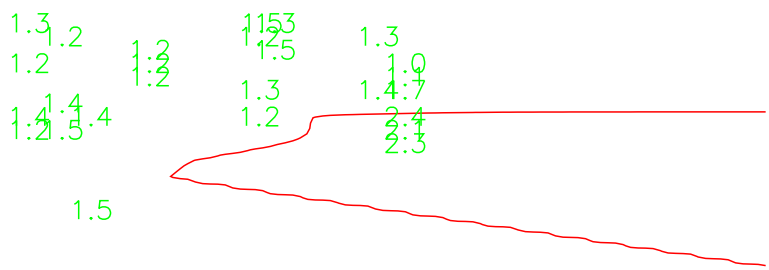
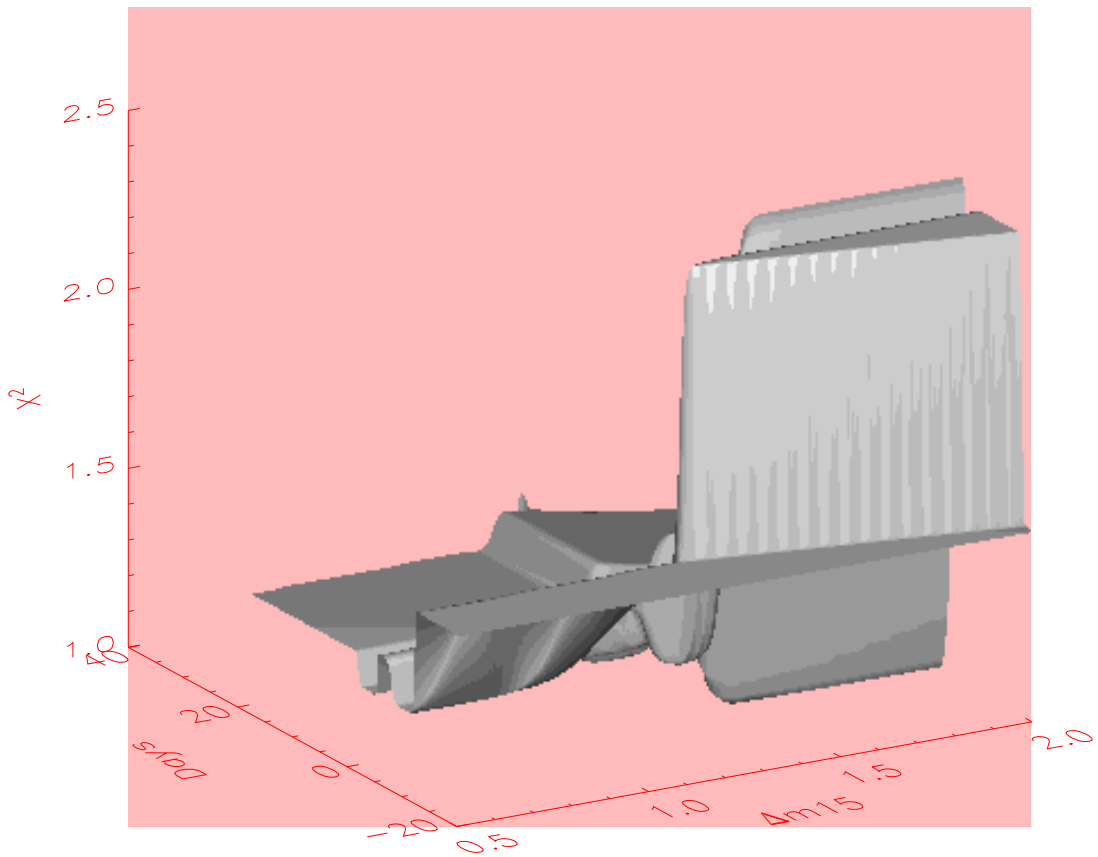
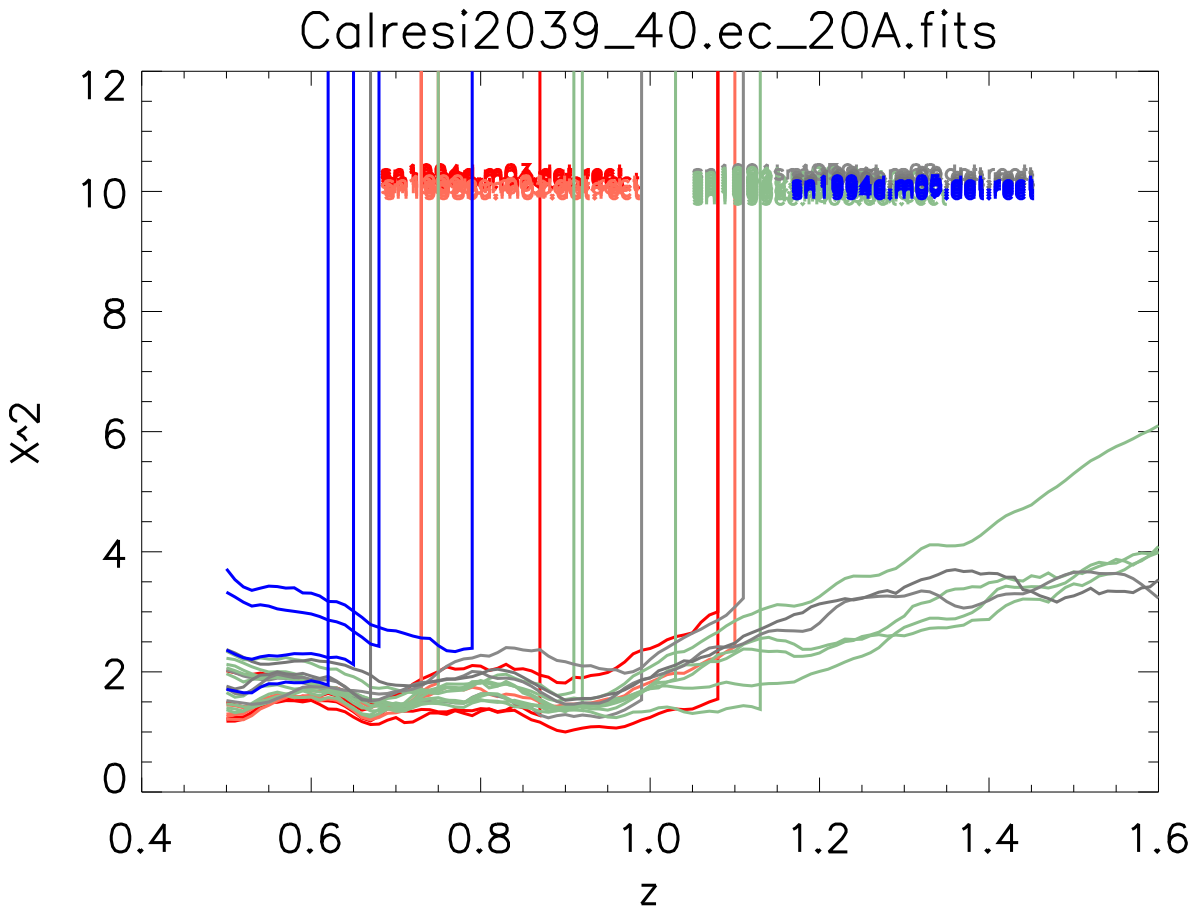

