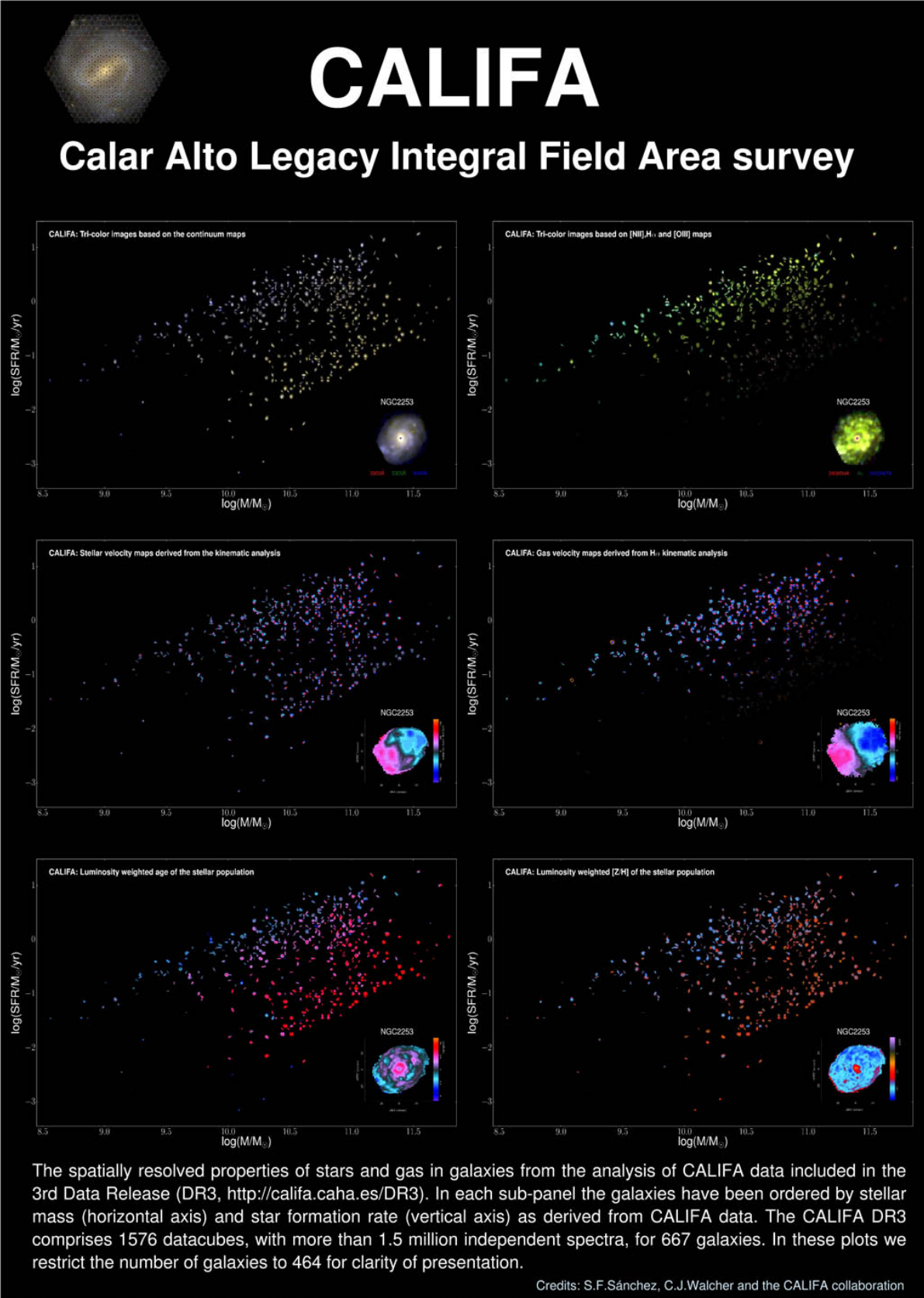


# CALIFA galaxy study releases dataset online

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The spatially resolved properties of stars and gas in galaxies from the analysis of CALIFA data included in the 3rd Data Release. Credit: S.F. Sánchez, C.J. Walcher and the CALIFA collaboration.

The Calar Alto Legacy Integral Field Area Survey (CALIFA) has released all of the data assembled over six years of study. The data of more than 600 galaxies is accessible at <http://califa.caha.es/DR3>. The archive is the largest dataset of spatially resolved properties of galaxies ever assembled.

CALIFA provides a unique way to learn about the evolution of [galaxies](#). While we live in the Milky Way, there are many more galaxies out there, siblings of our own. A favorite analogy of the project's principal investigator, Dr. Sebastian Sanchez (UNAM, Mexico): "A social scientist would naturally learn much more about a specific human by studying her environment, her family and other social relations. Exactly in the same way, astronomers develop understanding of our cosmic home, the Milky Way, by studying her siblings in the skies. Studying galaxies to learn about their evolution is a fascinating subject, because—just like humans—they come in a wide variety of appearances shaped by their specific evolutionary histories."

He adds, "To understand human evolution in general, the social scientist would, of course, also like to have a group of people—a sample—that would be as diverse as possible. In the same way, with CALIFA, we collect [data](#) about galaxies that were not available before for such a diverse and complete sample. This is because CALIFA is the first project to apply the technique of integral field spectroscopy to a sample that represents all galaxies in the Local Universe, providing with a

panoramic view of galaxy evolution."

"Integral field spectroscopy allows us to determine the properties of galaxies in a spatially resolved way," adds Jesús Falcón Barroso, coordinator of the project at the IAC. The CALIFA sample, on the other hand, has been specifically selected as representative of galaxies in the Local Universe. "We knew that some galaxy properties change systematically. But seeing this in such detail and with many previously unobserved properties is new and exciting. It provides new avenues to study galaxies and understand why, exactly, they turn out to be as they are." says Dr. Jakob Walcher (AIP, Germany), the Project Scientist of CALIFA.

Analysing the data from CALIFA is a challenge even for many professional astronomers. This is because the data are so rich in information. To be able to make the most out of the data, the project has been dedicated to data releases from the very beginning. "We believe that the data do not belong to us, but to anyone interested in using them. We are a publicly funded project and we see it as our duty to make the data available to the public. This also allows anyone interested in our results to use our data, which is a fundamental value for scientists." adds Dr. Stefano Zibetti (Univ. Florence, Italy), Quality Control responsible of CALIFA, and therefore fundamentally involved in making sure that the data meet all quality criteria and will be truly useful to the international community of scientists.

In summary, the main motivation to conduct the CALIFA project is our wish to understand our place in the universe. According to Ruben Garcia-Benito (IAA, Spain), responsible for running many of the fundamental software pieces that turned observations from the telescope into ready-to-release data, "We hope that the images we produce can inspire even more curiosity about the universe in general and galaxies in particular. At least for us, the last six years have been a truly inspirational voyage,

which we hope to continue by fully exploiting the available data in the years to come."

The CALIFA partnership is the leading group in the study of all aspects of the kinematics in galaxies from the stellar angular momentum and emission-line kinematics to the pattern speed of bars in spiral galaxies. These studies on the large morphological coverage of the CALIFA survey have provided an unbiased view of the dominant processes driving the evolution and fate of galaxies.

Provided by Instituto de Astrofísica de Canarias (IAC)

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