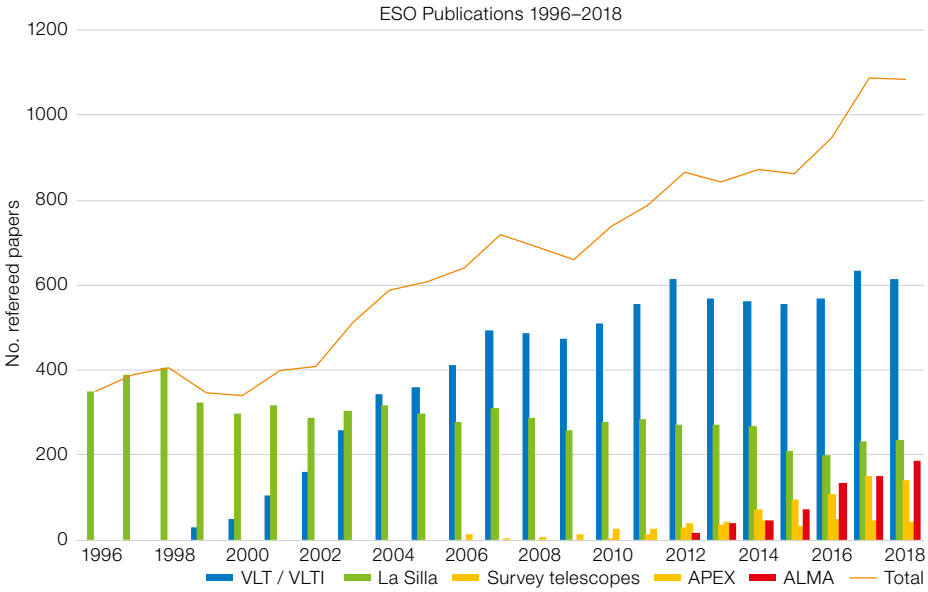
Publication Digest

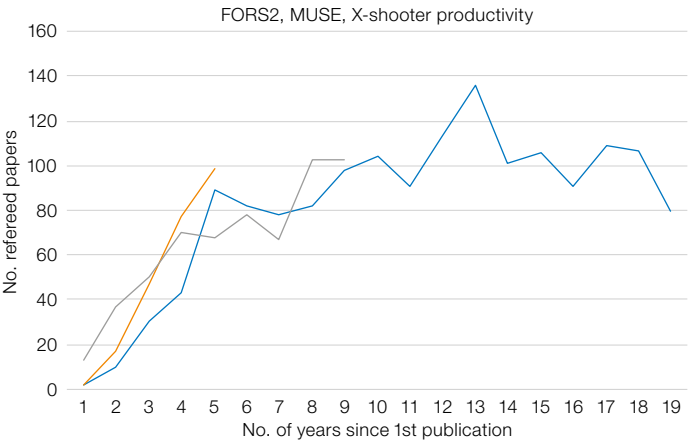
For the second year in a row, in 2018 the total number of papers published exceeded 1000, almost exactly matching the record high of the previous year. This pushes the total number of data papers published since 1996 to over 15 000. The number of papers using data from the VLT/VLTI, the ESO survey telescopes VISTA and VST, and APEX was slightly below that of 2017, while data from the La Silla observing site led to even more data papers than in recent years. The largest increase occurred for ALMA data obtained during European observing time, which generated 24% more papers than in 2017.



Refereed papers 1996–2018 using ESO data. Some papers use data from more than one facility, 1996–2018. VLT/VLTI refers to papers using data generated from VLT and VLTI instruments, including visitor instruments for which observing time is recommended by the ESO OPC, for example, ULTRACAM and the Precision Integrated-Optics Near-infrared Imaging ExpeRiment (PIONIER). La Silla papers use data from La Silla facilities, including visitor instruments (for example, ULTRACAM). Papers based on data from non-ESO telescopes or observations obtained during reserved periods (for example, national allocations of time) are not included. Survey telescope papers use data from ESO's survey telescopes VISTA and VST. APEX papers use data from APEX, including visitor instruments for which observing time is recommended by the ESO OPC (for example, Z-Spec). ALMA papers use data generated by ALMA. For APEX and ALMA, only papers based (entirely or partly) on ESO time are included.

Publications from different sites

The VLT and VLTI once again contributed data to more than 600 refereed papers in 2018, almost reaching the all-time high of 2017 (633 data papers in 2017 compared to 615 papers in 2018). As in previous years one of ESO's most flexible "workhorse" instruments — UVES — produced the most papers, followed by X-shooter, MUSE, and FORS2. Two of these instruments (X-shooter and FORS2) showed similar steep rises in the number of data papers during their early years, but that is surpassed by the very sharp increase of papers using data produced using MUSE.

