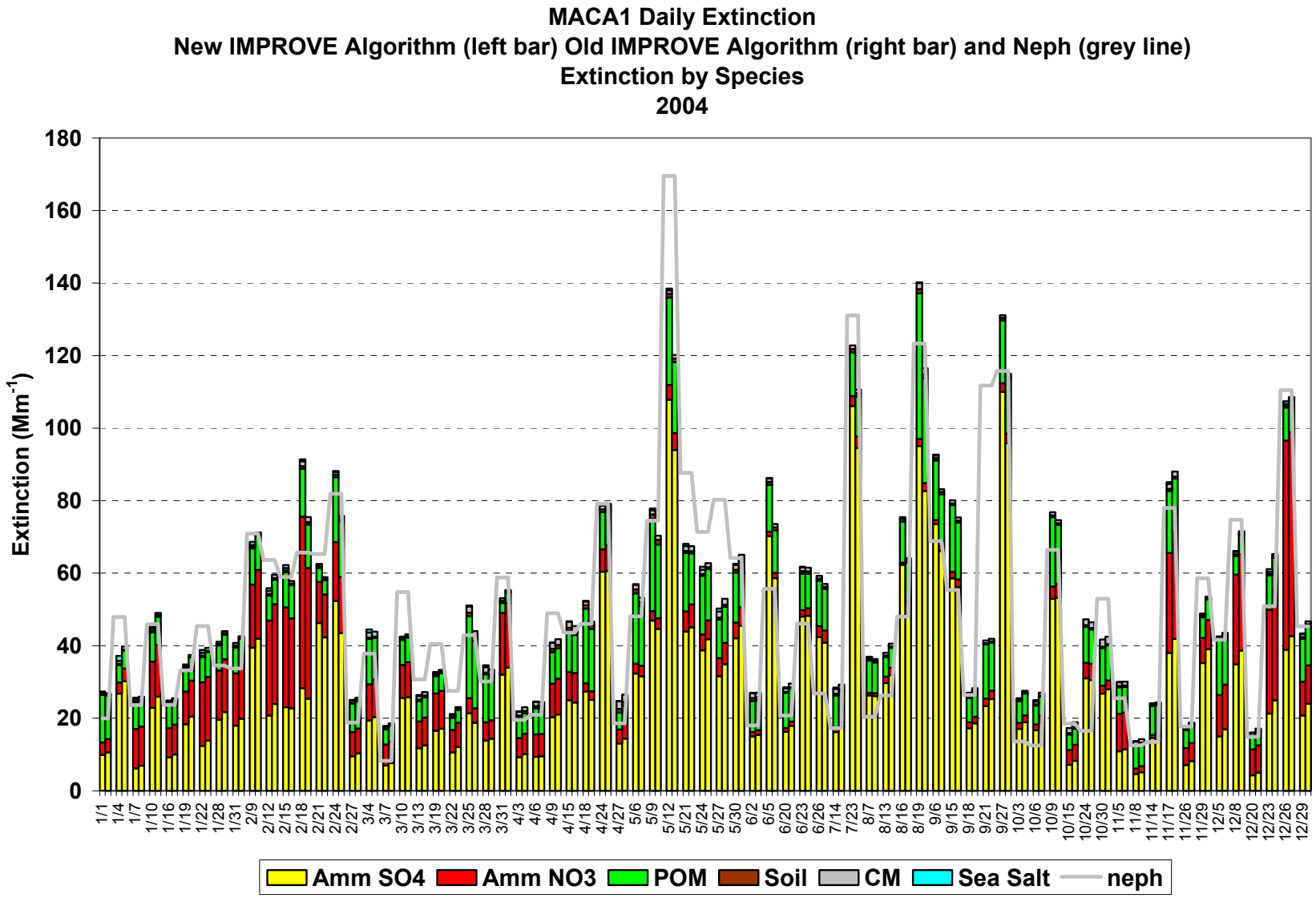




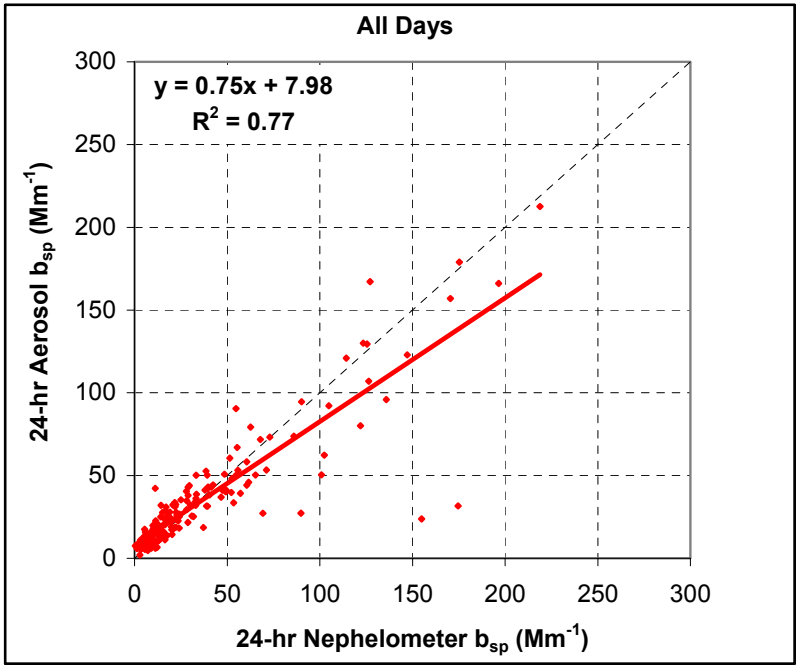


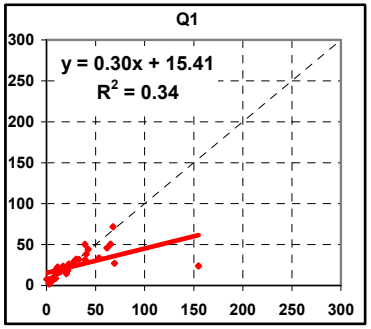


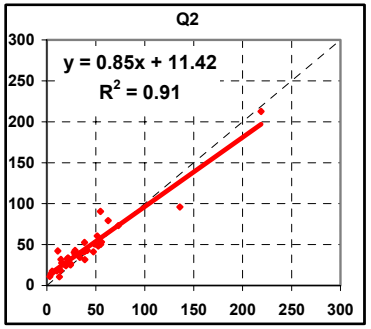


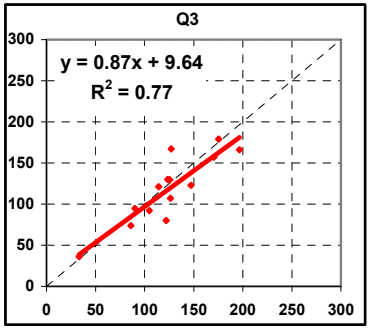

MACA1 Daily Extinction
New IMPROVE Algorithm (left bar) Old IMPROVE Algorithm (right bar) and Neph (grey line)
Extinction by Species
2004
Extinction (Mm-1)
180
160
140
120
100
80
60
40
20
0
Amm SO4
Amm NO3
POM
Soil
CM
Sea Salt
neph

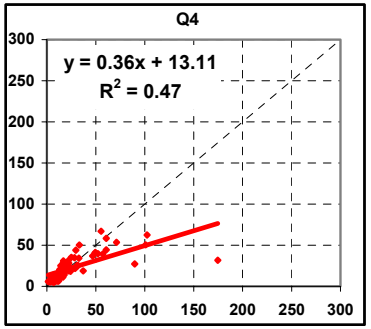
Aerosol Scattering vs. Nephelometer Scattering
Using New IMPROVE Algorithm (nia) and Daily f(RH)
SHRO1, 1994 - 1999

