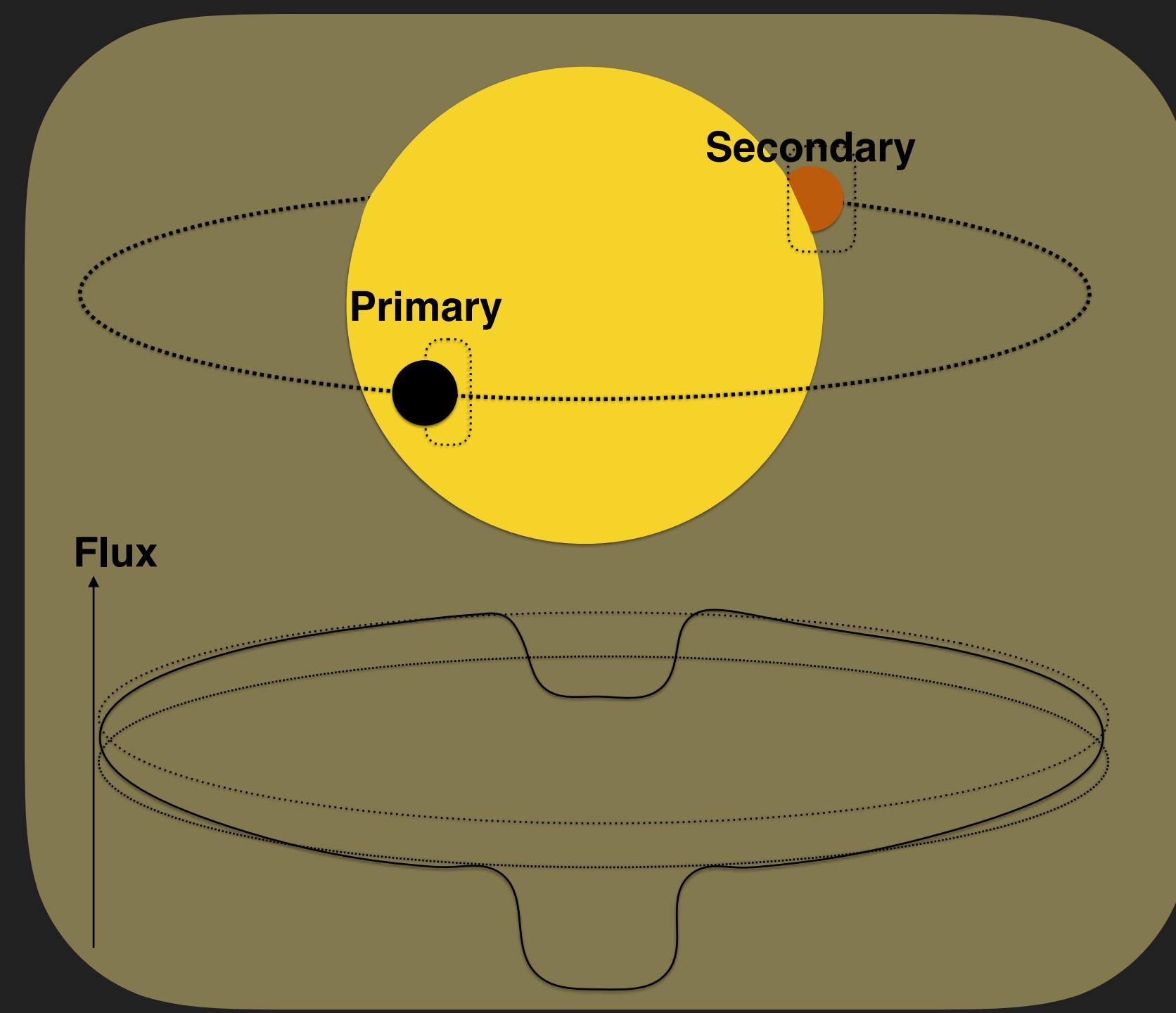
