



Key words: ALMA

<p>ESOCast 130: Why Astronomers Want to Use ALMA – ALMA is State of the Art Technology</p>	
<p>00:00 [Visuals start] ESOCast introduction</p>	<p>00:00 [Visuals start] ESOcast introduction</p>
<p>00:10 [Narrator] 1. We can't touch the stars, fly through distant galaxies or even land on planets outside our Solar System. So, the only way we can study most of the Universe and everything in it, is through light. The light we can see and the light we can't.</p>	
<p>00:25 [Narrator] 2. That's why telescopes are so important for astronomers: they are machines for collecting light – all kinds of it. They are just like very powerful artificial eyes to look at the sky.</p>	
<p>00:37 [Narrator] 3. The bigger the telescope, the better it can see. Why? Because bigger eyes – like owl's eyes – have a bigger surface, so more light reaches them, allowing the distinction of fainter differences in color and a sharper vision. Smaller eyes – like spider eyes – have less chance of capturing light, so they have more problems in seeing details, and everything is a little blurry.</p>	

<p>00:58 [Narrator] 4. With telescopes, it's the same. If light was rain, and telescopes buckets to collect it, it's easy to think that the bigger the bucket the more rain it would be able to gather. Building very big telescopes, though, is not only expensive but also difficult and, sometimes, even impossible.</p>	
<p>01:15 [Narrator] 5. So, what if instead of trying to build a gigantic bucket, you joined a lot of smaller ones together? Well, great idea! That way you would be collecting the same amount of rain, getting the same information, but in a much easier way.</p>	
<p>01:28 [Narrator] 6. Even better: what if, instead of trying to collect all the rain, you just collected some of it, with buckets spread in key places, so that you have enough to guess the characteristics of the rain falling? Well, that would be much faster and cheaper! That was precisely what astronomers thought a few years ago: by using several different small telescopes as one, they could see extremely fine details of the Universe, just like if they were using a single telescope several kilometers across! They called this technique 'interferometry'.</p>	
<p>01:56 [Narrator] 7. ALMA works exactly this way, it can make 66 antennas work together as one very, very big telescope. Making it one of the sharpest eyes to ever scan the sky. With the sharpest eyes of all, ALMA can study very faint light in the Universe and capture images astronomers can't even begin to imagine.</p>	
<p>02:15 [Outro]</p>	<p><i>Produced by ESO, the European Southern Observatory.</i></p>

Reaching new heights in Astronomy.

