SIR Status, June 2025

Marco Scodeggio

(INAF IASF-Milano)

On behalf of the full OU-SIR team

June 2025 Status: quick summary

- We “survived” the Oct. 2024 Q1 data release (but we are the first to recognize the Q1 quality leaves room for improvement)
- We are “getting ready” for the Oct/Nov/Dic??? 2025 DR1 data release (being able to deliver some significant upgrade in the data quality)

The “problem” with the spectroscopic survey

A&A 609, A84 (2018)
DOI: 10.1051/0004-6361/201630114

Astronomy & Astrophysics

A comparison with the VIPERS survey results

The VIMOS Public Extragalactic Redshift Survey (VIPERS)

Full spectroscopic data and auxiliary information release (PDR-2)★

M. Scodeggio[1], L. Guzzo[2,3], B. Garilli[1], B. R. Granett[2,3], M. Bolzonella[4], S. de la Torre[5], U. Abbas[6], C. Adami[5], S. Arnouts[5], D. Bottini[1], A. Cappi[4,7], J. Coupon[8], O. Cucciati[4,9], I. Davidzon[4,5], P. Franzetti[1], A. Fritz[1], A. Iovino[2], J. Krywult[10], V. Le Brun[5], O. Le Fèvre[5], D. Maccagni[1], K. Małek[11], A. Marchetti[1], F. Marulli[4,9,12], M. Polletta[1,13,14], A. Pollo[11,15], L. A. M. Tasca[5], R. Tojeiro[16], D. Vergani[17], A. Zanichelli[18], J. Bel[19], E. Branchini[20,21,22], G. De Lucia[23], O. Ilbert[5], H. J. McCracken[24], T. Moutard[5,25], J. A. Peacock[26], G. Zamorani[4], A. Burden[27], M. Fumana[1], E. Jullo[5], C. Marinoni[19,28], Y. Mellier[24], L. Moscardini[9,12,24], and W. J. Percival[27]

(Affiliations can be found after the references)

Received 22 November 2016 / Accepted 28 April 2017

ABSTRACT

We present the full public data release (PDR-2) of the VIMOS Public Extragalactic Redshift Survey (VIPERS), performed at the ESO VLT. We release redshifts, spectra, CFHTLS magnitudes and ancillary information (as masks and weights) for a complete sample of 86 775 galaxies (plus 4732 other objects, including stars and serendipitous galaxies); we also include their full photometrically-selected parent catalogue. The sample is magnitude limited to $i_{AB} \leq 22.5$, with an additional colour-colour pre-selection devised as to exclude galaxies at $z < 0.5$. This practically doubles the effective sampling of the VIMOS spectrograph over the range $0.5 < z < 1.2$ (reaching 47% on average), yielding a final median local galaxy density close to $5 \times 10^{-3}\ h^3\ \mathrm{Mpc}^{-3}$. The total area spanned by the final data set is ≃23.5 deg^2, corresponding to 288 VIMOS fields with marginal overlaps, split over two regions within the CFHTLS-Wide W1 and W4 equatorial fields (at RA ≃ 2 and ≃ 22 h, respectively). Spectra were

The “problem” with the spectroscopic survey

Table 2. VIPERS PDR-2 spectroscopic sample.

Sample	Number
Spectroscopically observed	97 414
— Main survey targets	94 335
— Serendipitous targets	1478
— AGN candidates (not part of main survey)	1601
Measured redshifts	**Number**
All measured	91 507
Main survey, all targets	89 022
— galaxies	86 775
— stars	2247
Flag ≥2 main survey, all targets	78 586
Flag ≥2 main survey, galaxies	76 552

VIPERS

Data reduction and redshift measurements pipelines fully automated

Each spectrum / z measure visually checked by at least 2 astronomers

Failed spectra / measurements:
5907 / 97414 = 6.1 % of the total

The “problem” with the spectroscopic survey

- With VIPERS the target sample was 100% of the observed galaxies, and so the 6% of failures is a “6% problem”
- With Euclid the target sample is approximately 4% of the observed galaxies, and so a failure rate comparable to that of VIPERS would be a “60% problem” (if we are optimistic…)

The SIR Q1 data release

Astronomy & Astrophysics manuscript no. main
March 20, 2025

Euclid Quick Data Release (Q1)