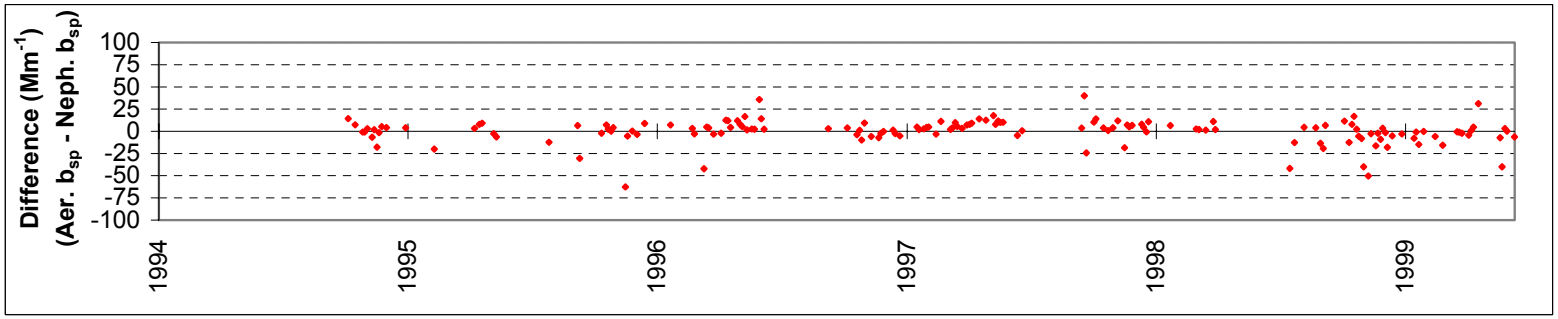




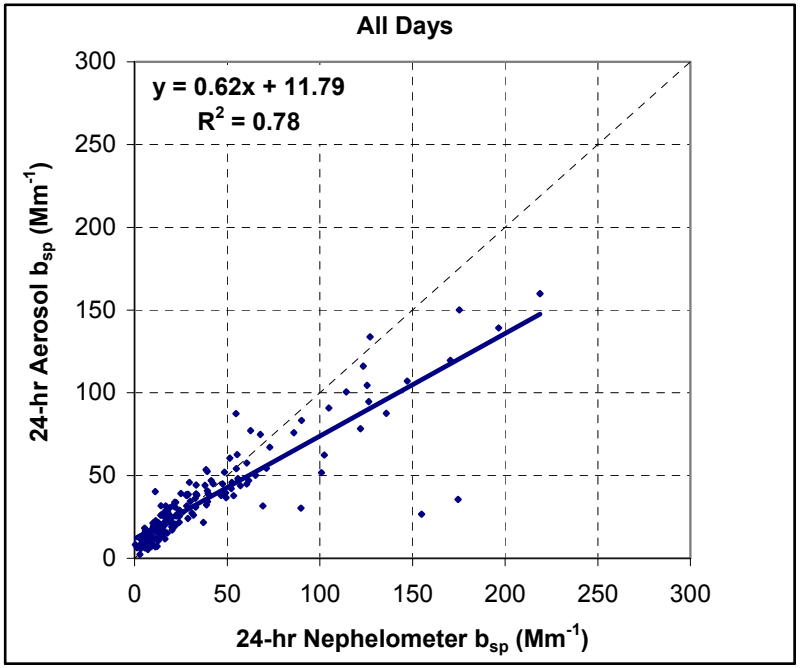


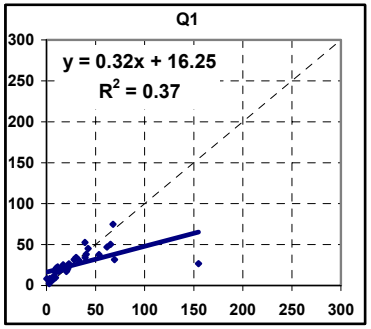


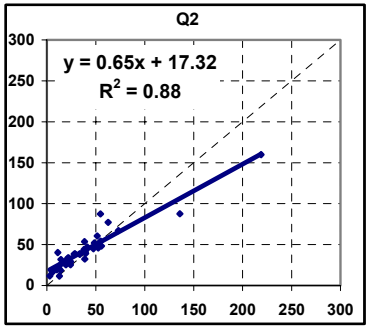


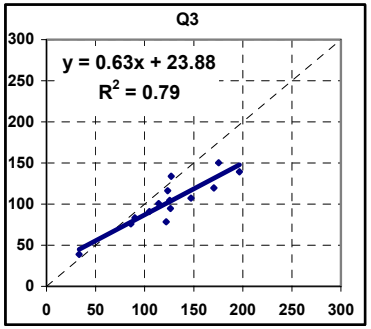


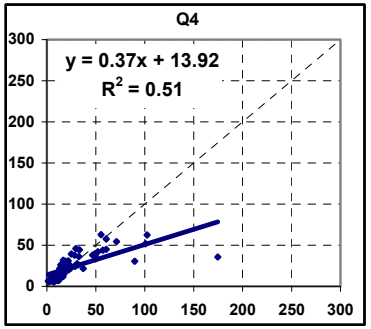
Aerosol Scattering vs. Nephelometer Scattering
Using Old IMPROVE Algorithm (oia) and Daily f(RH)
SHRO1, 1994 - 1999