1.3
1.2
1.2
1.2
1.2
1.2
1.4
1.4
1.4
1.2
1.5
1.5
1.3
1.2
1.3
1.0
1.4
1.7
2.4
2.3



2.5
2.0
1.5
1.0
χ^2
40
20
0
−20
Days
0.5
1.0
1.5
2.0
Δm15


Calresi2039_40.ec_20A.fits
X^2
z
0
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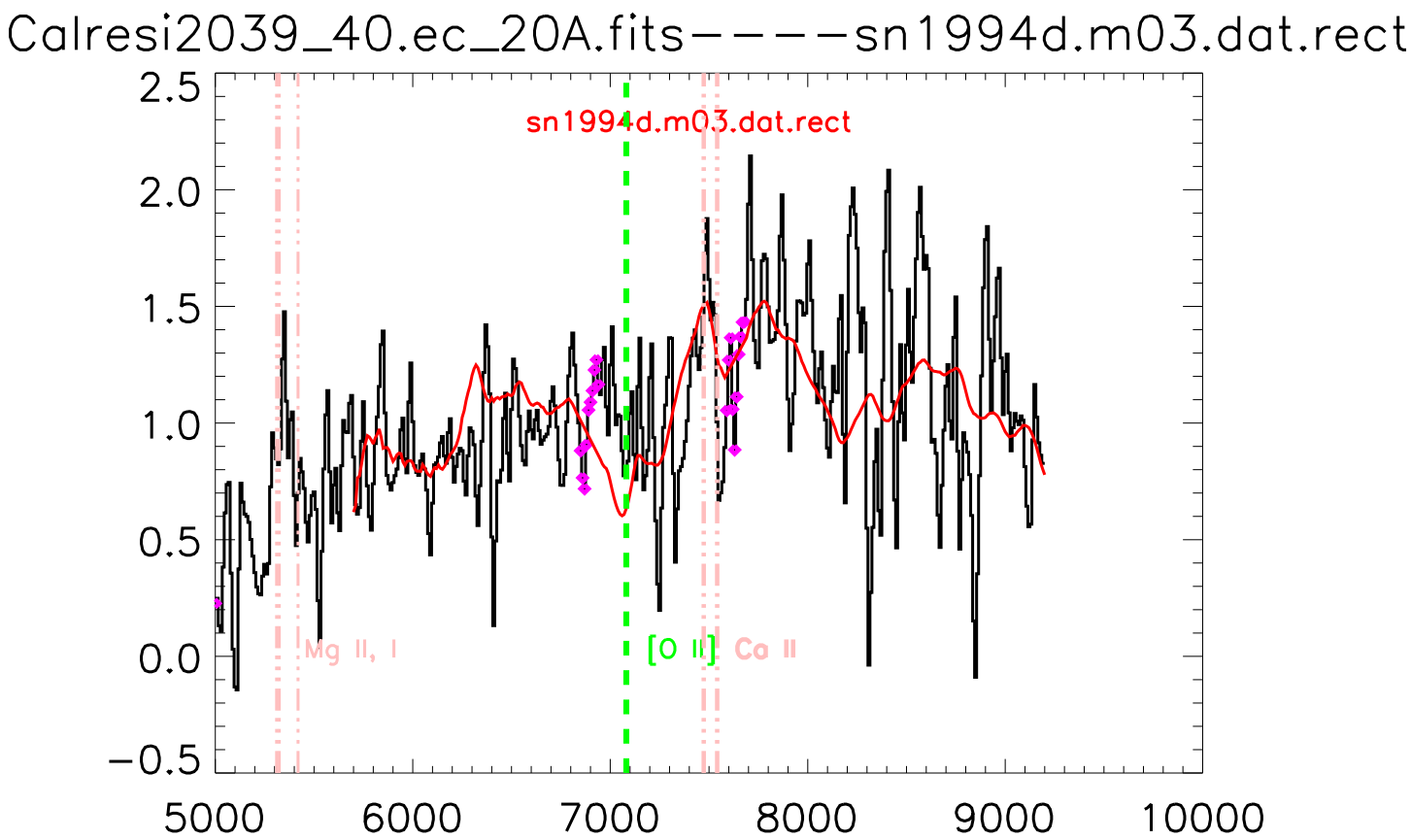
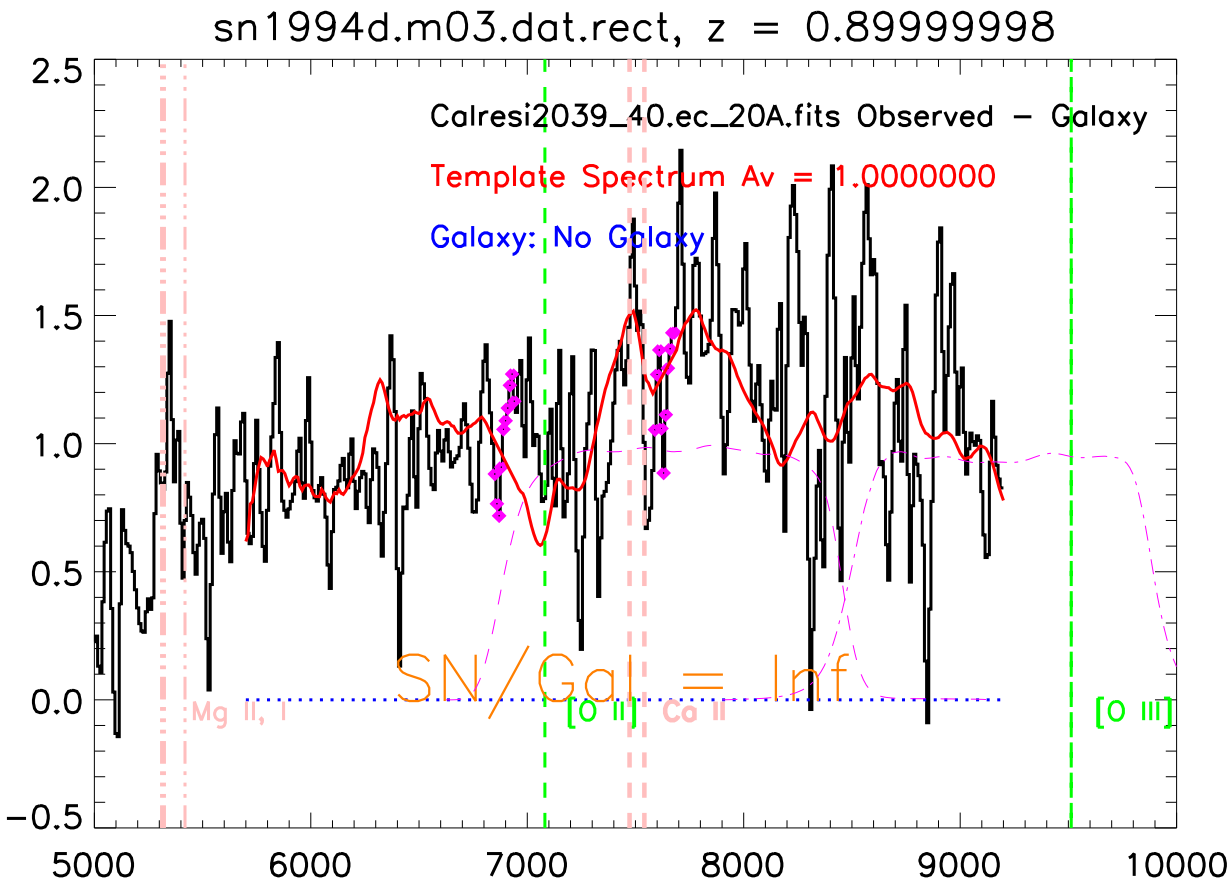
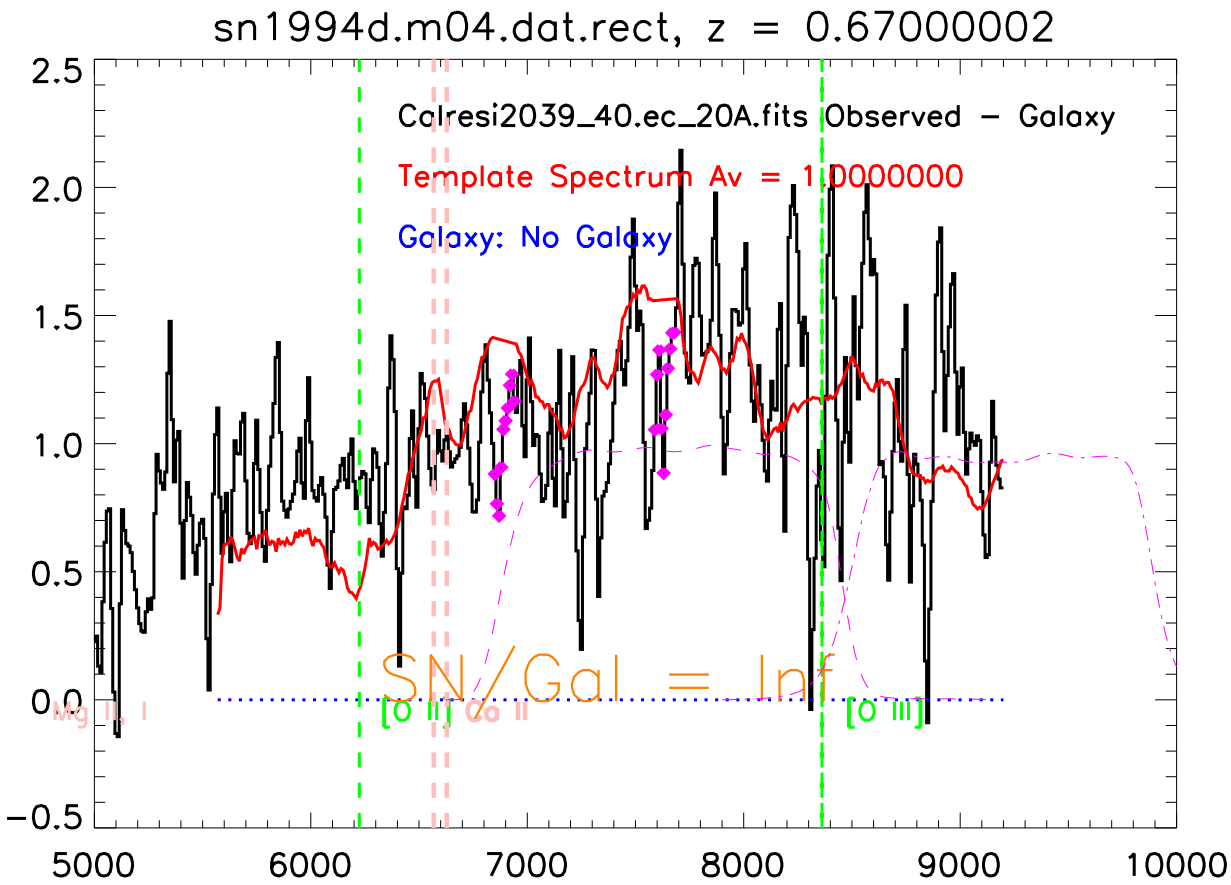
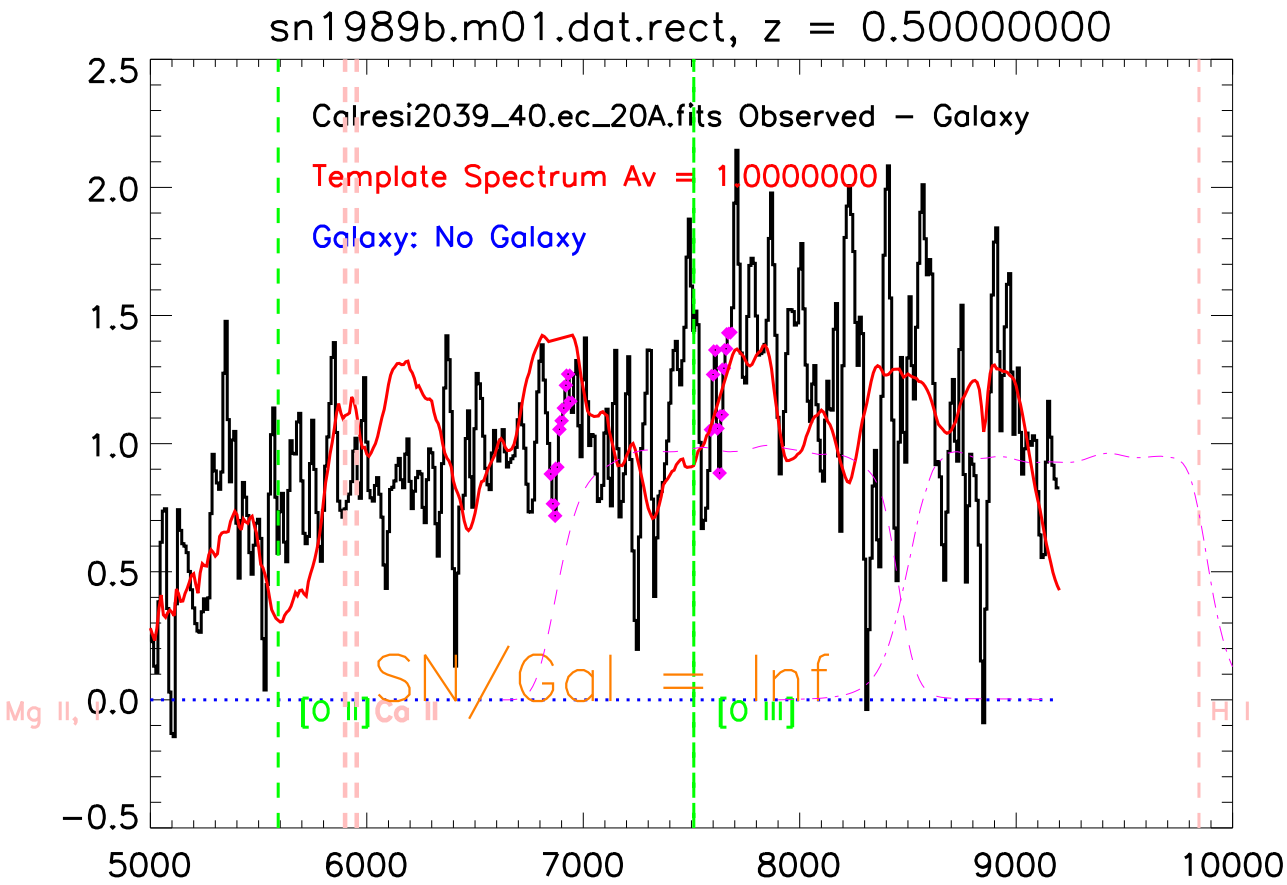
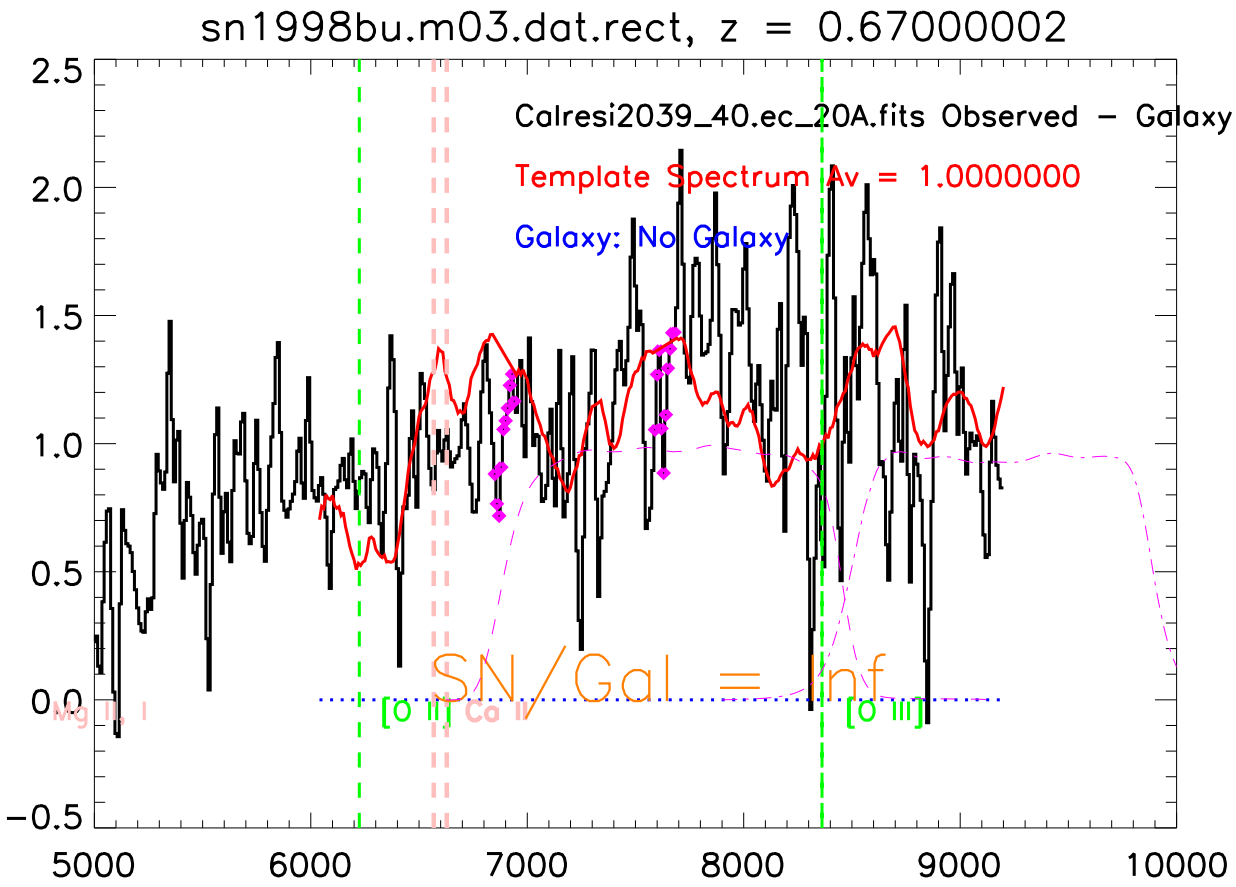
4
6
8
10
12
0.4
0.6
0.8
1.0
1.2
1.4
1.6

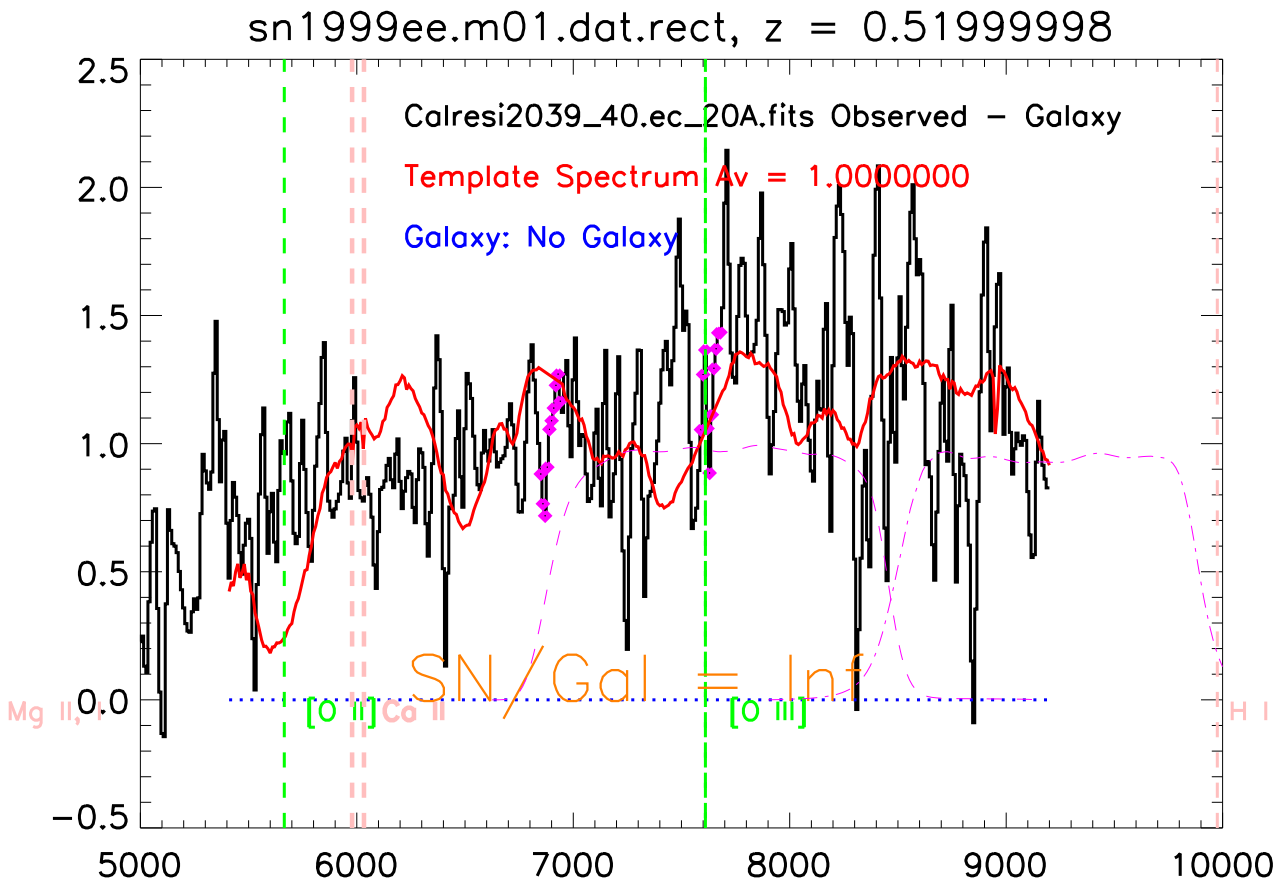

Calresi2039_40.ec_20A.fits----sn1994d.m03.dat.rect
sn1994d.m03.dat.rect
Mg II, I
[O II]
Ca II
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000