From spectrograms to spectra: the SIR spectroscopic Processing Function*

Euclid Collaboration: Y. Copin[**1], M. Fumana[2], C. Mancini[2], P. N. Appleton[3,4], R. Chary[4,5], S. Conseil[1], A. L. Faisst[3], S. Hemmati[3], D. C. Masters[4], C. Scarlata[6], M. Scodeggio[2], A. Alavi[3], A. Carle[1], P. Casenove[7], T. Contini[8], I. Das[3], W. Gillard[9], G. Herzog[2], J. Jacobson[3], V. Le Brun[10], D. Maino[11,2,12], G. Setnikar[1], N. R. Stickley[13], D. Tavagnacco[14], Q. Xie[3], N. Aghanim[15], B. Altieri[16], A. Amara[17], S. Andreon[18], N. Auricchio[19], H. Aussel[20], C. Baccigalupi[21,14,22,23], M. Baldi[24,19,25], A. Balestra[26], S. Bardelli[19], A. Basset[7], P. Battaglia[19], A. N. Belikov[27,28], A. Biviano[14,21], A. Bonchi[29], E. Branchini[30,31,18], M. Brescia[32,33], J. Brinchmann[34,35], S. Camera[36,37,38], G. Cañas-Herrera[39,40,41], V. Capobianco[38], C. Carbone[2], J. Carretero[42,43], S. Casas[44], F. J. Castander[45,46], M. Castellano[47], G. Castignani[19], S. Cavuoti[33,48], K. C. Chambers[49], A. Cimatti[50], C. Colodro-Conde[51], G. Congedo[52], C. J. Conselice[53], L. Conversi[54,16], F. Courbin[55,56], H. M. Courtois[57], A. Da Silva[58,59], R. da Silva[47,29], H. Degaudenzi[60], S. de la Torre[10], G. De Lucia[14], A. M. Di Giorgio[61], H. Dole[15], F. Dubath[60], X. Dupac[16], S. Dusini[62], A. Ealet[1], S. Escoffier[9], M. Farina[61], R. Farinelli[19], S. Ferriol[1], F. Finelli[19,63], S. Fotopoulou[64], N. Fourmanoit[9], M. Frailis[14], E. Franceschi[19], P. Franzetti[2], S. Galeotta[14], K. George[65], B. Gillis[52], C. Giocoli[19,25], J. Gracia-Carpio[66], B. R. Granett[18], A. Grazian[26], F. Grupp[66,65], L. Guzzo[11,18,12], S. V. H. Haugan[67], J. Hoar[16], H. Hoekstra[41], W. Holmes[68], I. M. Hook[69], F. Hormuth[70], A. Hornstrup[71,72],

SIR Q1 paper
arXiv:2503.15307

The SIR Q1 data release

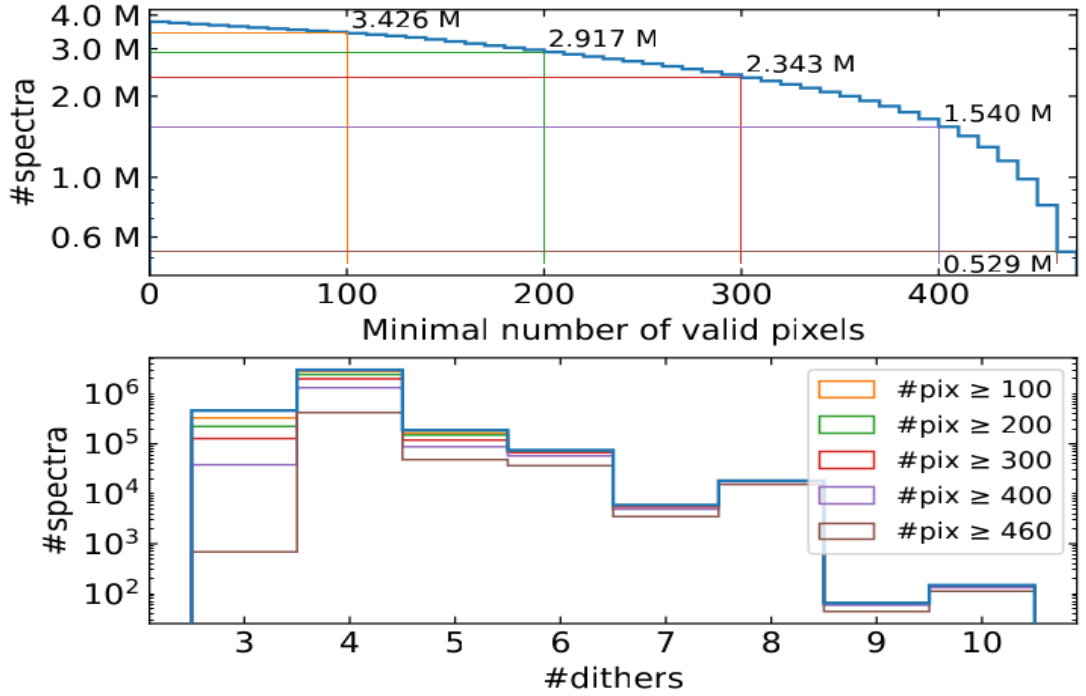

Fig. 14: *Top:* distribution, in the Q1 release, of the number (in millions) of combined spectra originating from at least two dithers with a minimal number of 'valid' pixels (see text). *Bottom:* distribution of the number of dithers included in the spectra combination, as a function of the minimal number of valid pixels.

SIR Q1 paper
arXiv:2503.15307

The SIR/Spectroscopic DR1 data release

- During the March EC meeting in Leiden it was decided to change significantly the Spectroscopic Survey software development model

- In the past SIR and SPE development proceeded on two separate tracks, as each team developed core data handling algorithms.
  Result: validation of a new “feature” could take 2 to 3 months

- The new model is based on single item modifications (agreed upon collectively), and full pipeline (MER+SIR+SPE+LE3) testing.
  Result: validation of a new feature takes 1 to 2 weeks

The SIR/Spectroscopic DR1 data release

- Over the last 3 months tested 4 SIR and 3 SPE new features
- Two important tests still on-going: Persistence Masking and Optimal Extraction
- Final deadline for the delivery of the Spectroscopic pipelines is 22nd of July
- First batch of DR1 spepctroscopic data reduction will be the 500 sq deg “unblinded area” (completed before end of September), then the remaining part of the DR1 area will be covered

Towards the SIR DR2 data release

- Better background subtraction
- Better decontamination
- Improve all existing calibrations
- Introduce calibration of Grism Wheel jitter motion
- Introduce masking of spectral orders 2 and -1

- Introduce alternative spectral extraction algotithms ???

- Are we going to loose the NASA contribution to SIR development ?? (approx. one third of the total SIR manpower)


That's all Folks!
Isberg©