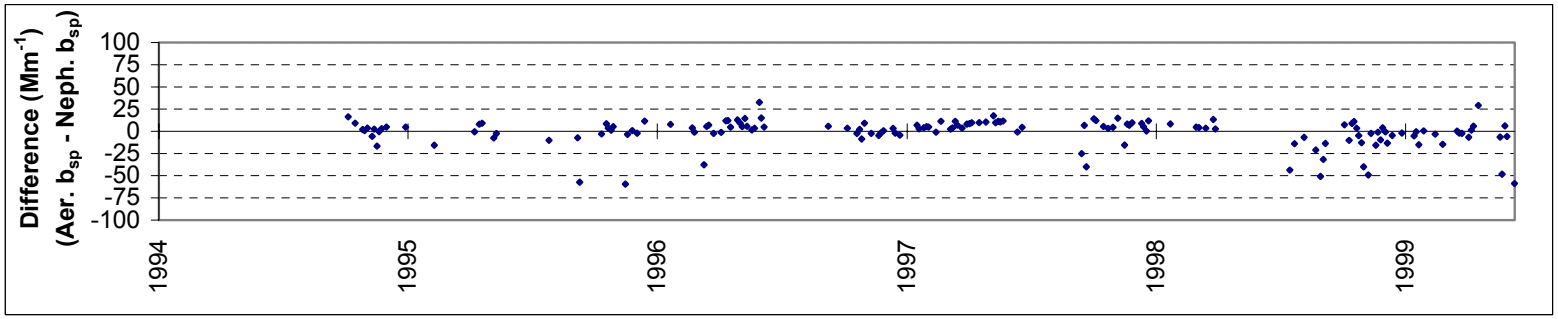


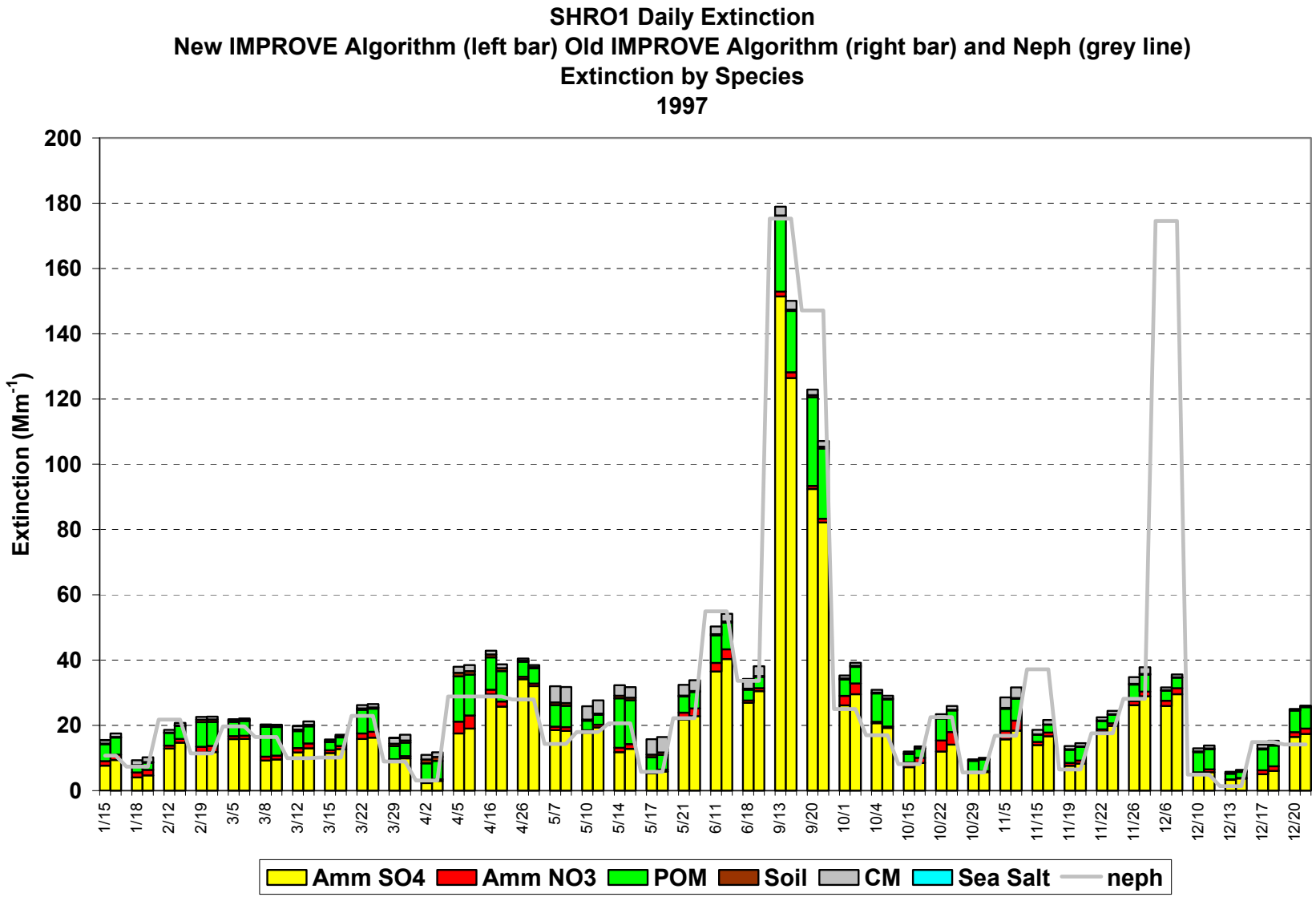




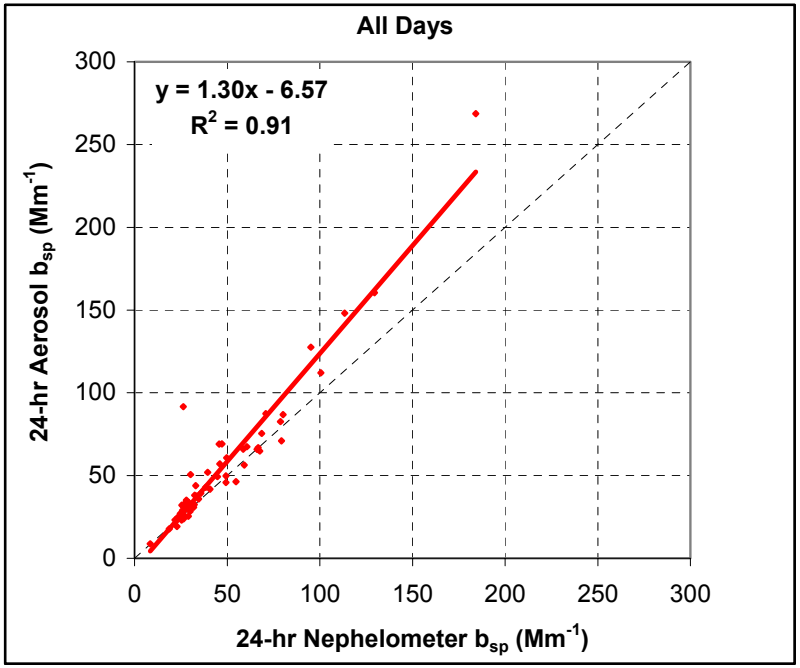


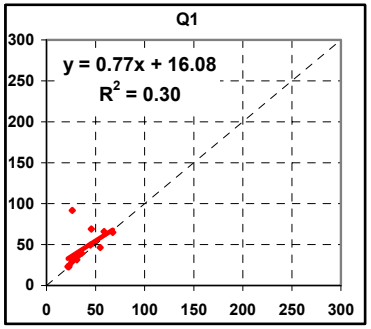


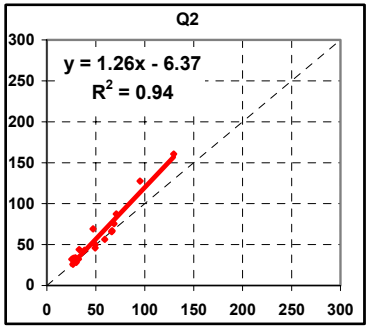


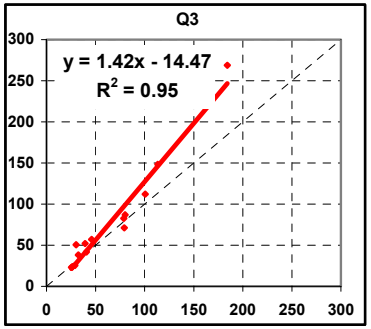

SHRO1 Daily Extinction
New IMPROVE Algorithm (left bar) Old IMPROVE Algorithm (right bar) and Neph (grey line)
Extinction by Species
1997
Extinction (Mm-1)
200
180
160
140
120
100
80
60
40
20
0
1/15
1/18
2/12
2/19
3/5
3/8
3/12
3/15
3/22
3/29
4/2
4/5
4/16
4/26
5/7
5/10
5/14
5/17
5/21
6/11
6/18
9/13
9/20
10/1
10/4
10/15
10/22
10/29
11/5
11/15
11/19
11/22
11/26
12/6
12/10
12/13
12/17
12/20
Amm SO4
Amm NO3
POM
Soil
CM
Sea Salt
neph

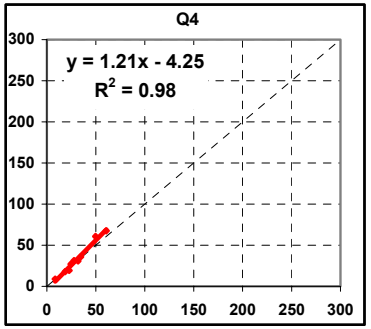
Aerosol Scattering vs. Nephelometer Scattering
Using New IMPROVE Algorithm (nia) and Daily f(RH)
ROMA1, 2004

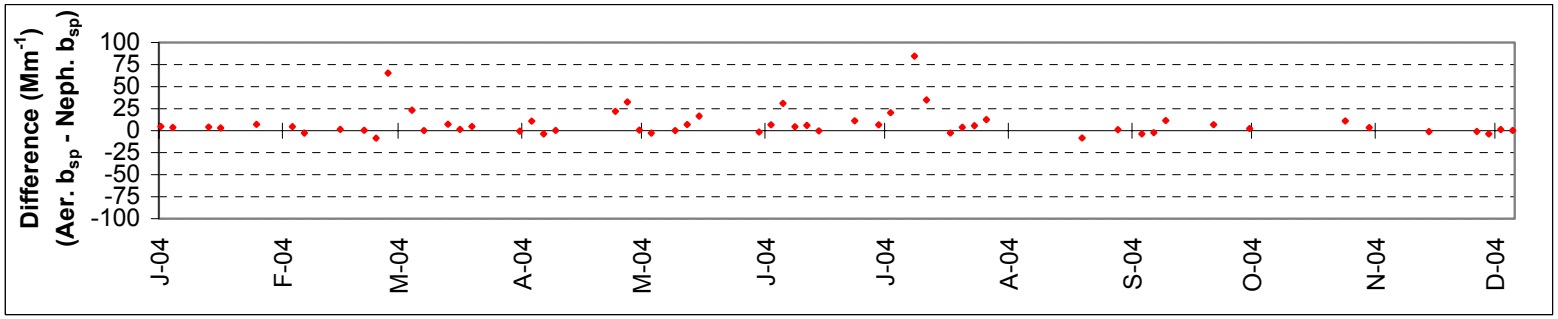




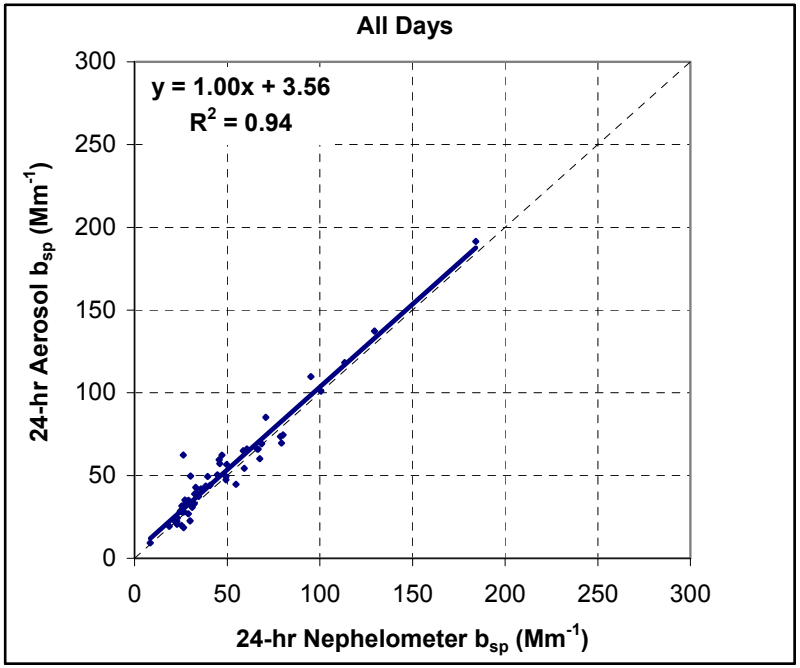


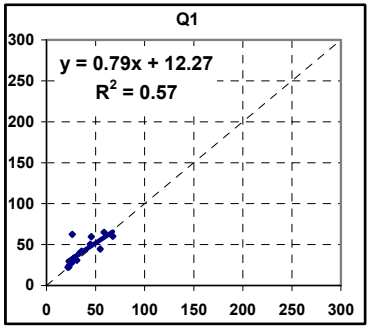


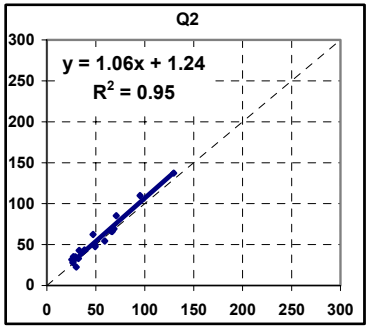


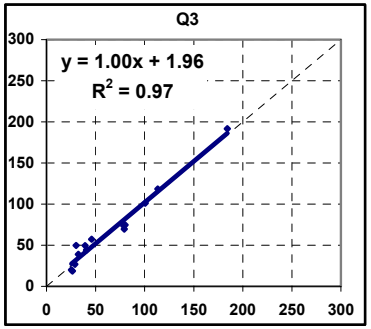


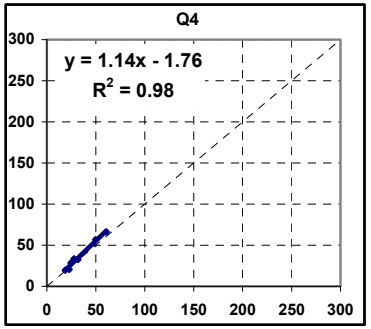
Aerosol Scattering vs. Nephelometer Scattering
Using Old IMPROVE Algorithm (oia) and Daily f(RH)
ROMA1, 2004