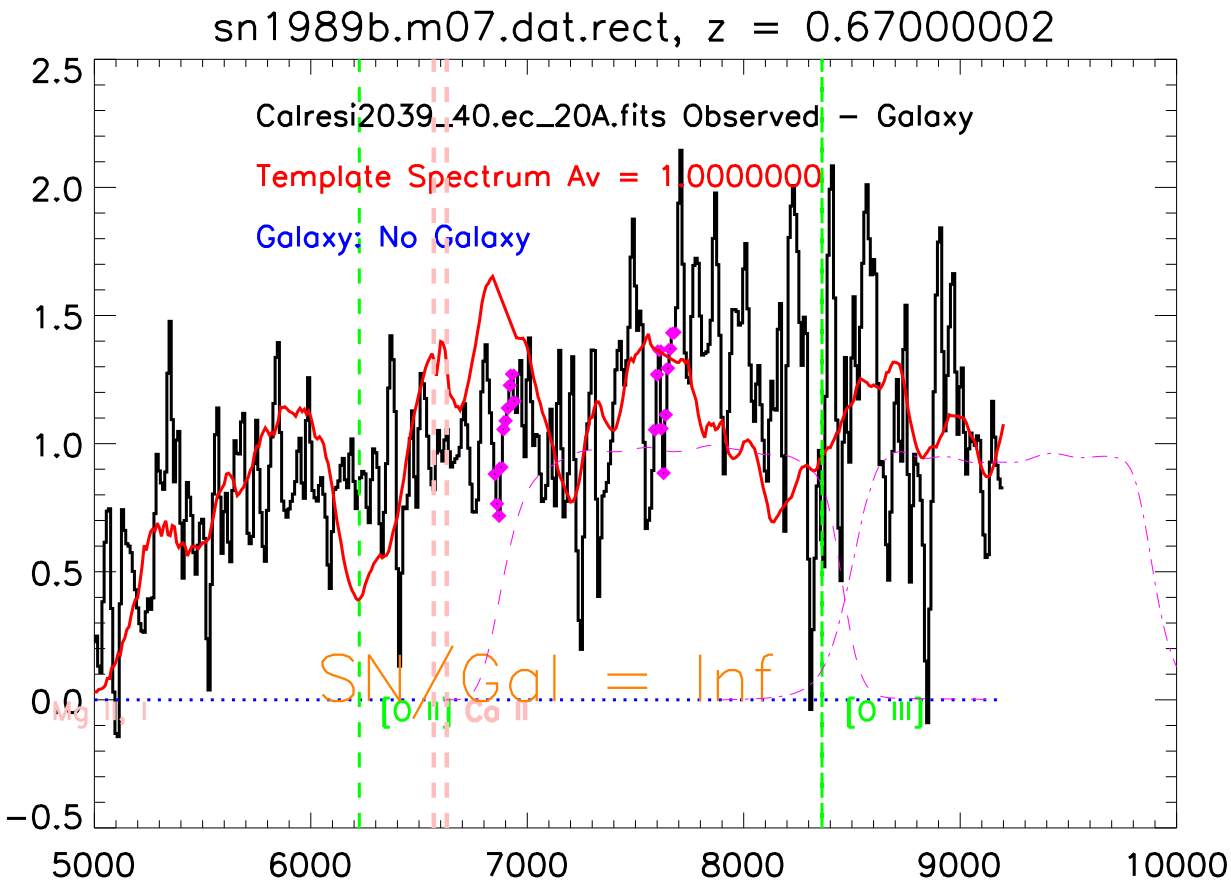

sn1994d.m03.dat.rect, z = 0.89999998
Calresi2039_40.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 1.0000000
Galaxy: No Galaxy
SN/Gal = Inf
Mg II, I
[O II]
Ca II
[O III]
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000

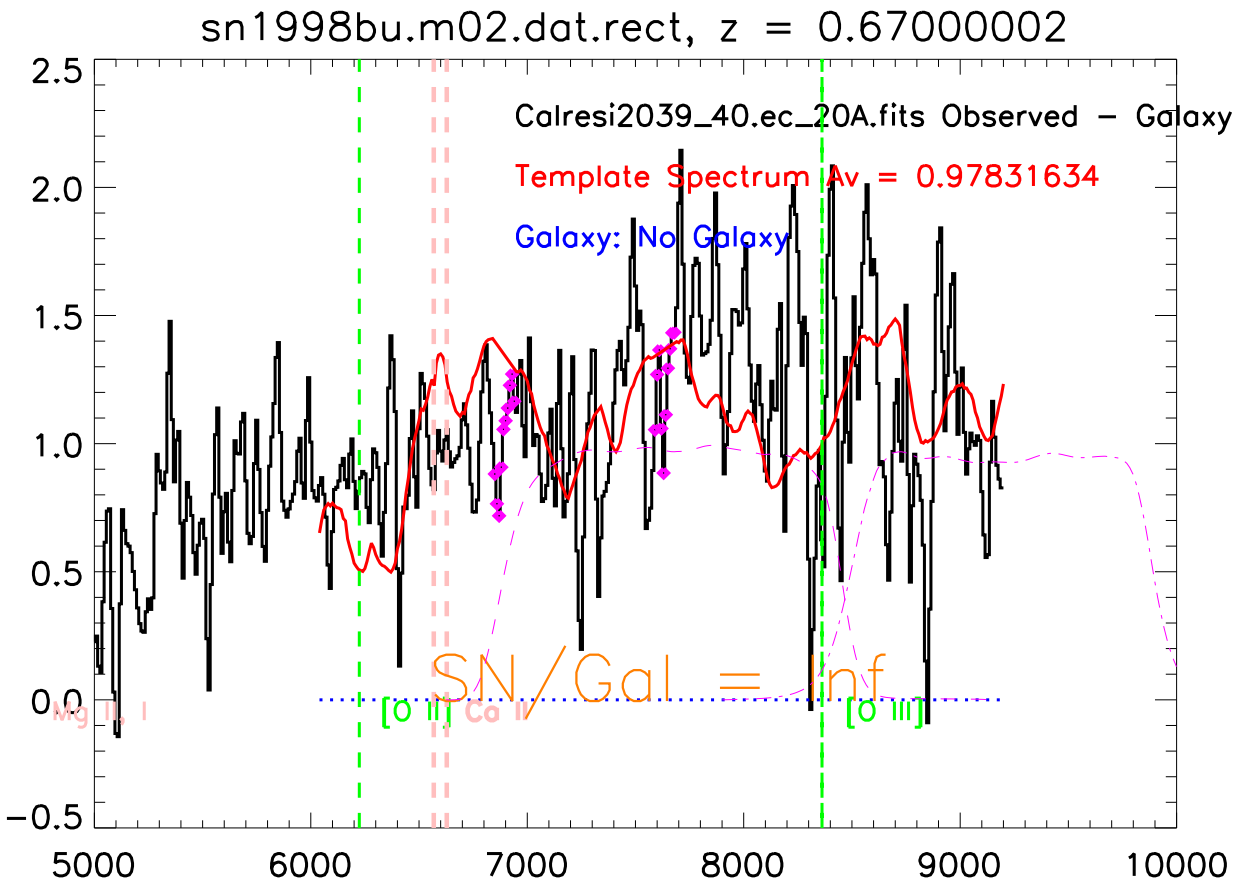

sn1994d.m04.dat.rect, z = 0.67000002
Calresi2039_40.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 1.0000000
Galaxy: No Galaxy
SN/Gal = Inf
[O II]
Ca II
[O III]
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000

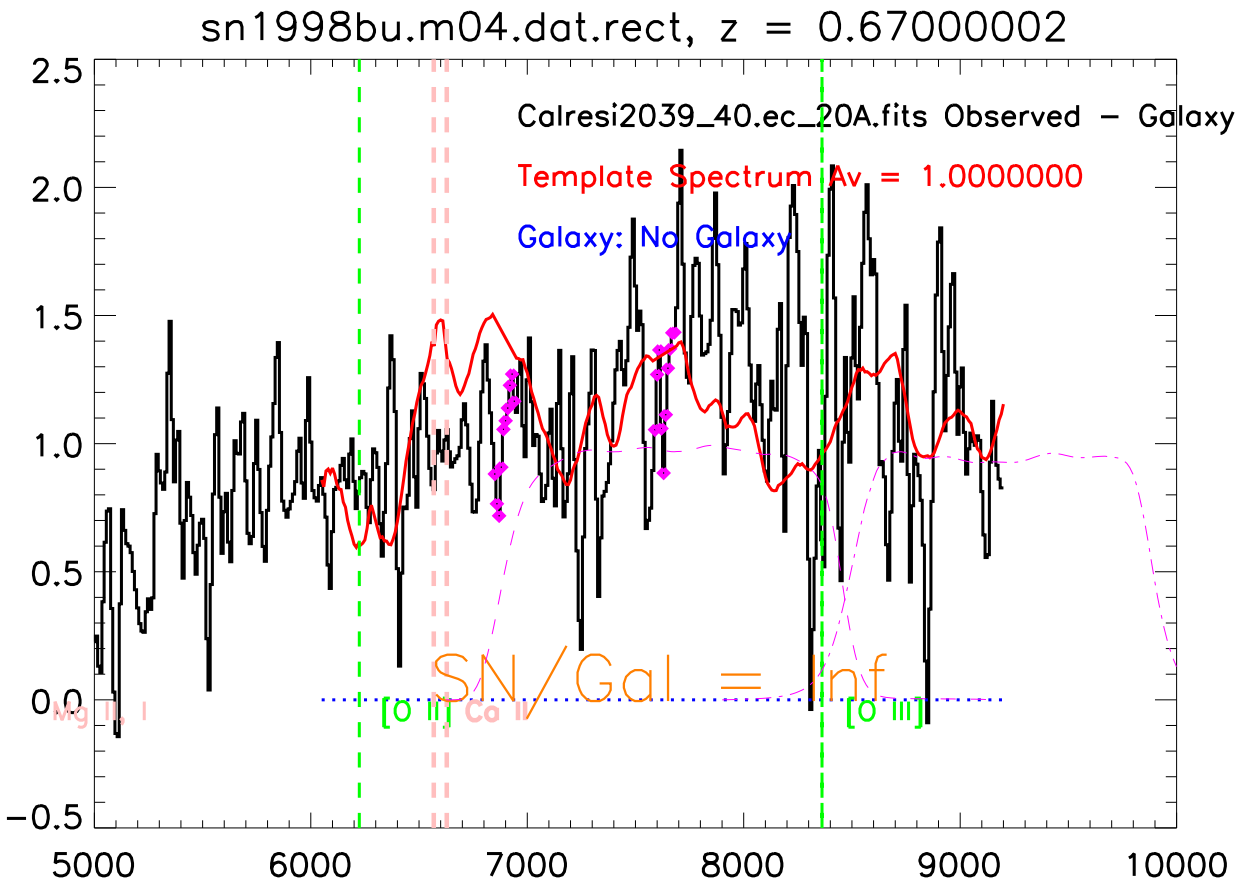

sn1989b.m01.dat.rect, z = 0.50000000
Calresi2039_40.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 1.0000000
Galaxy: No Galaxy
SN/Gal = Inf
[O II]
Ca II
[O III]
Mg II,
H I
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000