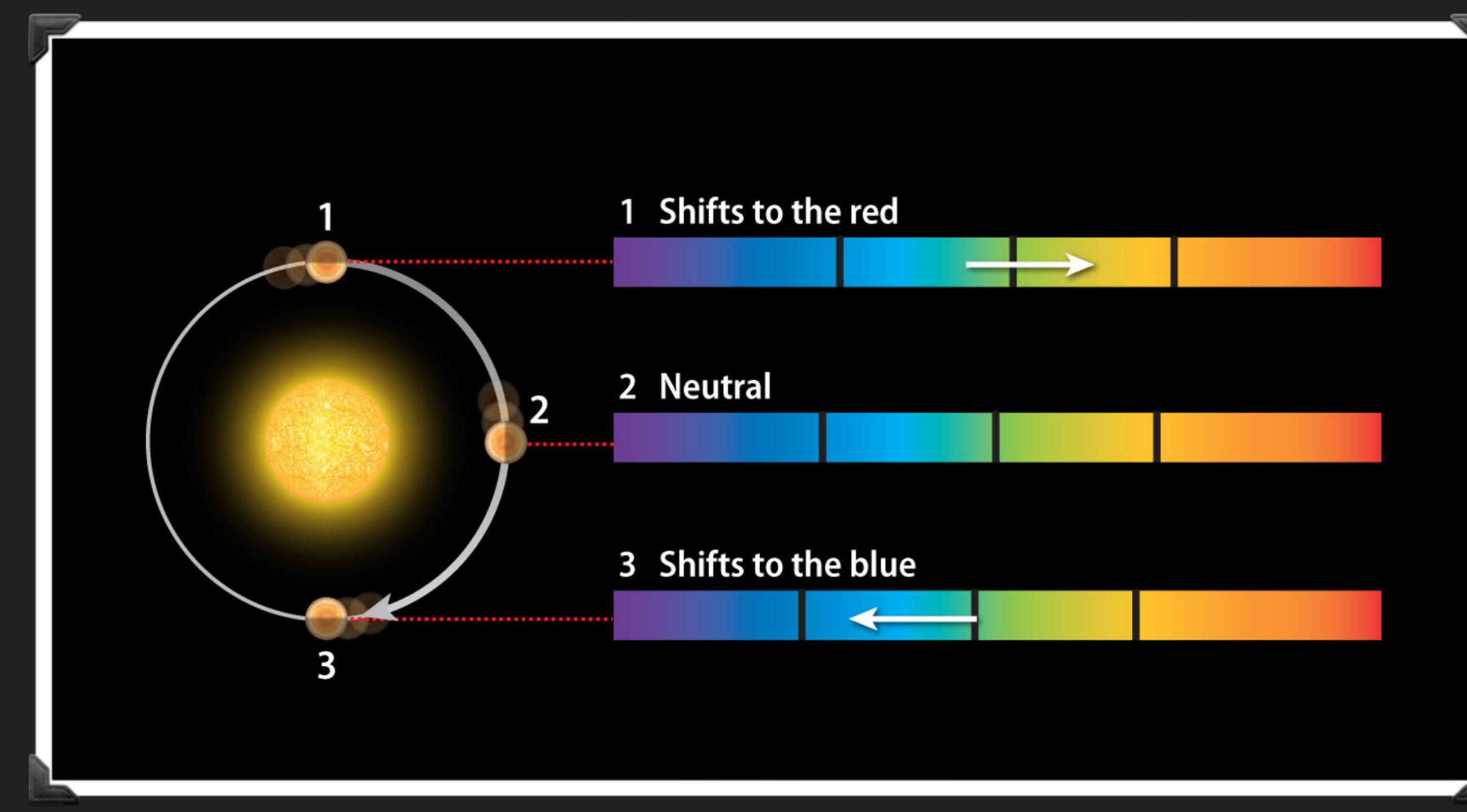