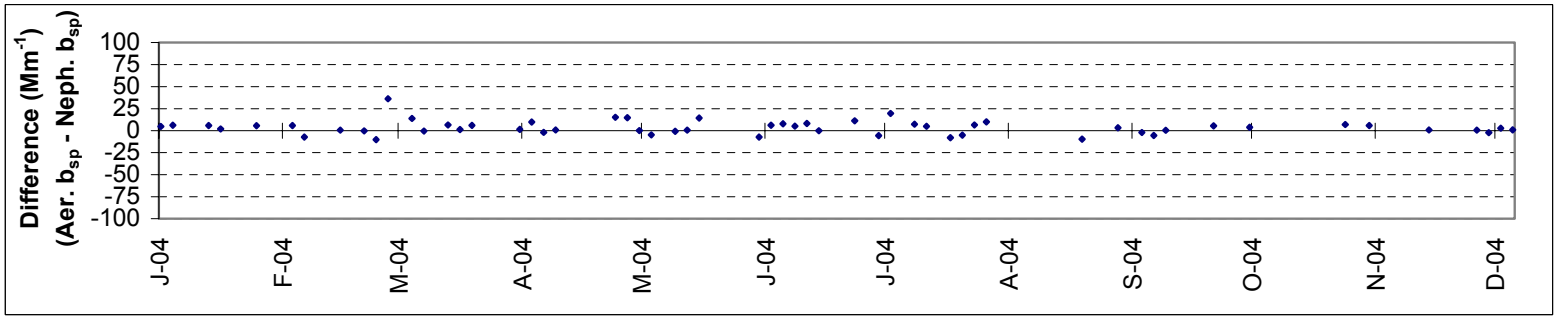


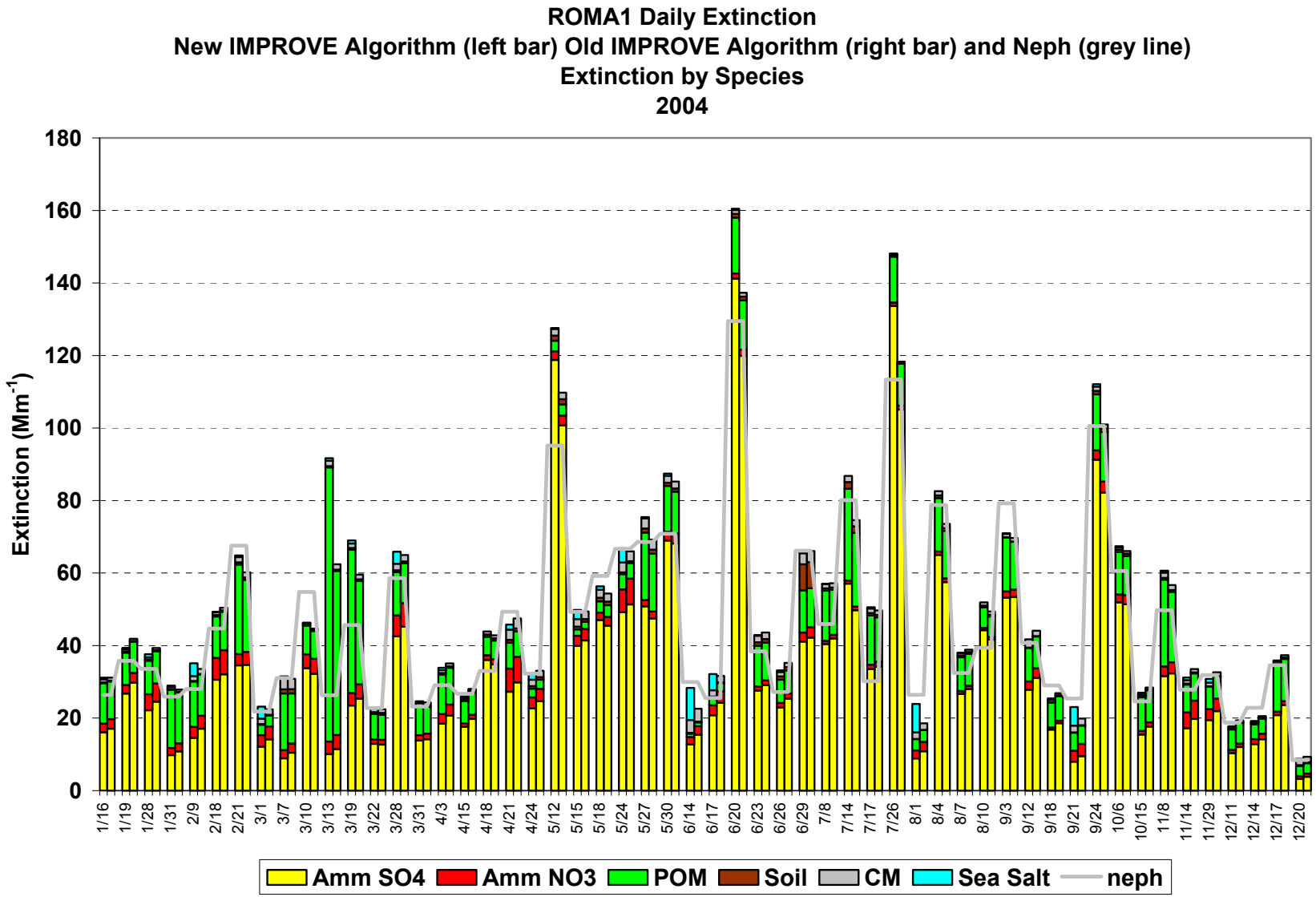




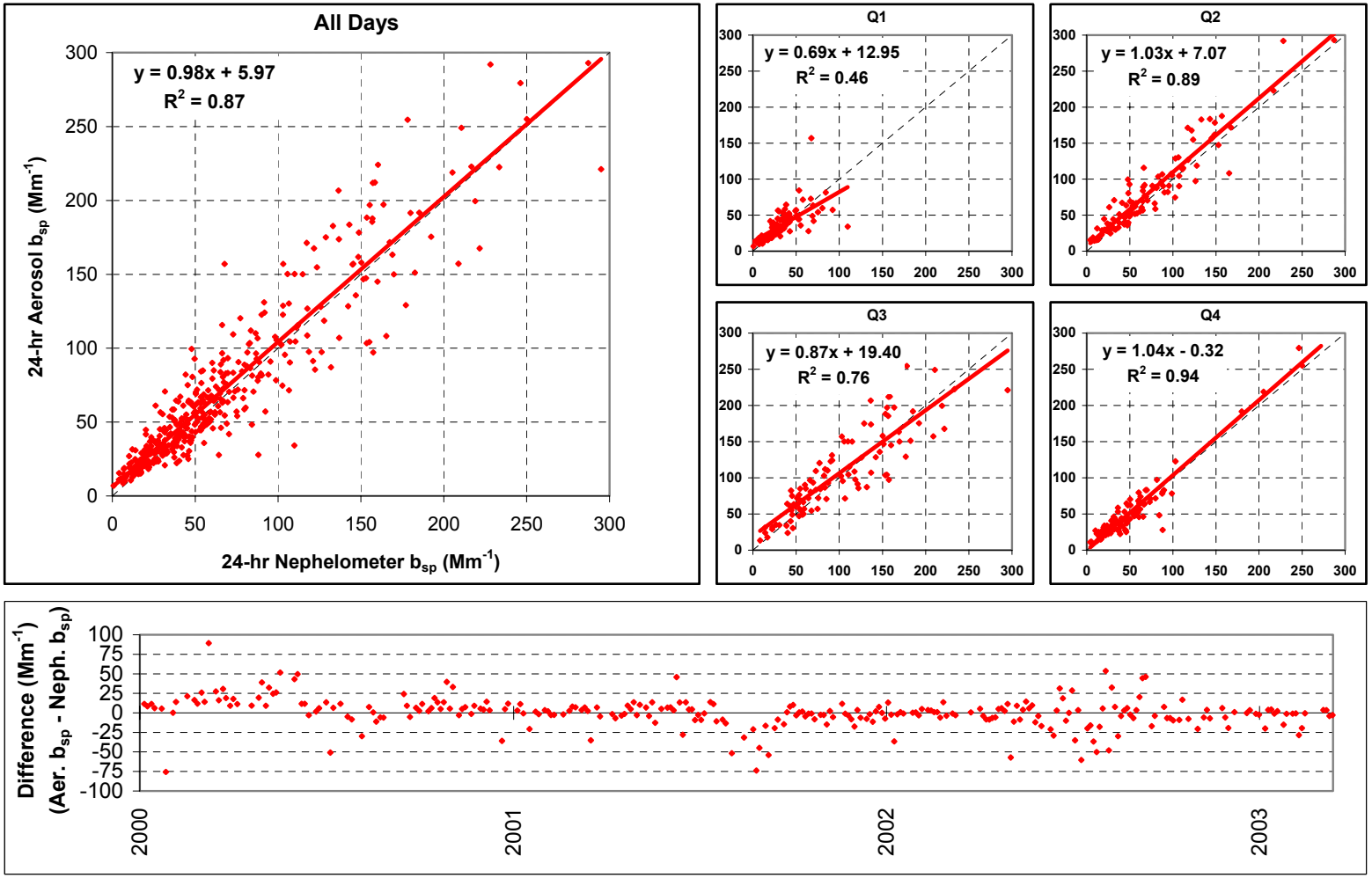




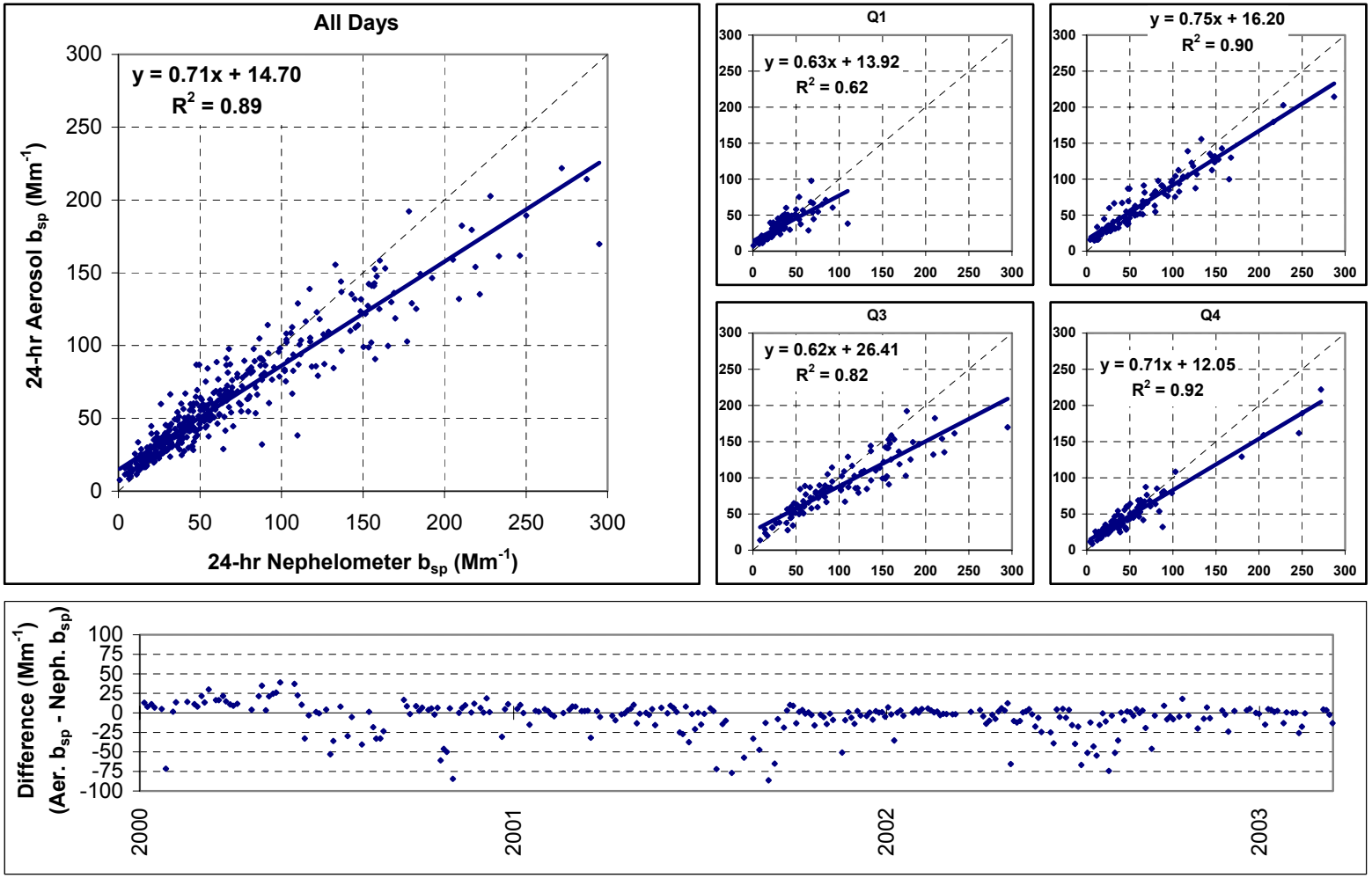


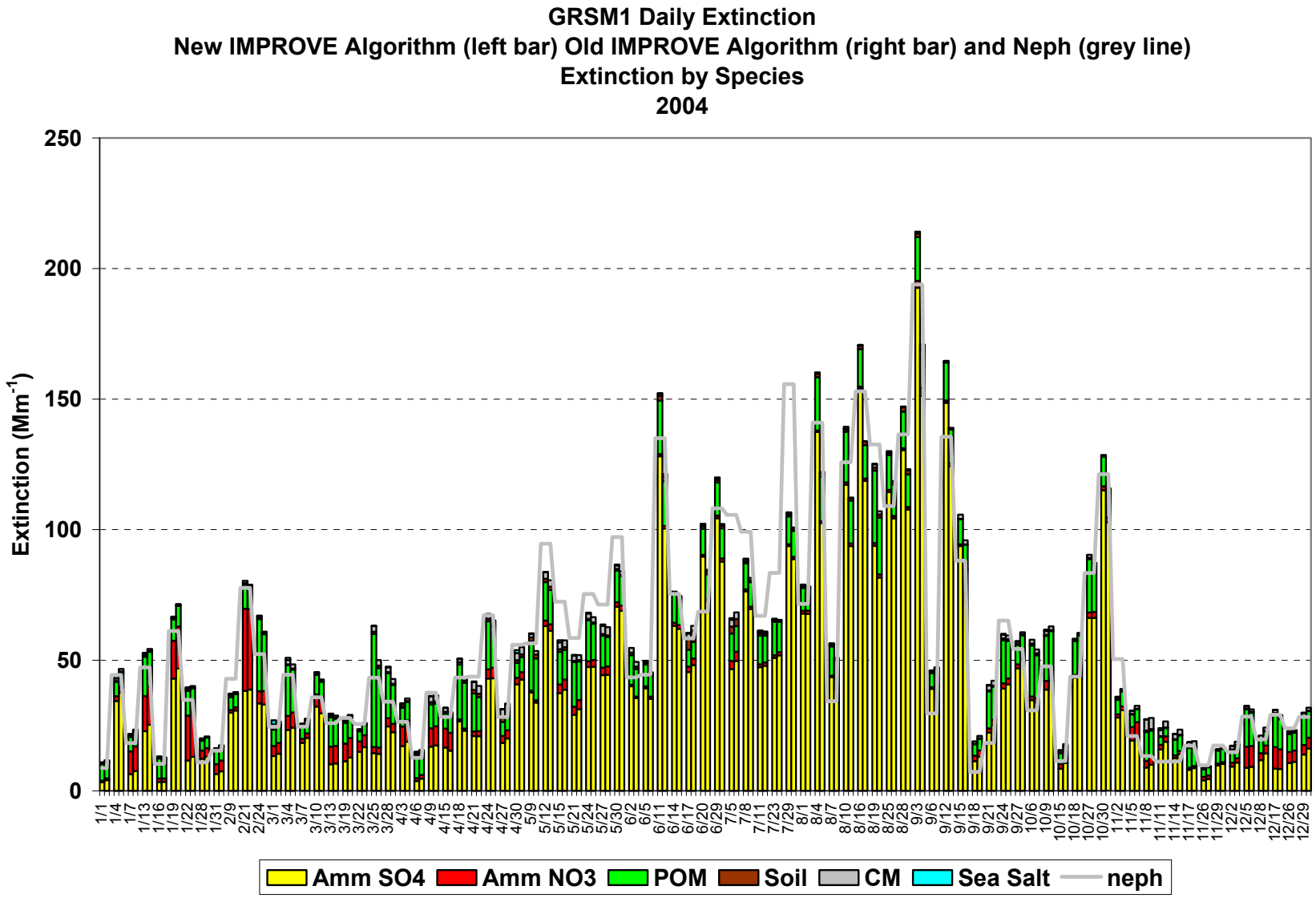

ROMA1 Daily Extinction
New IMPROVE Algorithm (left bar) Old IMPROVE Algorithm (right bar) and Neph (grey line)
Extinction by Species
2004
Extinction (Mm-1)
180
160
140
120
100
80
60
40
20
0
1/16
1/19
1/28
1/31
2/9
2/18
2/21
3/1
3/7
3/10
3/13
3/19
3/22
3/28
3/31
4/3
4/15
4/18
4/21
4/24
5/12
5/15
5/18
5/24
5/27
5/30
6/14
6/17
6/20
6/23
6/26
6/29
7/8
7/14
7/17
7/26
8/1
8/4
8/7
8/10
9/3
9/12
9/18
9/21
9/24
10/6
10/15
11/8
11/14
11/29
12/11
12/14
12/17
12/20
Amm SO4
Amm NO3
POM
Soil
CM
Sea Salt
neph

Aerosol Scattering vs. Nephelometer Scattering
Using New IMPROVE Algorithm (nia) and Daily f(RH)
GRSM1, 2000 - 2004