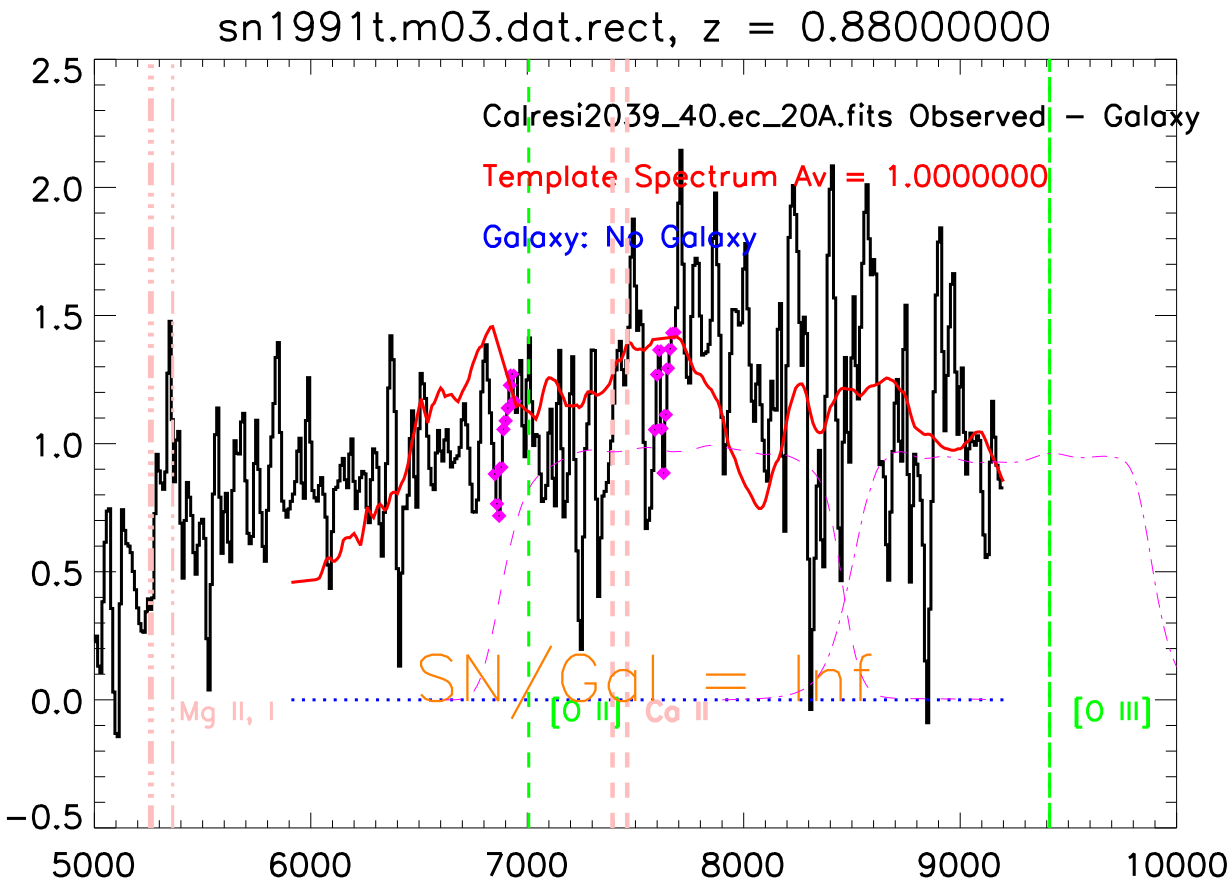

sn1998bu.m03.dat.rect, z = 0.67000002
Calresi2039_40.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 1.0000000
Galaxy: No Galaxy
SN/Gal = Inf
[O II]
Ca II
[O III]
Mg II, I
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000

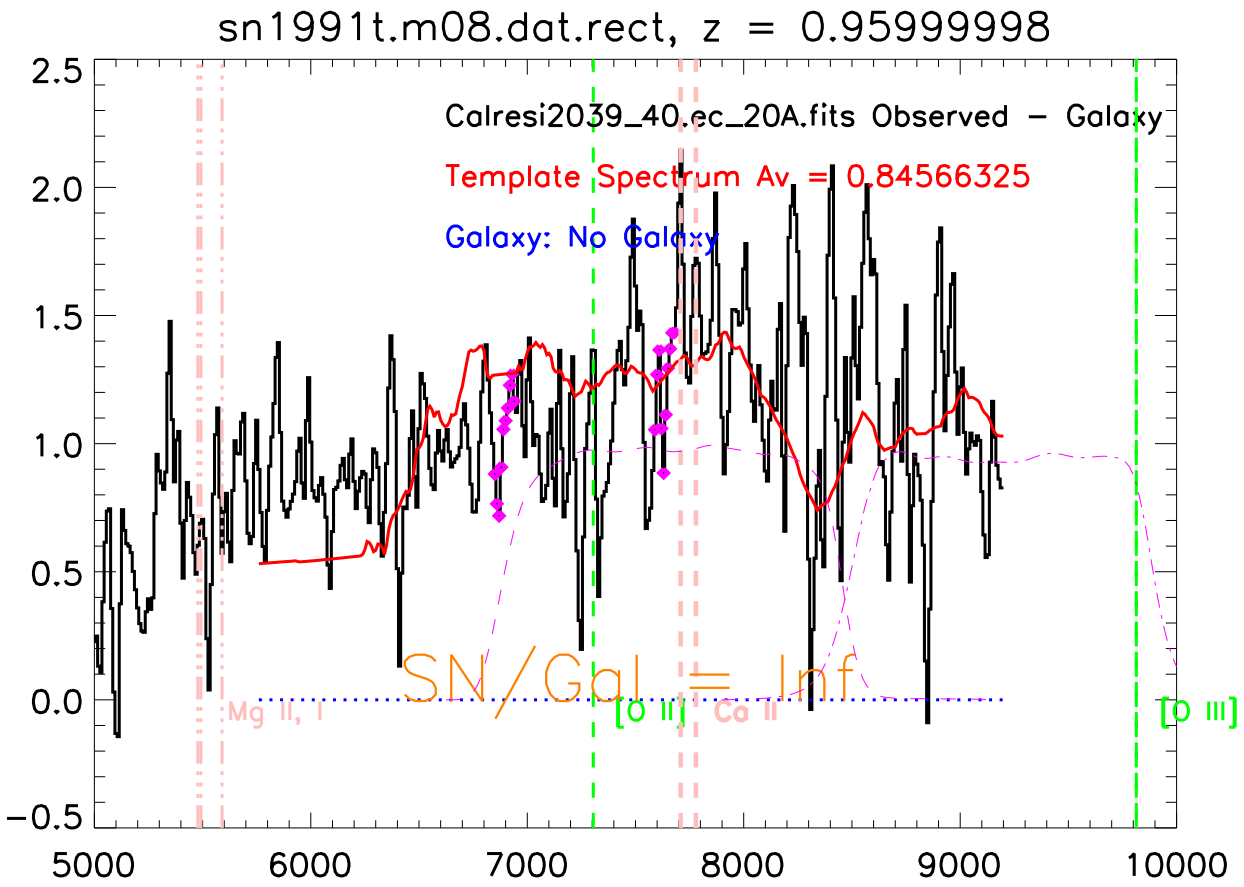

sn1999ee.m01.dat.rect, z = 0.51999998
Calresi2039_40.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 1.0000000
Galaxy: No Galaxy
SN/Gal = Inf
[O II]
Ca II
[O III]
Mg II
H I
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000

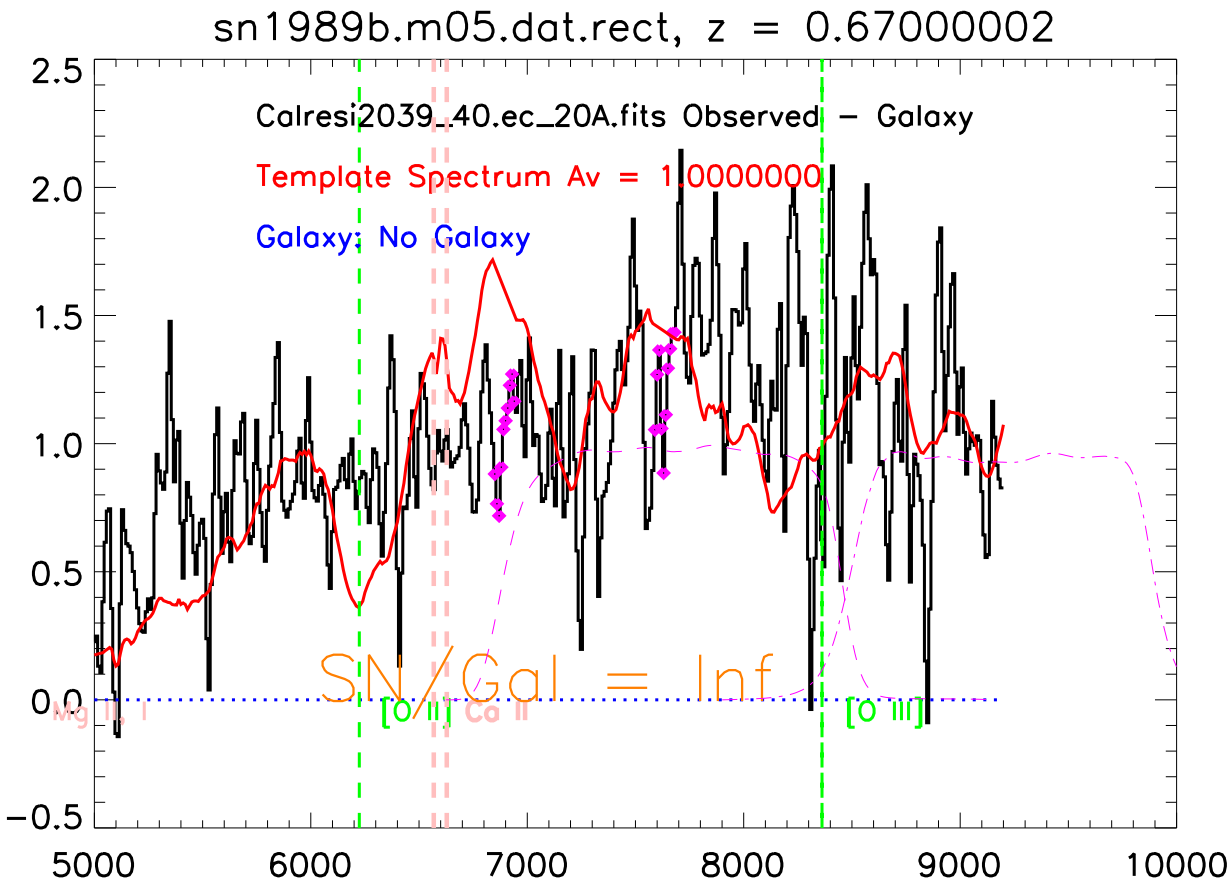

sn1989b.m07.dat.rect, z = 0.67000002
Calresi2039_40.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 1.0000000
Galaxy: No Galaxy
SN/Gal = Inf
Mg II, I
[O II]
Ca II
[O III]
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000

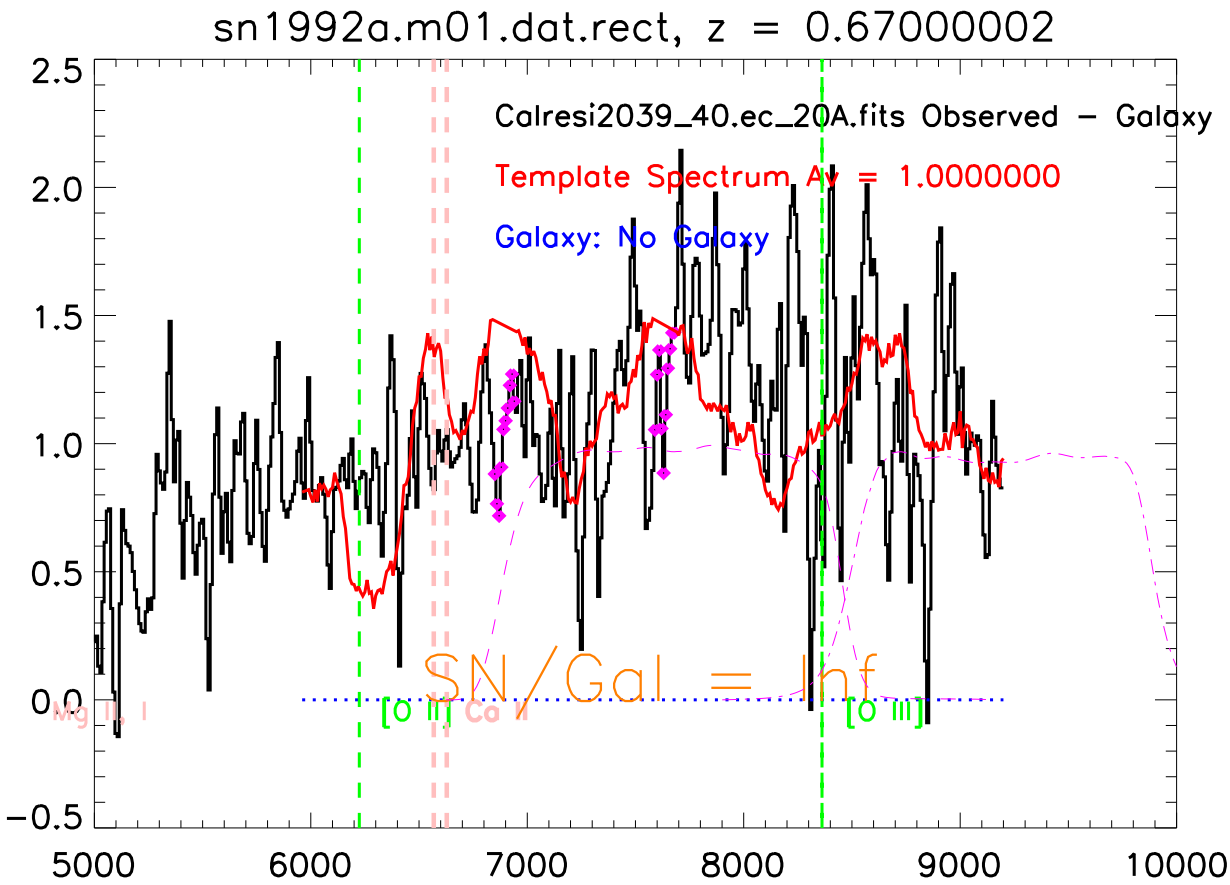

sn1998bu.m02.dat.rect, z = 0.67000002
Calresi2039_40.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 0.97831634
Galaxy: No Galaxy
SN/Gal = Inf
[O II]
Ca II
[O III]
Mg II, I
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000