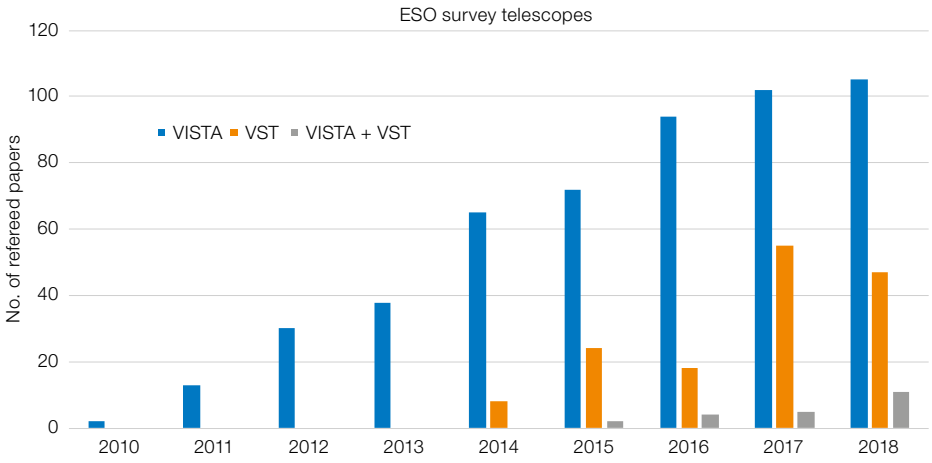


Number of refereed papers per year based on FORS2, MUSE, and X-shooter data as a function of years after the first publication.

Among ESO's survey telescopes, VISTA continued its increase in paper productivity, leading to over 100 refereed articles again in 2018. VST data resulted in almost 50 papers. A growing number of papers deploy data from both survey telescopes, using the VIRCAM camera on VISTA as well as OmegaCAM on the VST, reaching a fraction of almost 8% (11 out of 141) in 2018.

The La Silla telescopes and instruments once again contributed data to over 230 refereed papers. In particular, data from the planet-finder HARPS contributed to a large number of papers (120 in 2018), many of which deployed data obtained from the ESO Science Archive (66/120, i.e., 55%). The ESO Faint Object Spectrograph and Camera 2 (EFOSC2) and the Son of ISAAC instrument (SOFI) have been successfully used in the Public ESO Spectroscopic Survey for Transient Objects (PESSTO) and its extension ePESSTO, which have led to over 70 papers between 2013 and 2018. An increasing number of telescopes at La Silla (for example, the MPG/ESO 2.2-metre telescope, the Swiss 1.2-metre Leonhard Euler Telescope, and the Danish 1.54-metre telescope) are hosted but not run by ESO, and their papers are not included in the ESO bibliography.

APEX has generated more than 680 data papers since 2006, using observing time from all APEX partners, i.e., MPIfR, OSO, and ESO. Until and including 2018, 56% of all APEX papers used, in



Number of refereed papers using data from the survey telescopes VISTA and VST.

part or exclusively, data obtained during ESO time.

The number of ALMA data papers deploying European observing time increased from 150 to 186, i.e., a 24% increase compared to the previous year. This remarkable rise brought the total number of ESO time-based ALMA papers to over 640 since 2012, when the first ALMA data paper was published. The ALMA bibliography is maintained jointly by the librarians at ESO and the National Radio Astronomy Observatory (NRAO) in the USA as well as by the National Astronomical Observatory of Japan (NAOJ). Publications based on the data from all ALMA partners are recorded in telbib, but only those based on European observing time are counted in the ESO statistics, unless otherwise noted.

ESO Science Archive Facility

The ESO Science Archive Facility contains data from ESO telescopes and makes them available to the astronomy community. Principal Investigators of successful observing proposals have exclusive access to their scientific data for the duration of a proprietary period, normally one year, after which the data become available to the community at large. In addition to raw data, the archive also provides various types of data products. In 2018, telbib records of papers using archival data displayed in the public interface were enhanced to provide more comprehensive access to data products in the ESO Science Archive. As before, all telbib records are linked to raw data of the Programme IDs used in the research. In addition, the library has identified all programmes for which data products exist in the archive. If data products are available, an additional link is displayed, providing direct access. A script is run regularly to identify new Programme IDs in telbib records for which data products have become available, as well as new data products for existing Programme IDs, making it as effortless as possible for researchers to access the data they are interested in.

The statistics presented here are derived from the ESO Telescope Bibliography telbib, a database of refereed papers published by the ESO users community that links publications with the data in the ESO Science Archive. The telbib database has been curated and further developed by the ESO Library and Information Centre. It is compiled by scanning articles published in the major astronomical journals for ESO-related keywords (for example, telescope and instrument names). All telbib papers use, in part or exclusively, data from ESO facilities. Unless noted otherwise, statistics derived from the telbib database only include papers based on data from telescopes and instruments for which observing time was recommended by the ESO OPC. Telbib is used to assist ESO management with evaluating the Organisation's productivity and impact.

The journals that are routinely screened for ESO-related keywords are: *A&A*, *A&ARv*, *AJ*, *ApJ*, *ApJS*, *AN*, *ARA&A*, *EM&P*, *ExA*, *Icar*, *MNRAS*, *Nature*, *NewA*, *NewAR*, *PASJ*, *PASP*, *P&SS*, and *Science*. Articles published in other journals are added to telbib upon retrieval. While the library applies text-mining scripts when screening the literature for ESO data papers, all papers are carefully examined by the curators before they are added to the database. If necessary, authors or ESO staff astronomers are consulted to verify that the paper genuinely used ESO data and to eliminate as much doubt as possible.

The public telbib interface telbib.eso.org provides visualisations of search results including on-the-fly graphs and predefined charts. As of 2018, the underlying data tables of all charts can also be downloaded from the web, offering users more flexibility to process data according to their needs.

Details about telbib, including information about the methodology used to screen papers, can be found on the following webpage: www.eso.org/sci/libraries/telbib_info.html. Access to records of all 2018 data papers written by the ESO users community is at http://telbib.eso.org/ESODataPapers2018.php. A separate listing of refereed publications by ESO scientists with or without the use of ESO data can be found at www.eso.org/sci/libraries/telbib_info/AR/ESOStaffPapers2018.pdf.