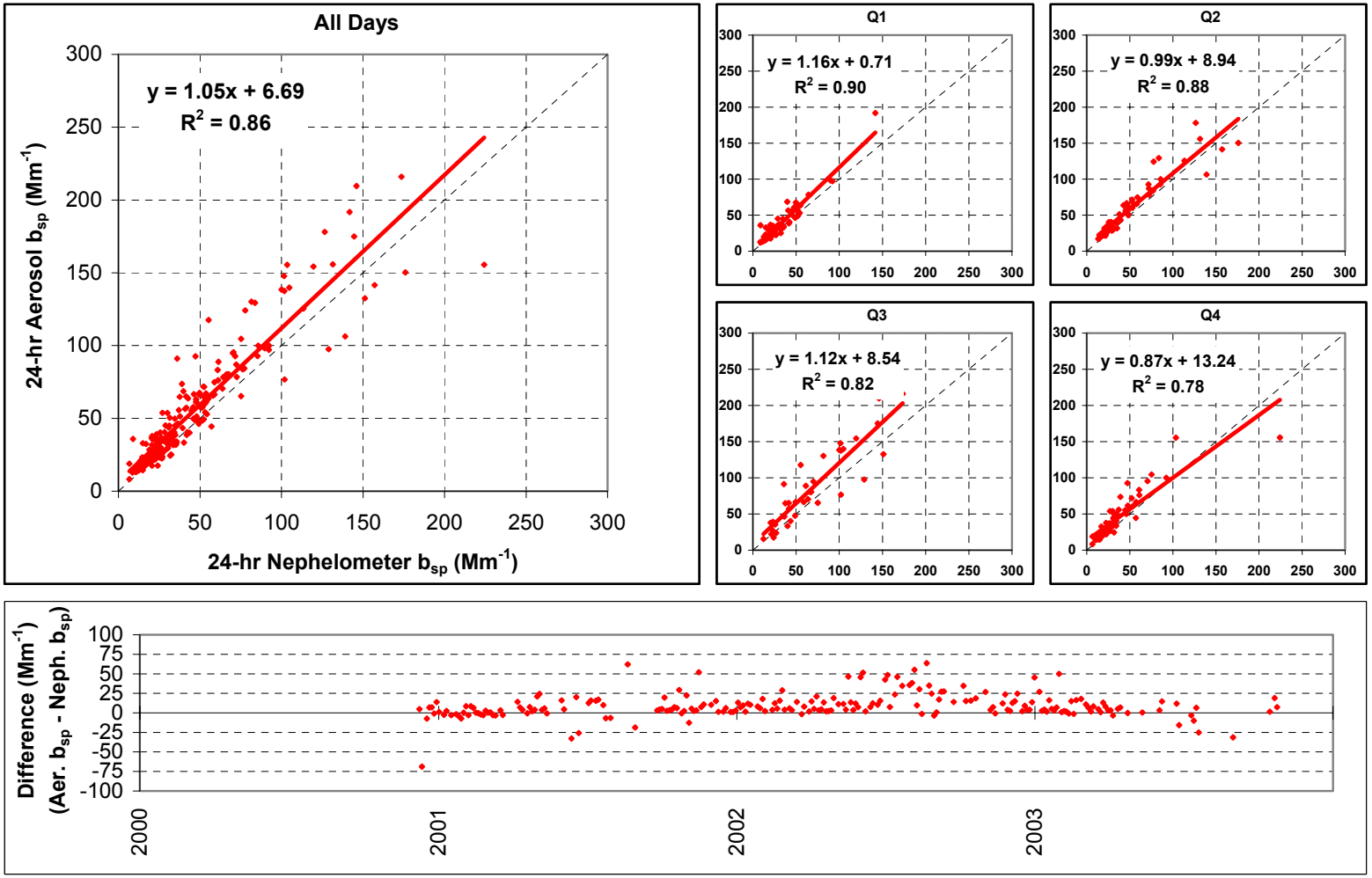


Aerosol Scattering vs. Nephelometer Scattering
Using Old IMPROVE Algorithm (oia) and Daily f(RH)
GRSM1, 2000 - 2004

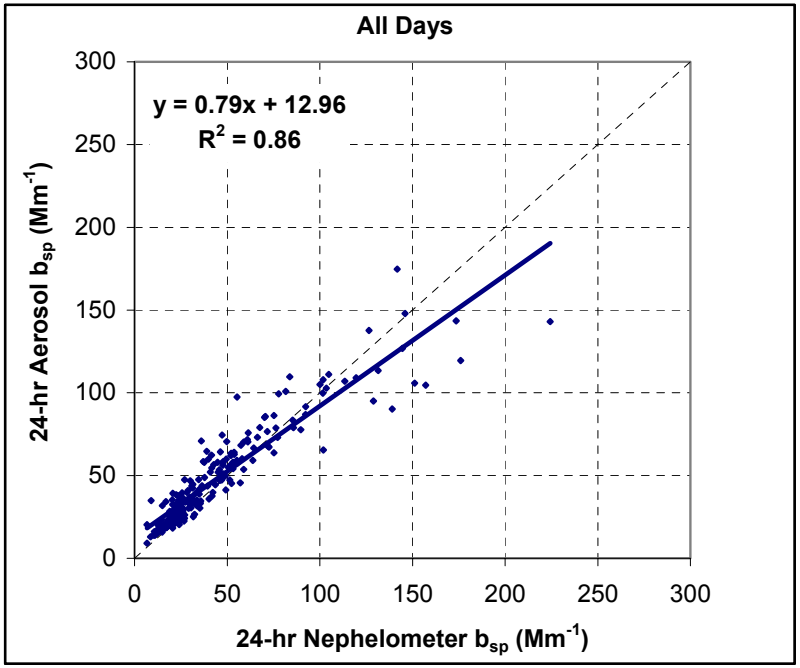


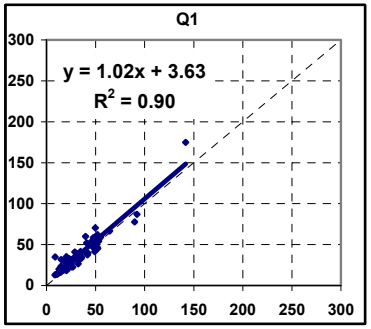

GRSM1 Daily Extinction
New IMPROVE Algorithm (left bar) Old IMPROVE Algorithm (right bar) and Neph (grey line)
Extinction by Species
2004
Extinction (Mm-1)
250
200
150
100
50
0
Amm SO4
Amm NO3
POM
Soil
CM
Sea Salt
neph

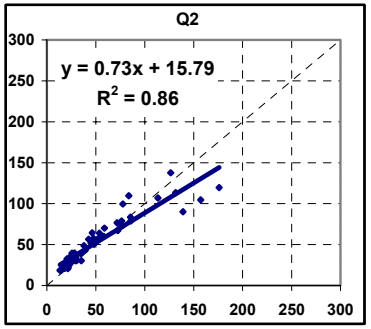
Aerosol Scattering vs. Nephelometer Scattering
Using New IMPROVE Algorithm (nia) and Daily f(RH)
JARI1, 2000-2003

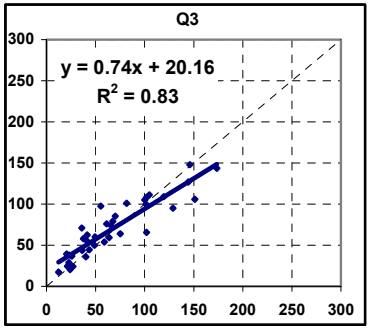


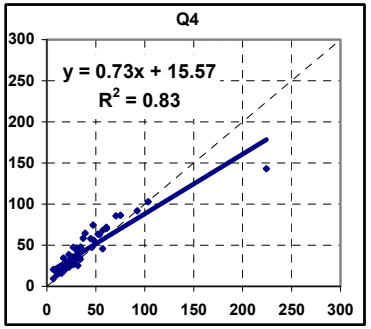
Aerosol Scattering vs. Nephelometer Scattering
Using Old IMPROVE Algorithm (oia) and Daily f(RH)
JARI1, 2000-2003