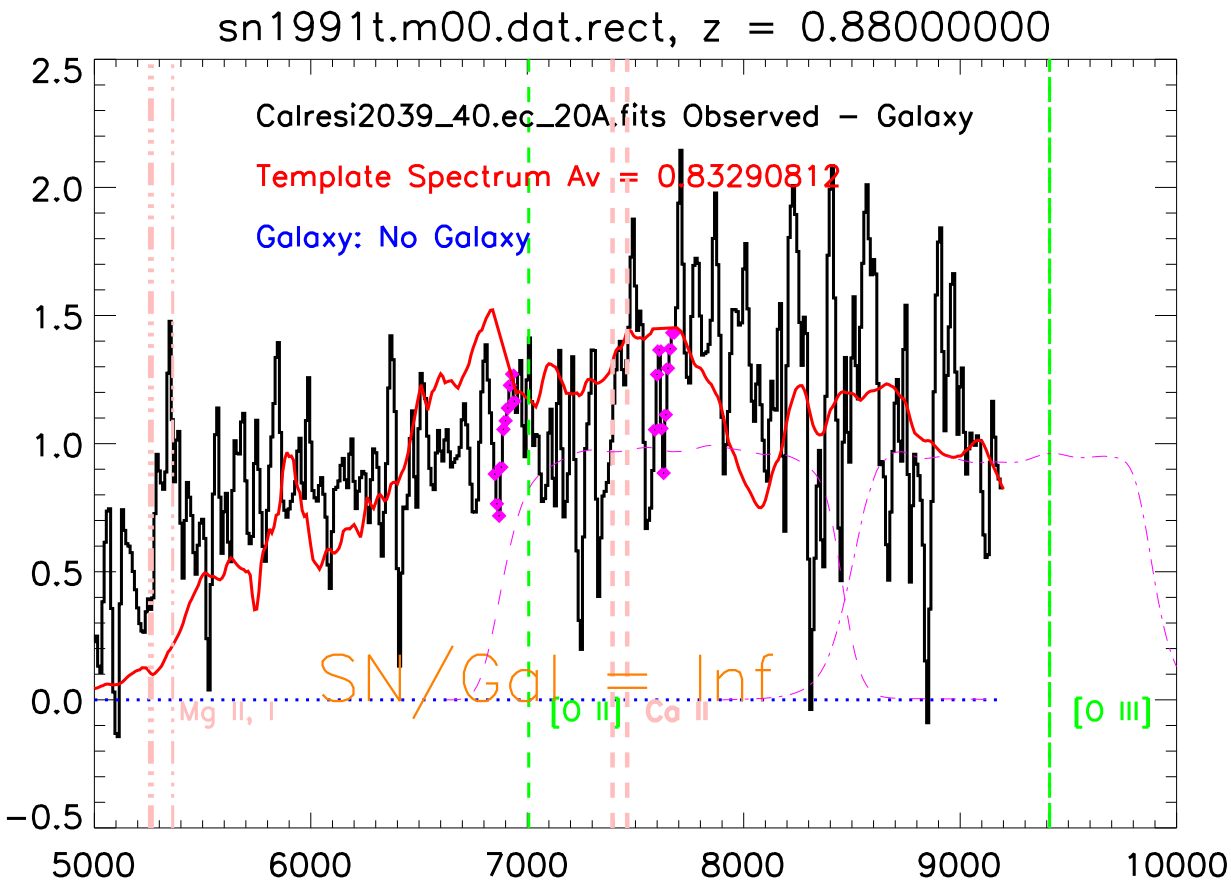

sn1998bu.m04.dat.rect, z = 0.67000002
Calresi2039_40.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 1.0000000
Galaxy: No Galaxy
SN/Gal = Inf
[O II] Ca II
[O III]
Mg II, I
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000

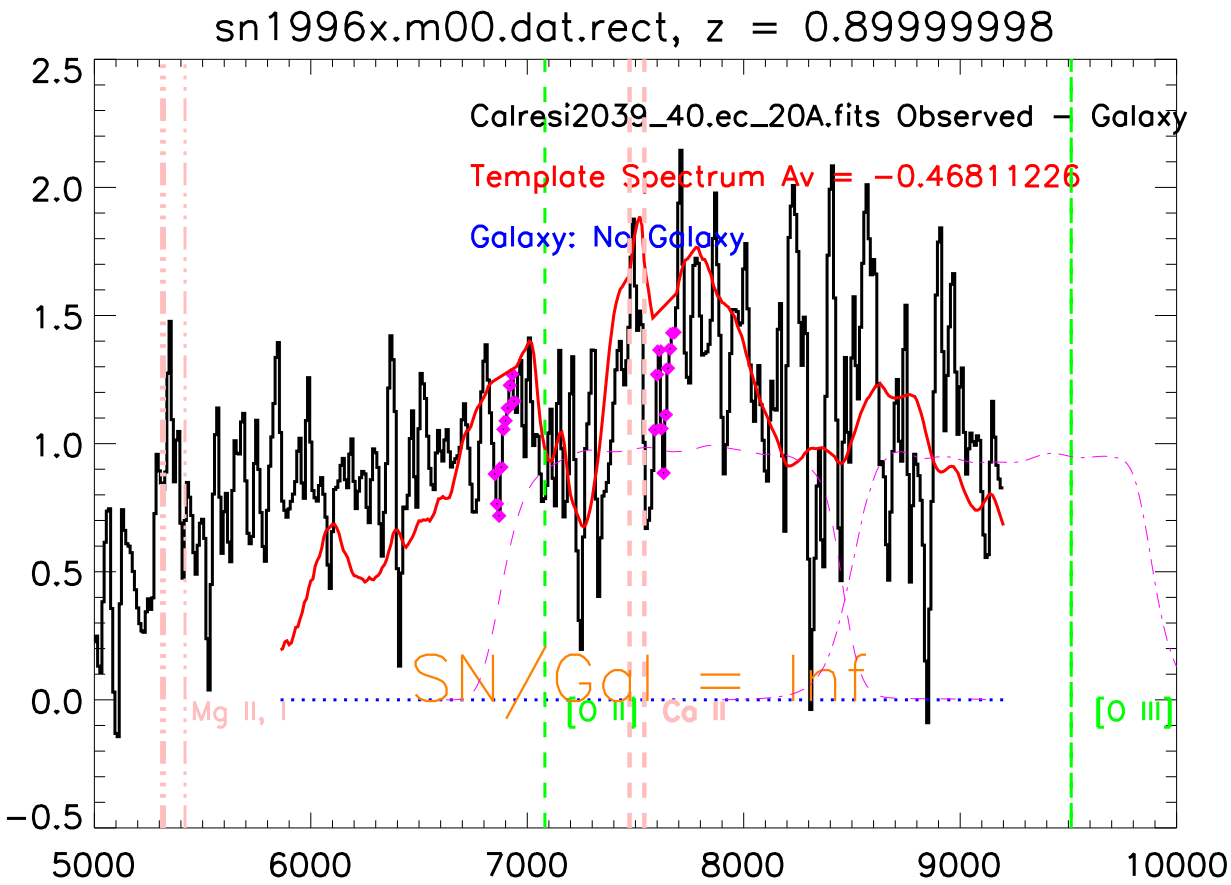

sn1991t.m03.dat.rect, z = 0.88000000
Calresi2039_40.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 1.0000000
Galaxy: No Galaxy
SN/Gal = Inf
Mg II, I
[O II]
Ca II
[O III]
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000

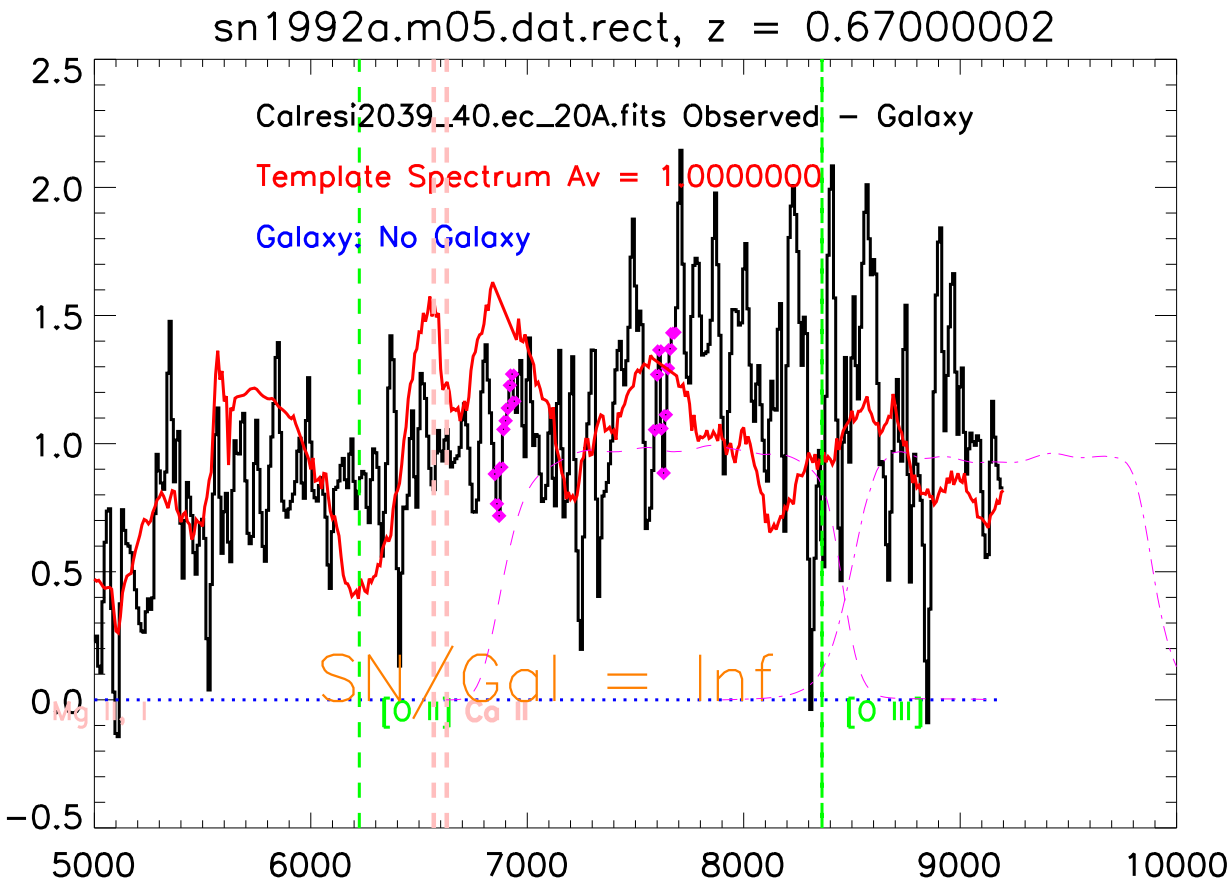

sn1991t.m08.dat.rect, z = 0.95999998
Calresi2039_40.ec_20A.fits Observed − Galaxy
Template Spectrum Av. = 0.84566325
Galaxy: No Galaxy
SN/Gal = Inf
Mg II, I
[O II]
Ca II
[O III]
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000

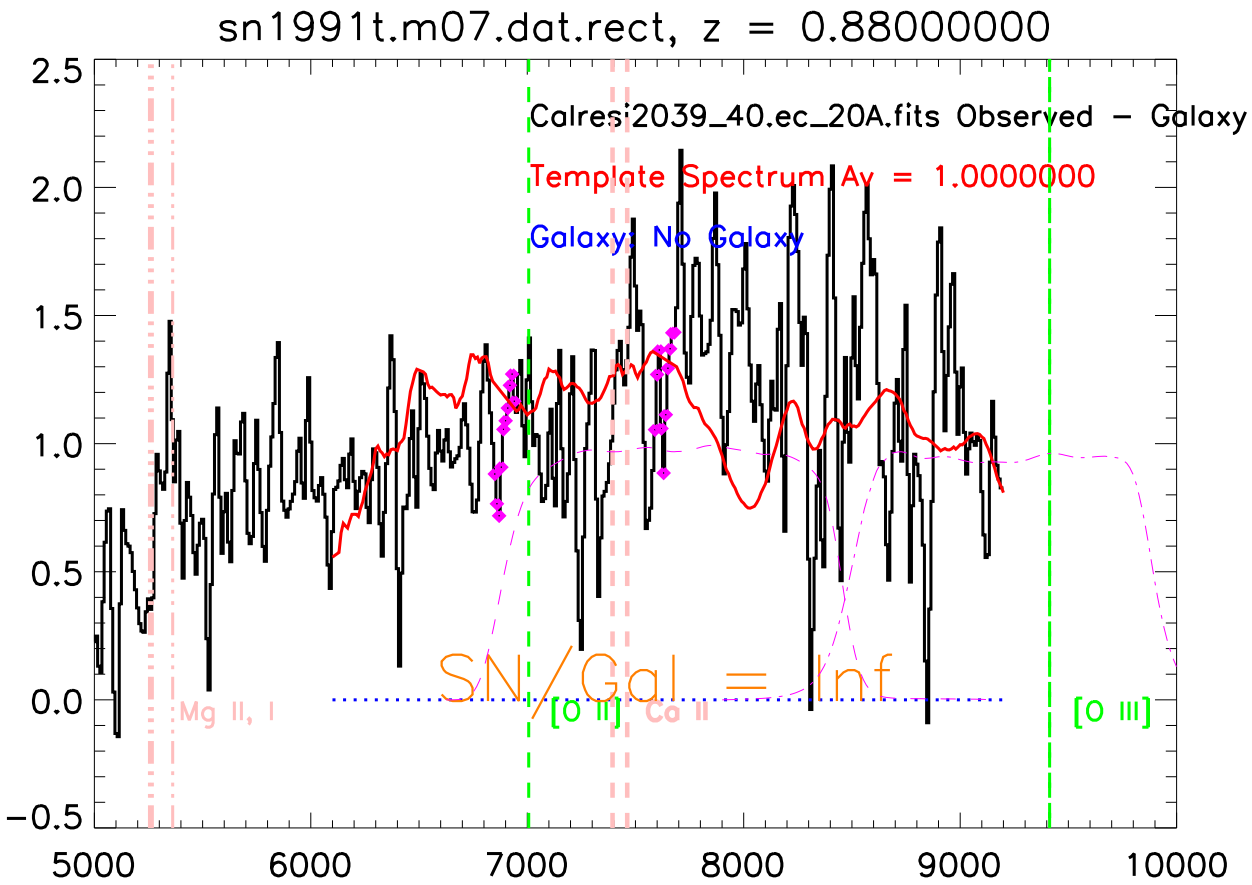

sn1989b.m05.dat.rect, z = 0.67000002
Calresi2039_40.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 1.0000000
Galaxy: No Galaxy
SN/Gal = Inf
Mg II
[O II]
Ca II
[O III]
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000