## WE NEED TO KNOW A PLANET'S RADIUS AND MASS BEFORE WE CAN LOOK AT IT'S ATMOSPHERE

HOW DO WE GET THOSE?

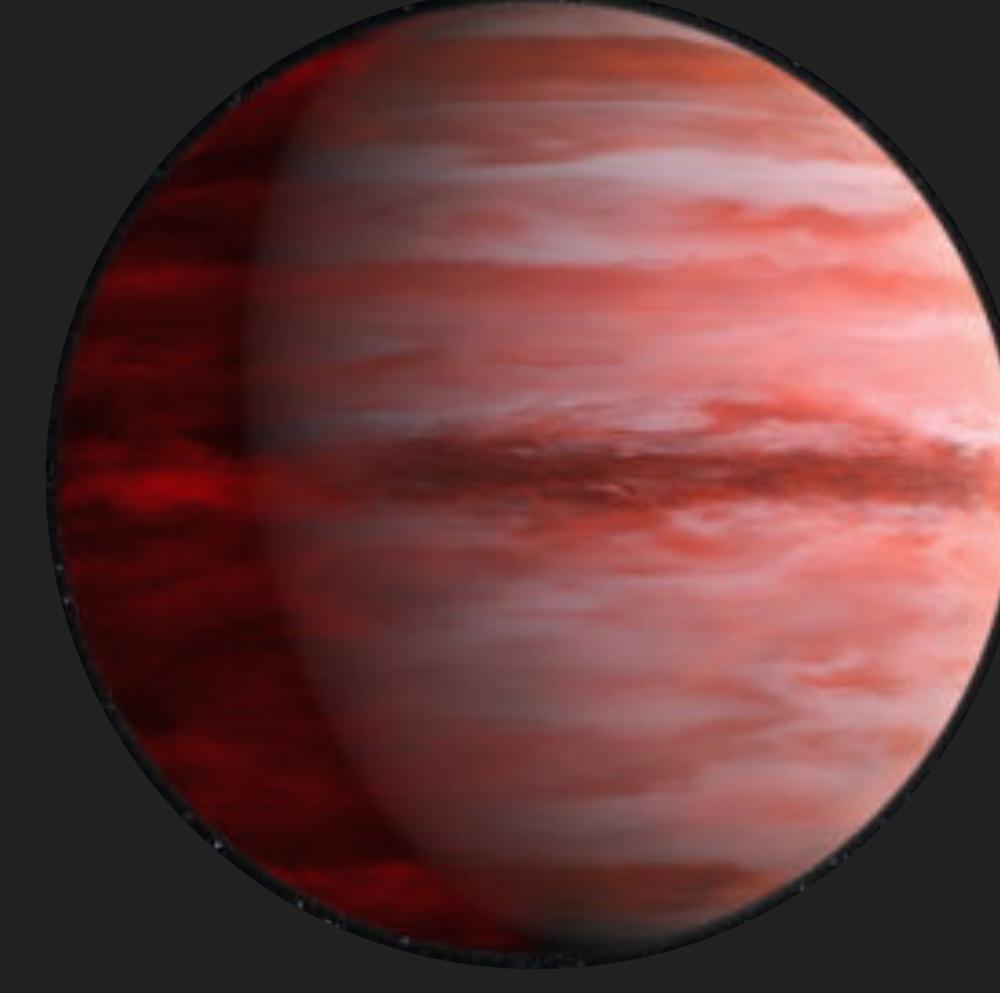


TRANSITS



RADIAL VELOCITY

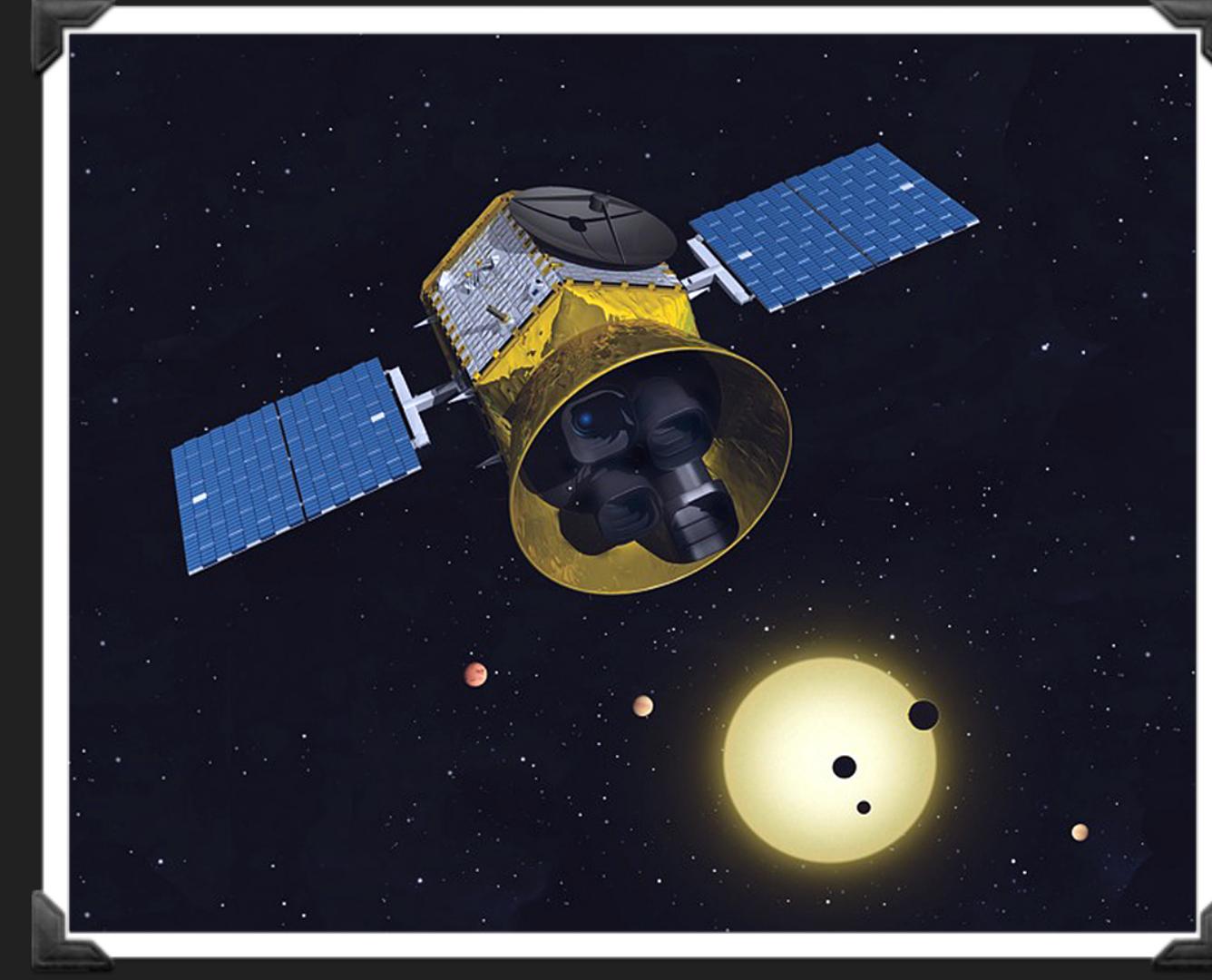
- ✓ RADIUS
- ✓ ORBITAL PROPERTIES



- ✓ MASS

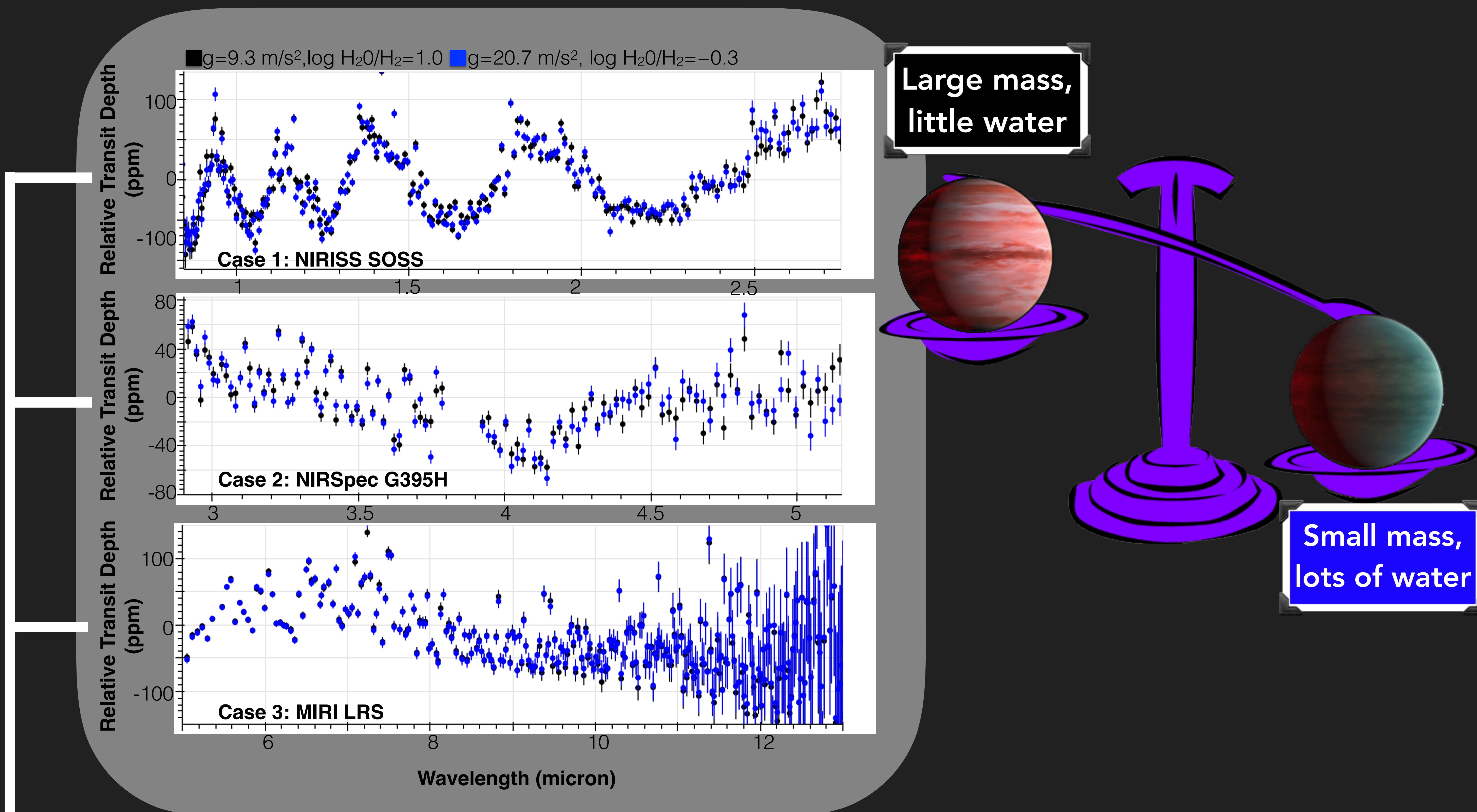
BOTH METHODS ARE NEEDED TO GET RADIUS AND MASS!

THE TRANSITING EXOPLANET SURVEY SATELLITE IS PROJECTED TO FIND HUNDREDS OF TARGETS FOR JWST VIA THE TRANSIT METHOD ONLY



COULD WE LIVE WITHOUT A MASS? HOW WOULD THAT AFFECT OUR SCIENCE?

WE TRY AND FIND CASES WHERE A MISSING MASS WOULD COMPLETELY HINDER YOUR ABILITY TO CHARACTERIZE THE ATMOSPHERE OF AN EXOPLANET WITH JWST



IN THREE DIFFERENT OBSERVATION MODES, THE SPECTRA OF THESE TWO VERY DIFFERENT TYPES OF PLANETS ARE STATISTICALLY IDENTICAL

Large mass,  
little water

Small mass,  
lots of water

=

DETERMINING THE MASS OF EXOPLANETS BEFORE JWST OBSERVATIONS IS INCREDIBLY IMPORTANT!