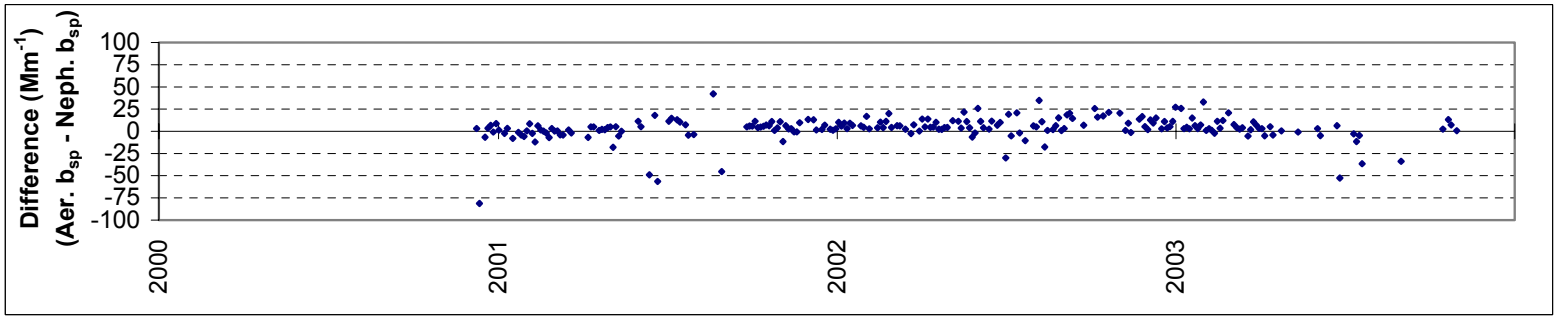


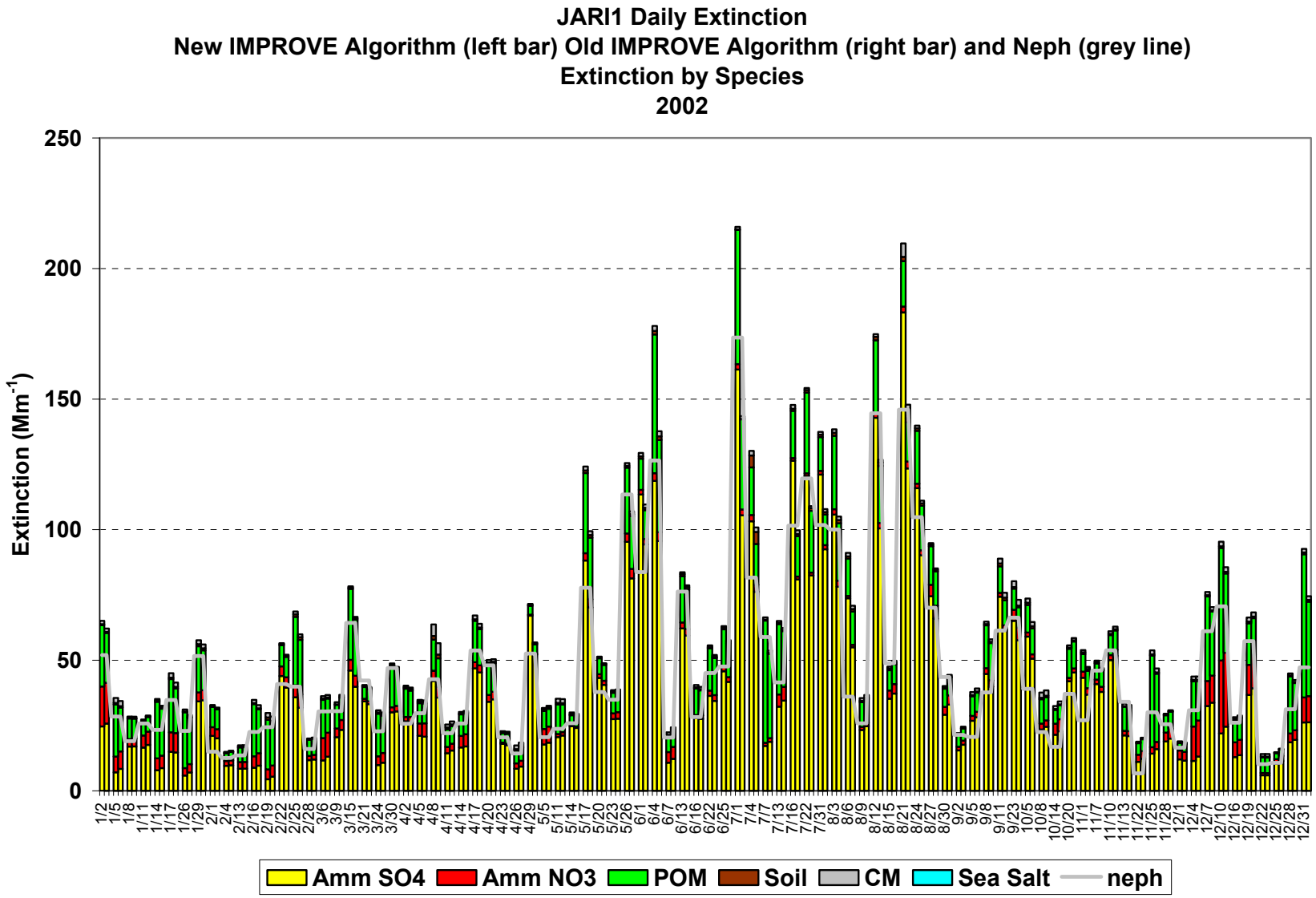




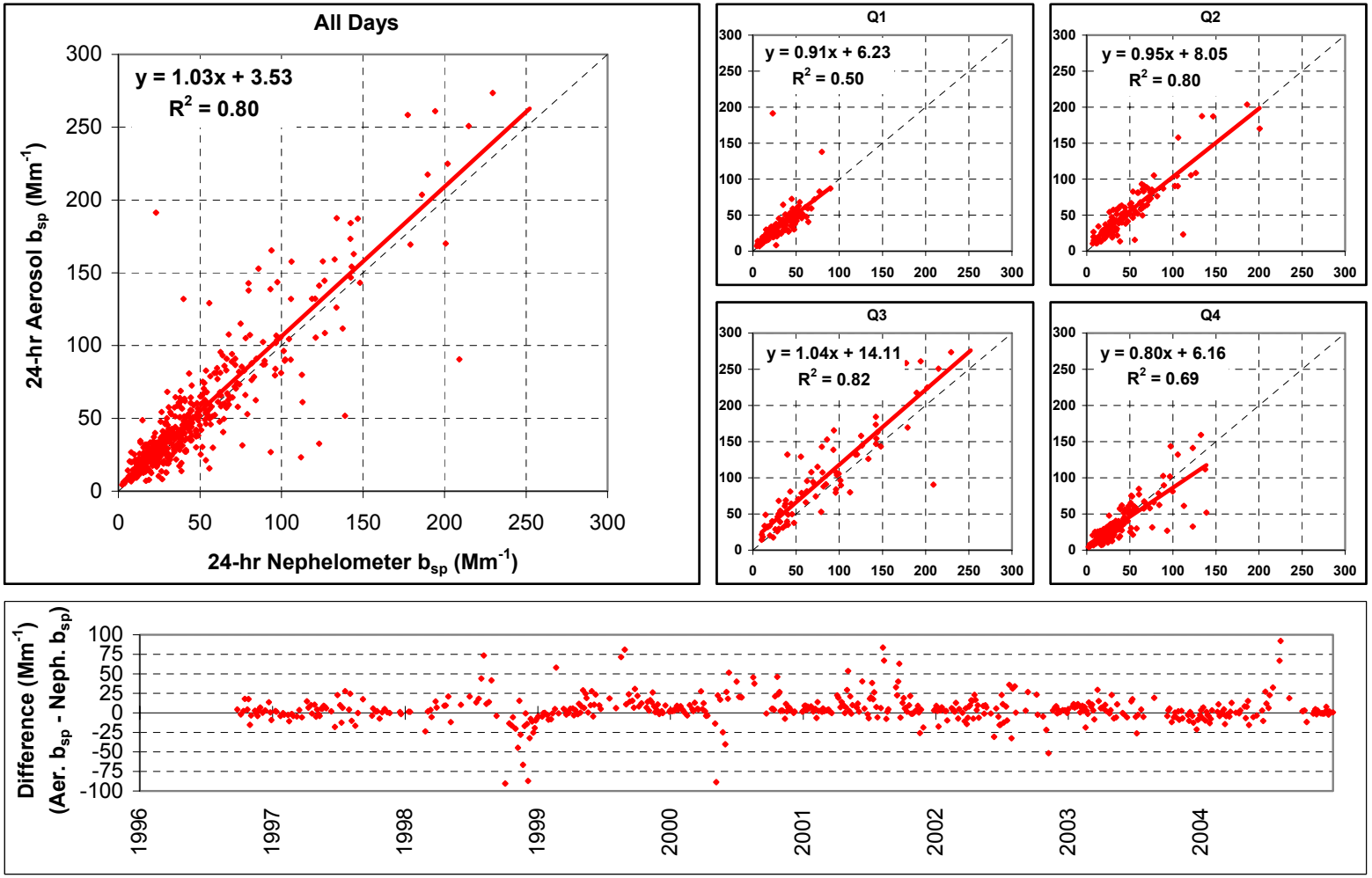




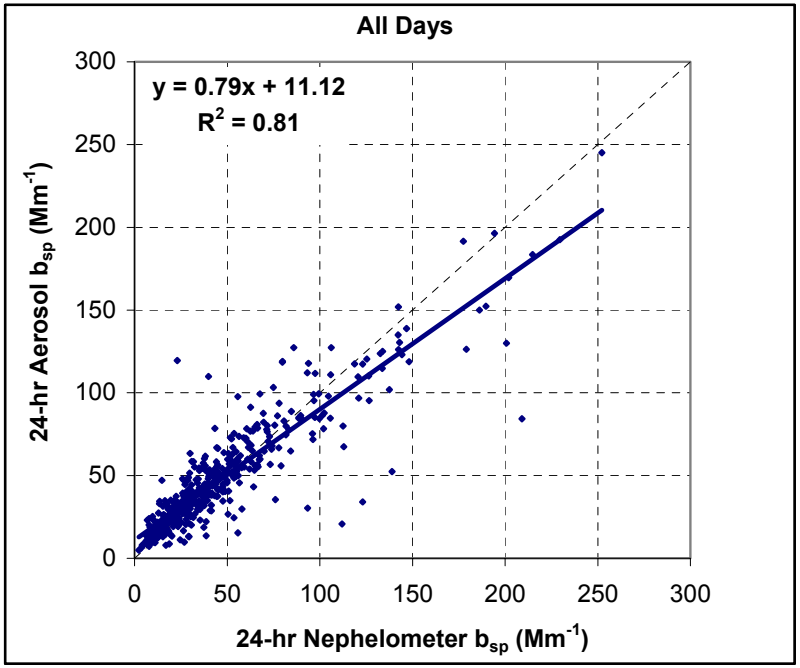


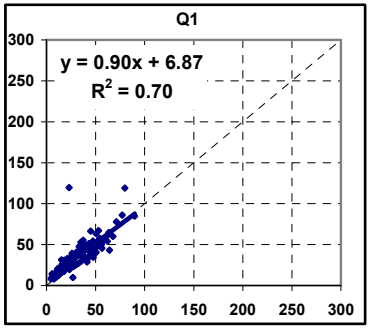

JARI1 Daily Extinction
New IMPROVE Algorithm (left bar) Old IMPROVE Algorithm (right bar) and Neph (grey line)
Extinction by Species
2002
Extinction (Mm-1)
250
200
150
100
50
0
Amm SO4
Amm NO3
POM
Soil
CM
Sea Salt
neph