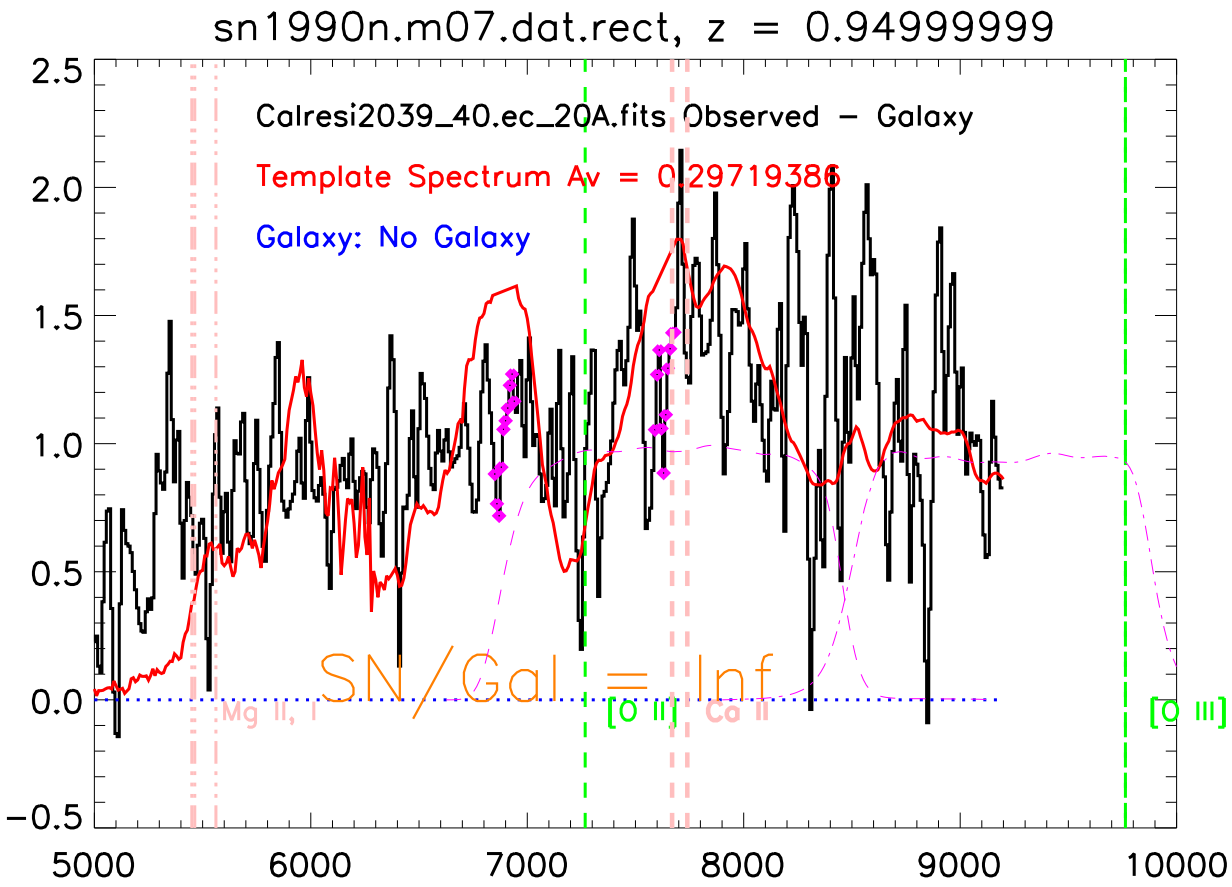

sn1992a.m01.dat.rect, z = 0.67000002
Calresi2039_40.ec_20A.fits Observed − Galaxy
Template Spectrum, Av = 1.0000000
Galaxy: No Galaxy
SN/Gal = Inf
[O II]
Ca II
[O III]
Mg II, I
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000

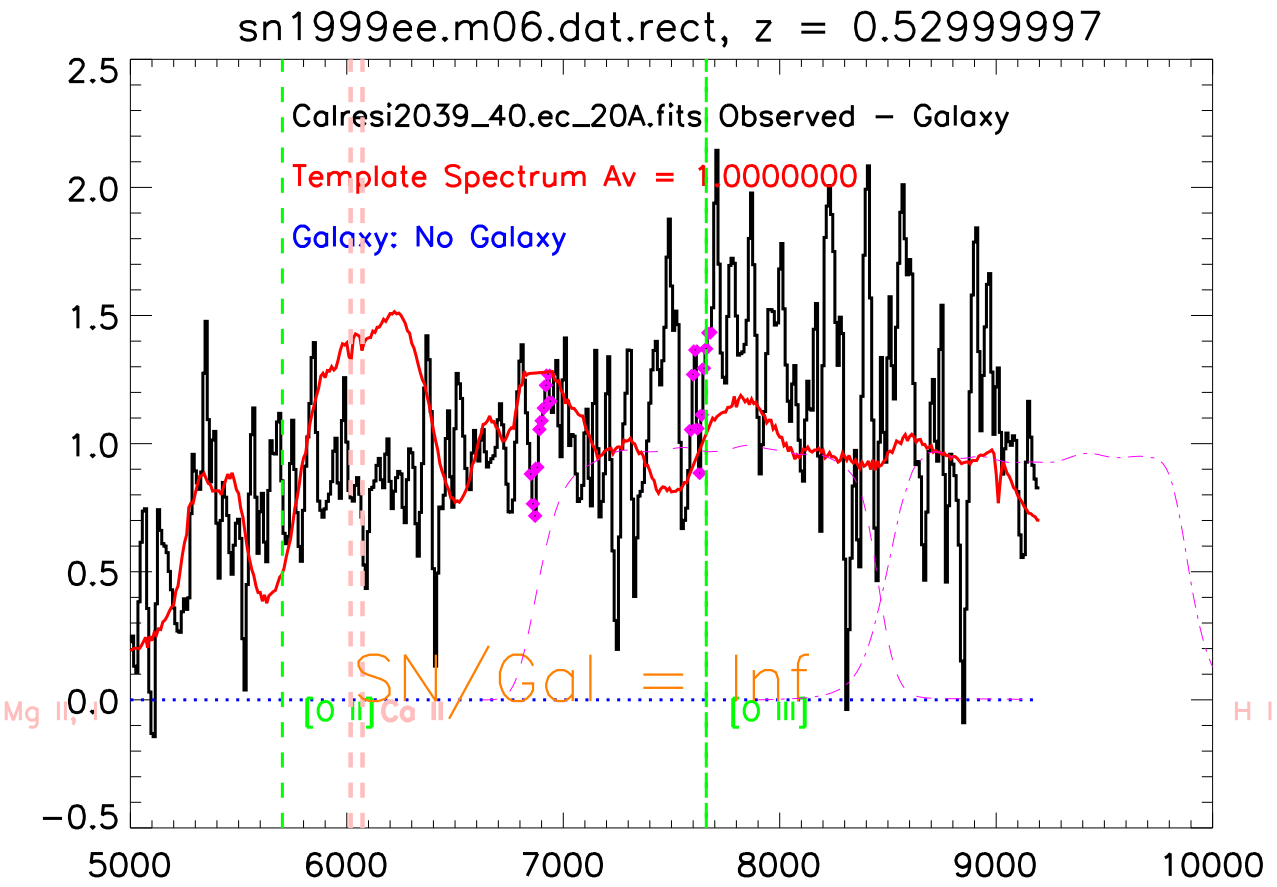

sn1991t.m00.dat.rect, z = 0.88000000
Calresi2039_40.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 0.83290812
Galaxy: No Galaxy
SN/Gal = Inf
Mg II, I
[O II]
Ca II
[O III]
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000

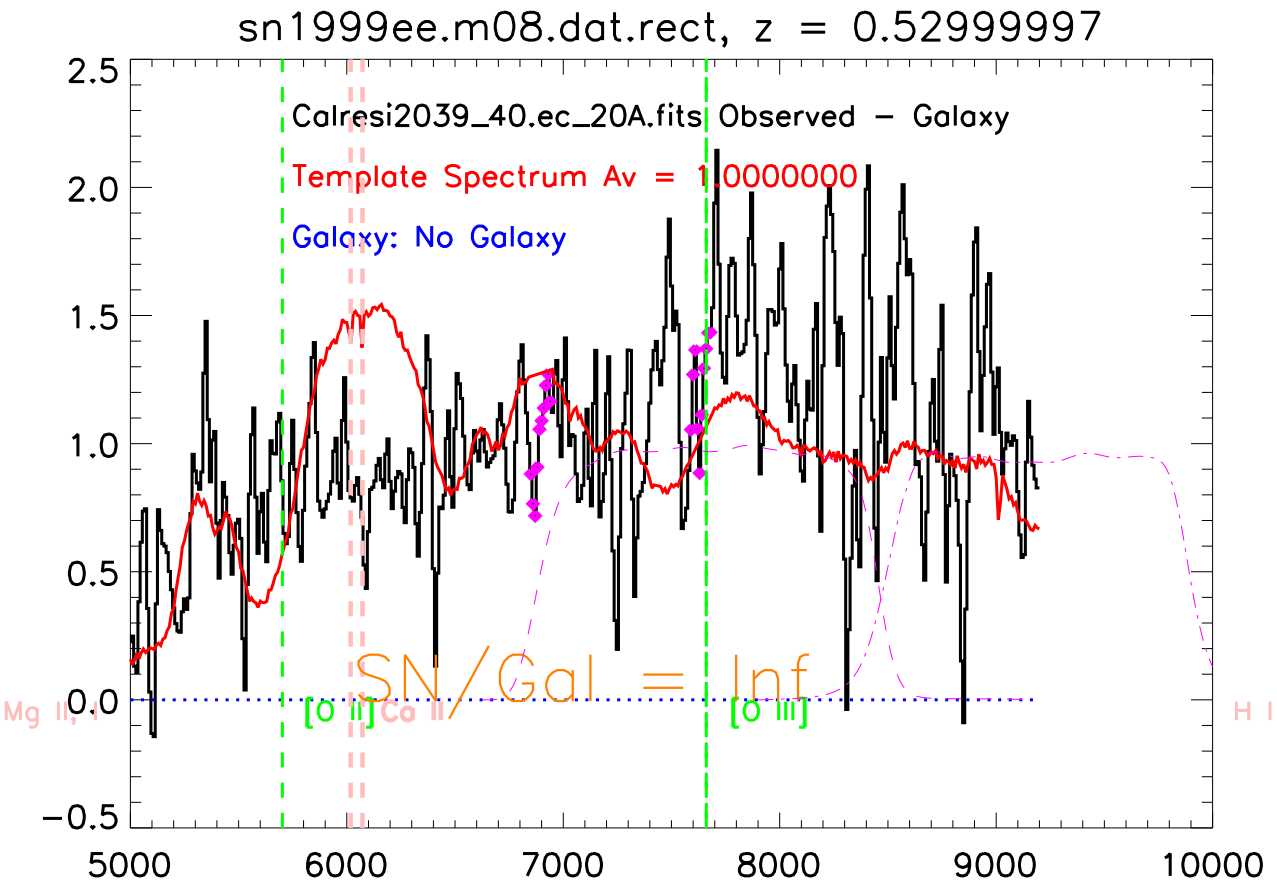

sn1996x.m00.dat.rect, z = 0.89999998
Calresi2039_40.ec_20A.fits Observed – Galaxy
Template Spectrum Av = −0.46811226
Galaxy: No Galaxy
SN/Gal = Inf
Mg II, I
[O II]
Ca II
[O III]
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000