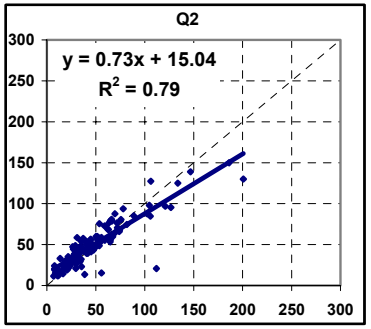
Aerosol Scattering vs. Nephelometer Scattering
Using New IMPROVE Algorithm (nia) and Daily f(RH)
SHEN1, 1996 - 2004

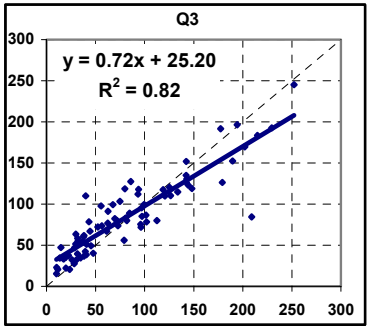


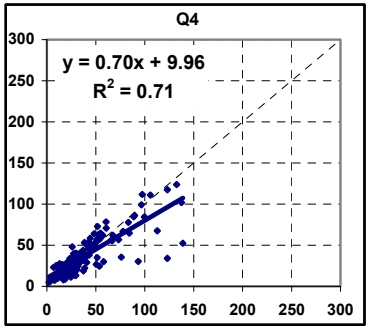
Aerosol Scattering vs. Nephelometer Scattering
Using Old IMPROVE Algorithm (oia) and Daily f(RH)
SHEN1, 1996 - 2004

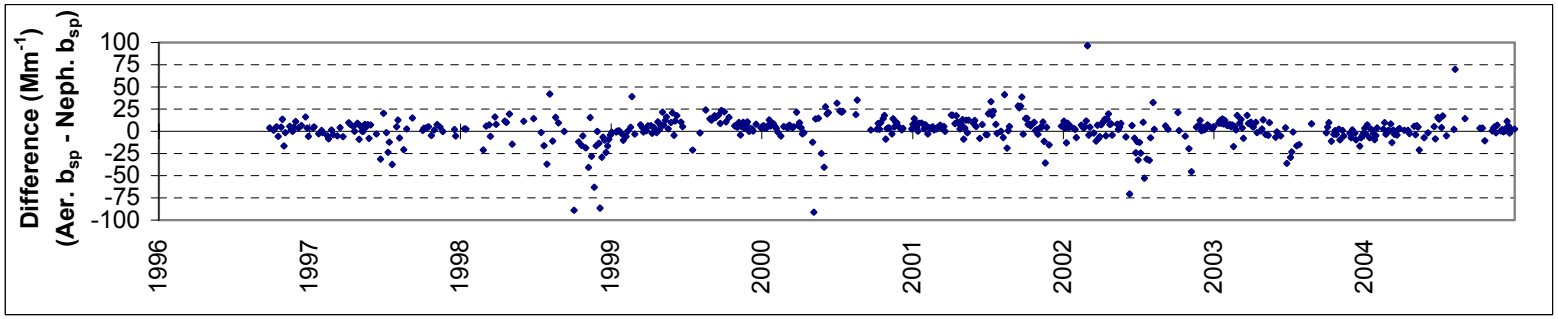


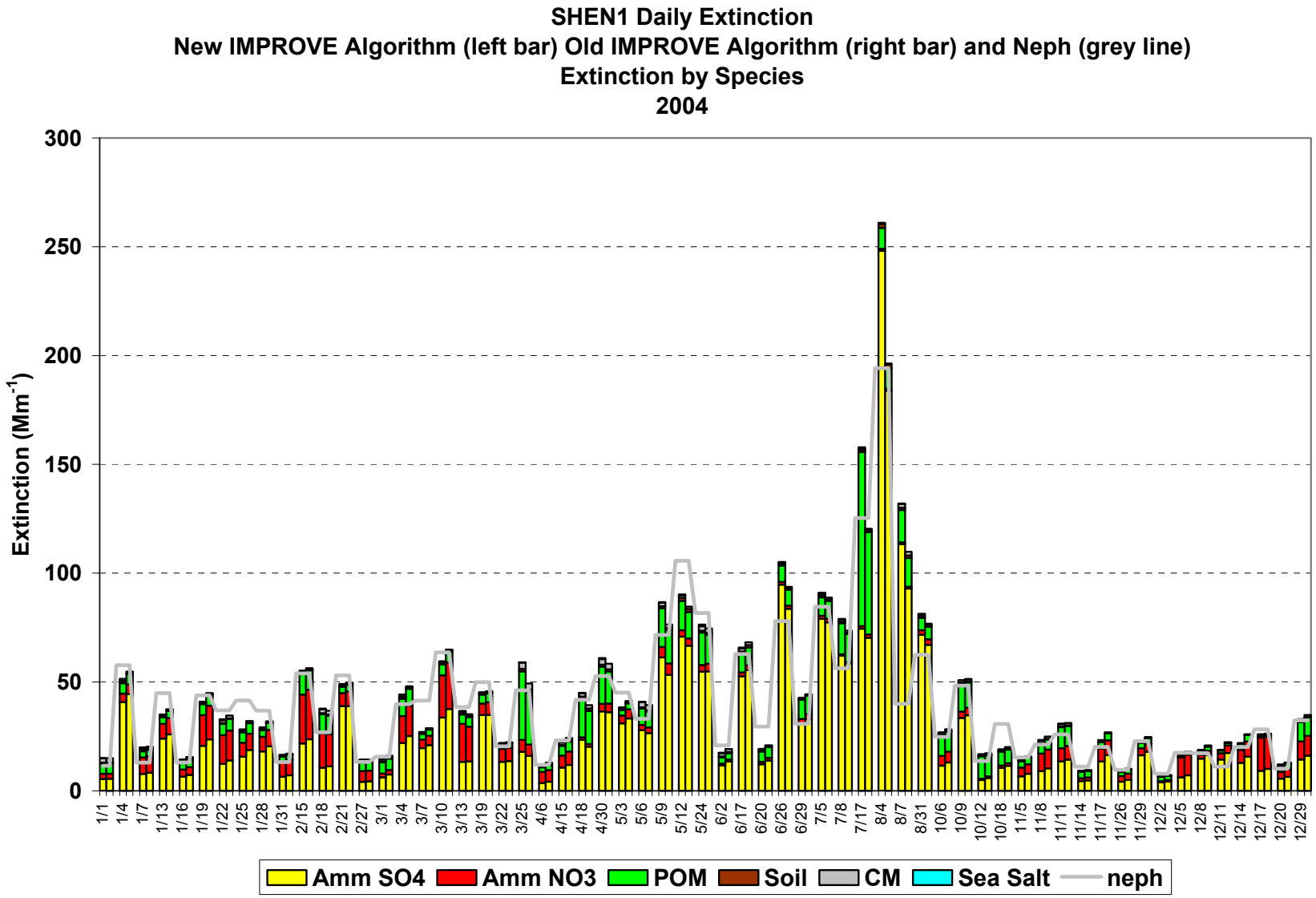











SHEN1 Daily Extinction
New IMPROVE Algorithm (left bar) Old IMPROVE Algorithm (right bar) and Neph (grey line)
Extinction by Species
2004
Extinction (Mm-1)
300
250
200
150
100
50
0
1/1
1/4
1/7
1/13
1/16
1/19
1/22
1/25
1/28
1/31
2/15
2/18
2/21
2/27
3/1
3/4
3/7
3/10
3/13
3/19
3/22
3/25
4/6
4/15
4/18
4/30
5/3
5/6
5/9
5/12
5/24
6/2
6/17
6/20
6/26
6/29
7/5
7/8
7/17
8/4
8/7
8/31
10/6
10/9
10/12
10/18
11/5
11/8
11/11
11/14
11/17
11/26
11/29
12/2
12/5
12/8
12/11
12/14
12/17
12/20
12/29
Amm SO4
Amm NO3
POM
Soil
CM
Sea Salt
neph