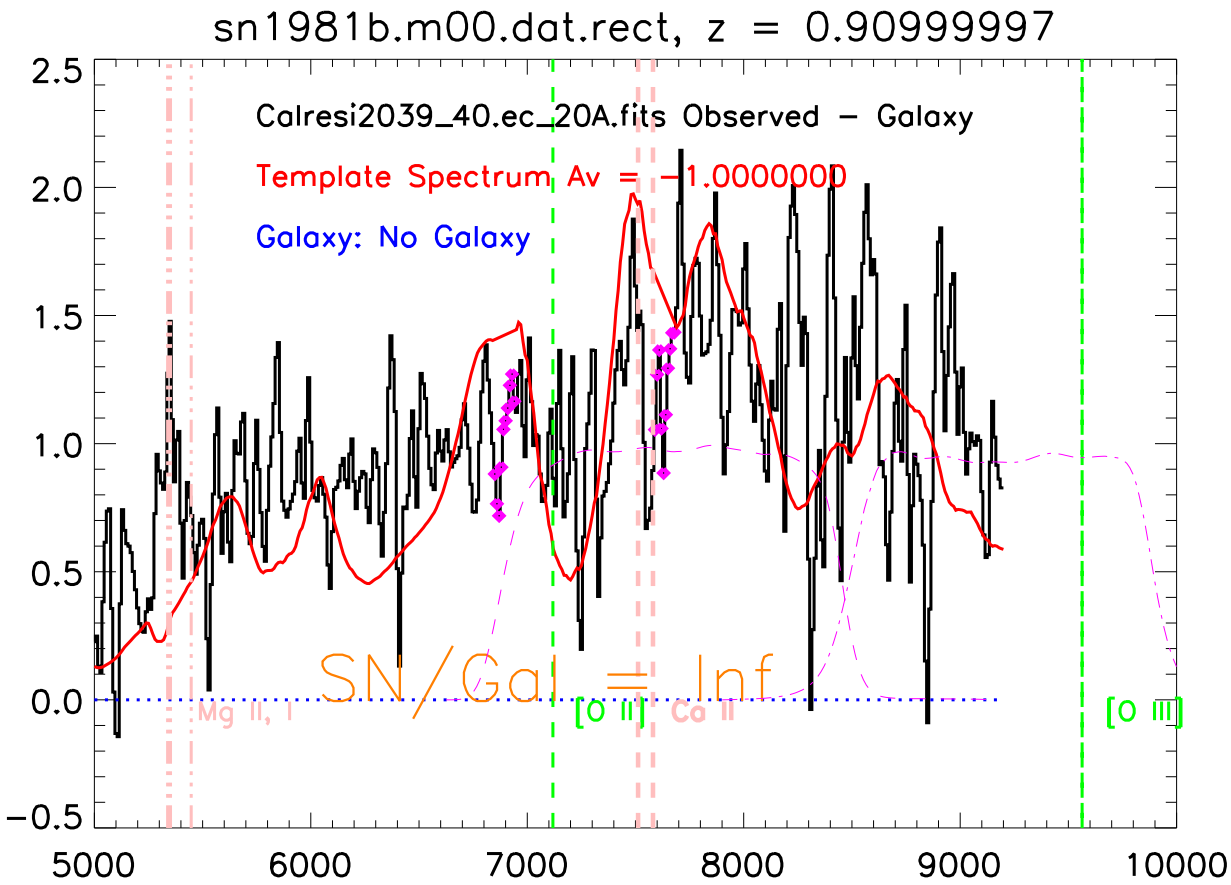

sn1992a.m05.dat.rect, z = 0.67000002
Calresi2039_40.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 1.0000000
Galaxy: No Galaxy
SN/Gal = Inf
Mg II
[O II]
Ca II
[O III]
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000

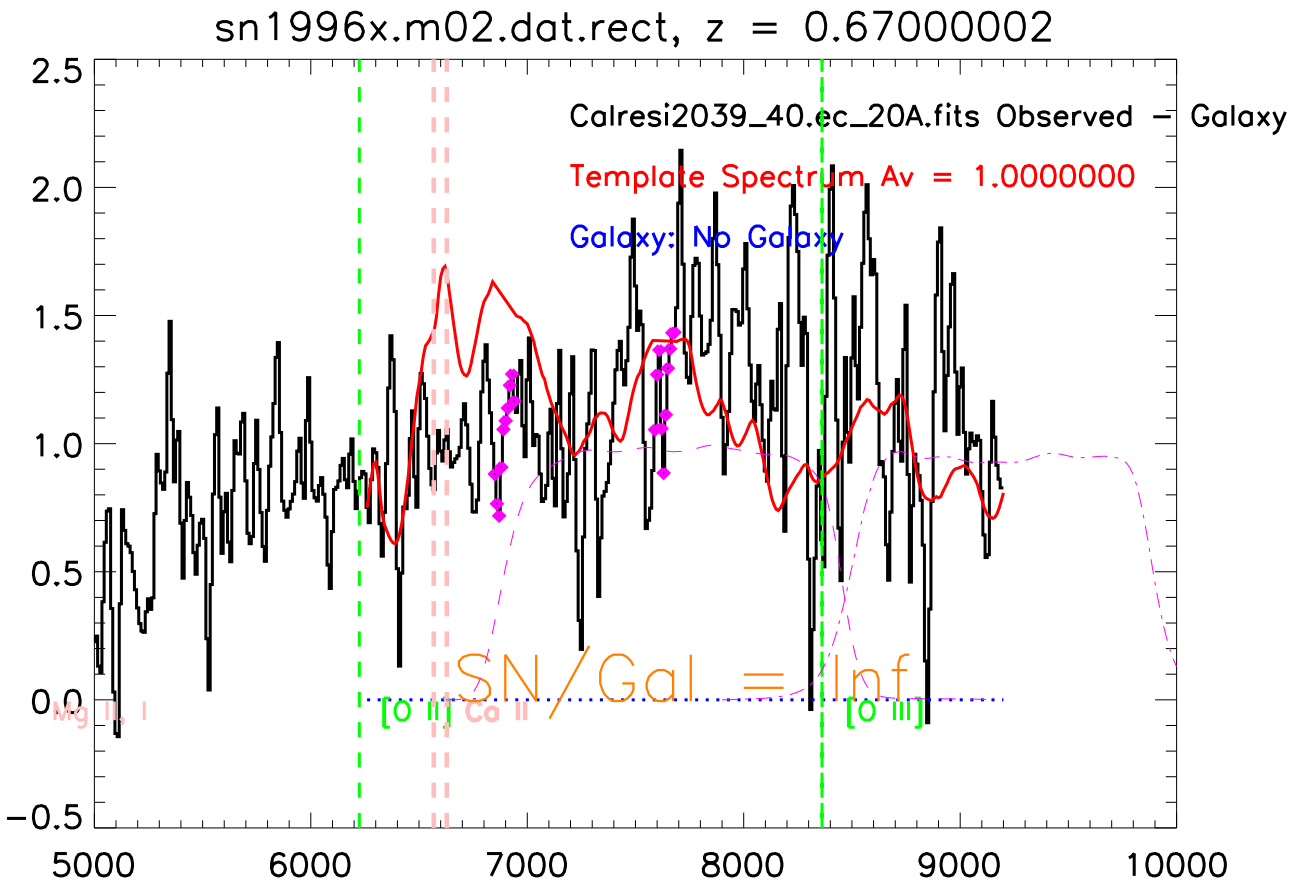

sn1991t.m07.dat.rect, z = 0.88000000
Calres:2039_40.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 1.0000000
Galaxy: No Galaxy
SN/Gal = Inf
Mg II, I
[O II]
Ca II
[O III]
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000

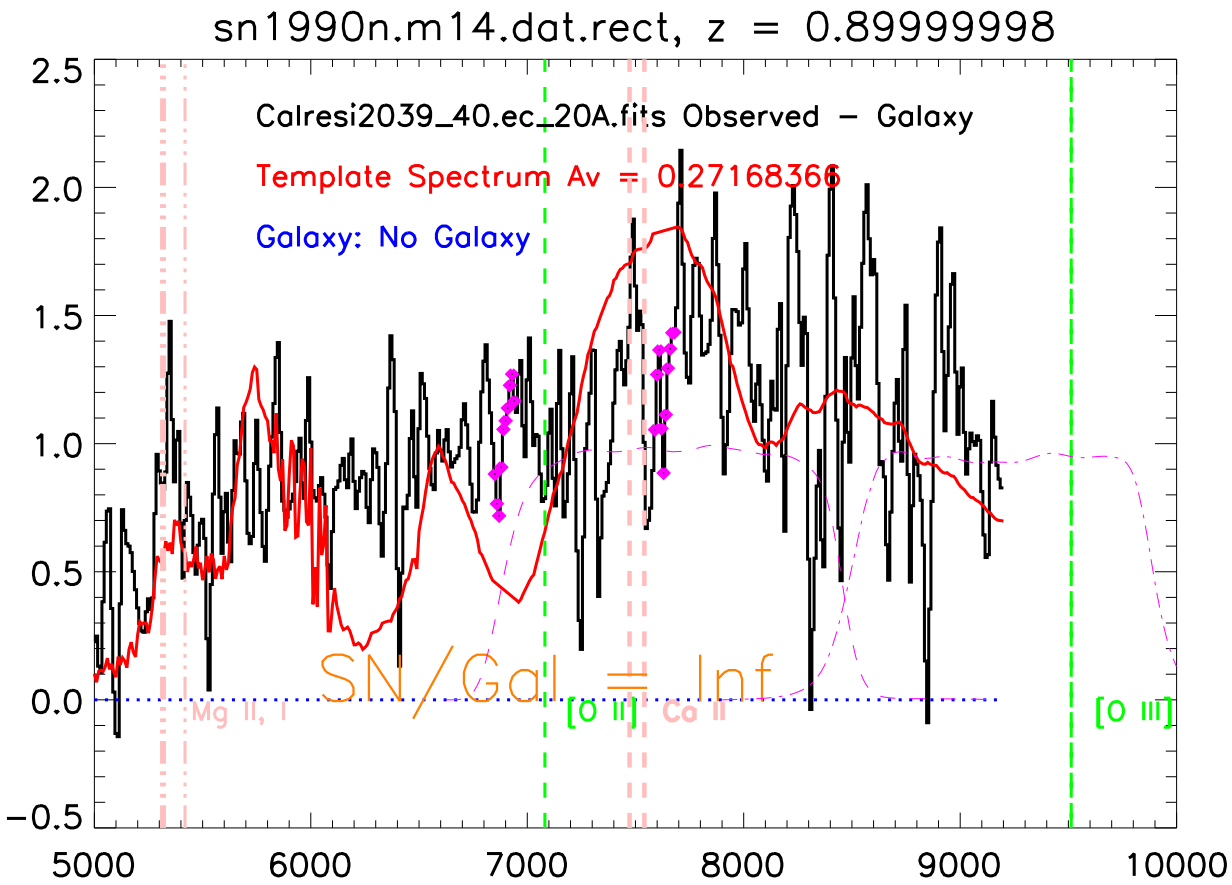

sn1990n.m07.dat.rect, z = 0.94999999
Calresi2039_40.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 0.29719386
Galaxy: No Galaxy
SN/Gal = Inf
Mg II, I
[O II]
Ca II
[O III]
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000

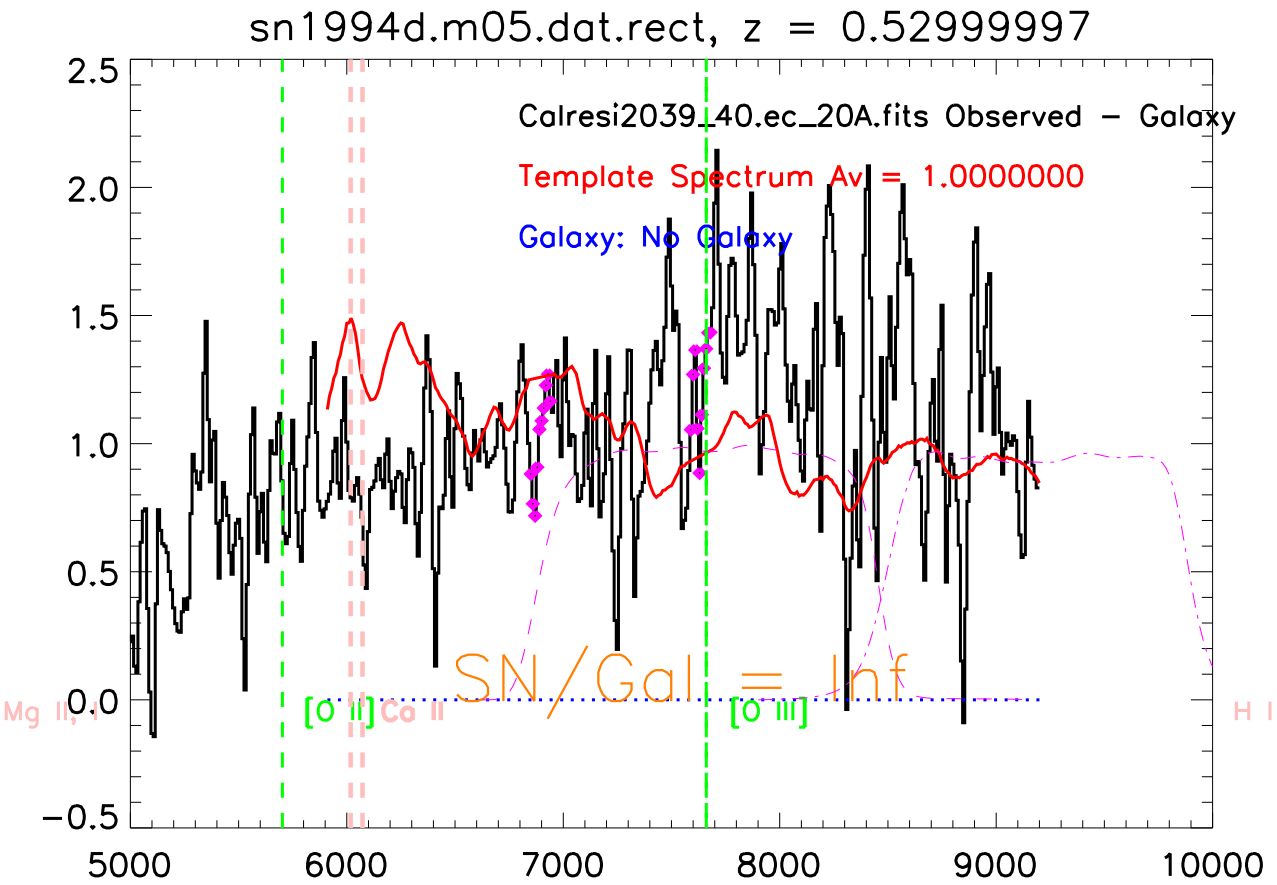

sn1999ee.m06.dat.rect, z = 0.52999997
Calresi2039_40.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 1.0000000
Galaxy: No Galaxy
SN/Gal = Inf
[O II]
Ca II
[O III]
Mg II
H I
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000

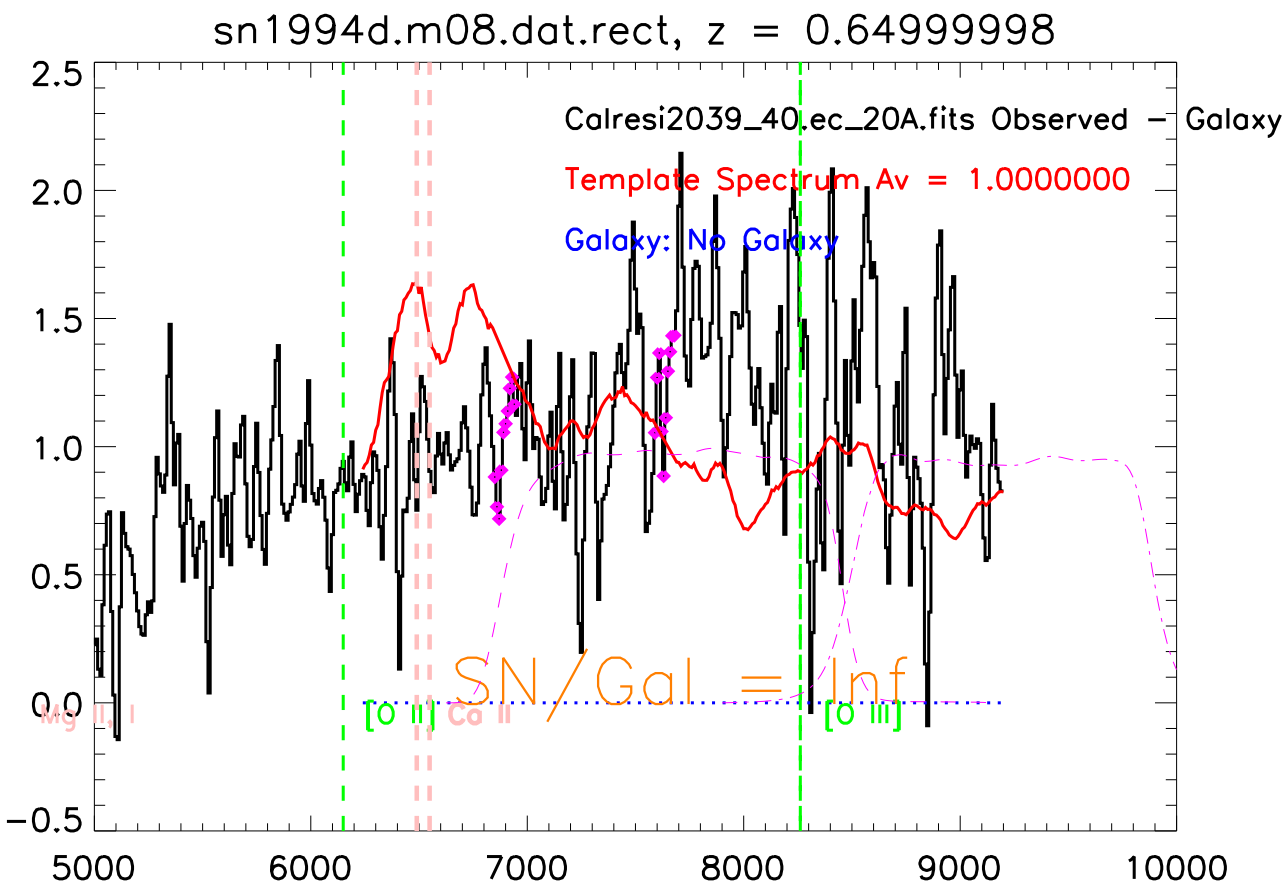

sn1999ee.m08.dat.rect, z = 0.52999997
Calresi2039_40.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 1.0000000
Galaxy: No Galaxy
SN/Gal = Inf
[O II]
Ca II
[O III]
Mg II
H I
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000

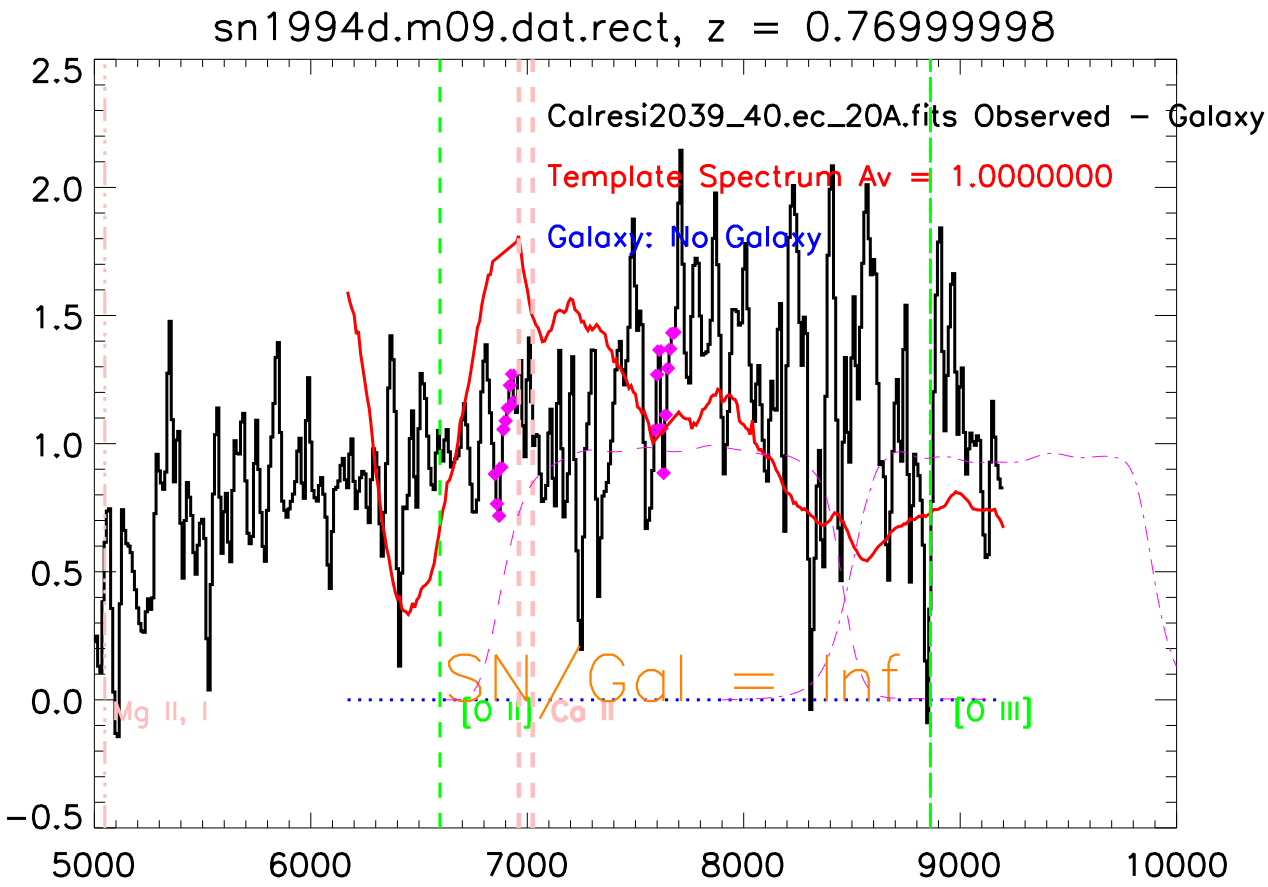

sn1981b.m00.dat.rect, z = 0.90999997
Calresi2039_40.ec_20A.fits Observed − Galaxy
Template Spectrum, Av = −1.0000000
Galaxy: No Galaxy
SN/Gal = Inf
Mg II, I
[O II]
Ca II
[O III]
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000

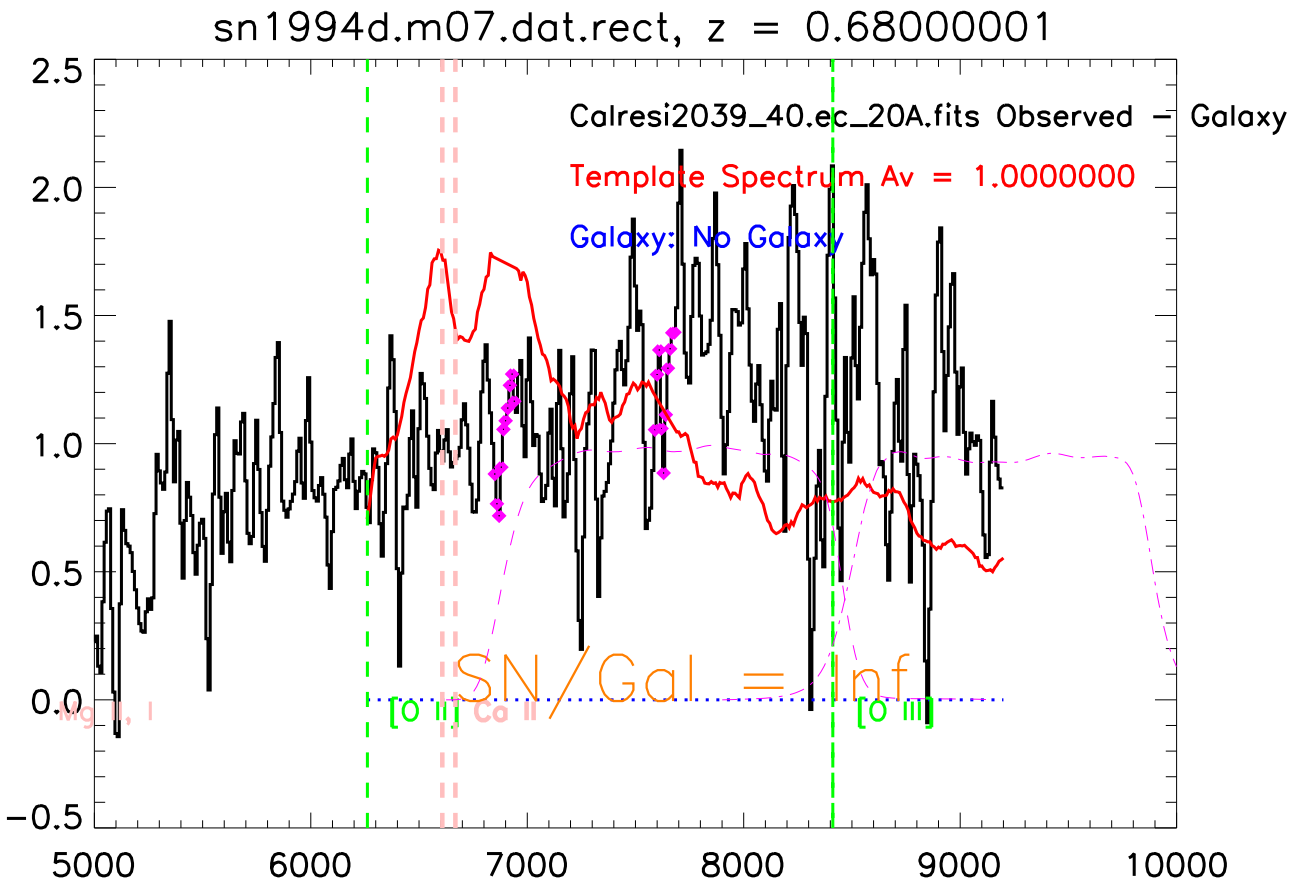

sn1996x.m02.dat.rect, z = 0.67000002
Calresi2039_40.ec_20A.fits Observed
Galaxy
Template Spectrum, Av = 1.0000000
Galaxy: No Galaxy
SN/Gal = Inf
[O II]
Ca II
[O III]
Mg II, I
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000


sn1990n.m14.dat.rect, z = 0.89999998
Calresi2039_40.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 0.27168366
Galaxy: No Galaxy
SN/Gal = Inf
Mg II, I
[O II]
Ca II
[O III]
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000


sn1994d.m05.dat.rect, z = 0.52999997
Calresi2039_40.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 1.0000000
Galaxy: No Galaxy
SN/Gal = Inf
Mg II
[O II]
Ca II
[O III]
H I
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000


sn1994d.m08.dat.rect, z = 0.64999998
Calresi2039_40.ec_20A.fits Observed
Galaxy
Template Spectrum, Av = 1.0000000
Galaxy: No Galaxy
SN/Gal = Inf
[O II]
Ca II
[O III]
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000


sn1994d.m09.dat.rect, z = 0.76999998
Calresi2039_40.ec_20A.fits Observed − Galaxy
Template Spectrum Av = 1.0000000
Galaxy: No Galaxy
SN/Gal = Inf
Mg II, I
[O II]
Ca II
[O III]
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000


sn1994d.m07.dat.rect, z = 0.68000001
Calresi2039_40.ec_20A.fits Observed
Galaxy
Template Spectrum, Av = 1.0000000
Galaxy: No Galaxy
SN/Gal = Inf
[O II]
Ca II
[O III]
Mg II, I
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
5000
6000
7000
8000
9000
10000