

STAR GAZERS

SG 1817 - 5 MINUTE (APRIL 23 - 29, 2018)

(BASED ON SG 1609 "JUPITER AT OPPOSITION" AND SG 1713 "ROYAL OPPOSITION!")

"THE FIFTH PLANET FROM THE SUN!"

JAMES:

WELCOME TO STAR GAZERS.

I'M JAMES ALBURY, DIRECTOR OF THE KIKA SILVA PLA PLANETARIUM IN GAINESVILLE FLORIDA.

DEAN:

AND I'M DEAN REGAS, ASTRONOMER FROM THE CINCINNATI OBSERVATORY.

JAMES:

IT'S THAT TIME OF YEAR AGAIN FOR VIEWING MY FAVORITE GAS GIANT PLANET AT ITS BIGGEST AND BRIGHTEST!

DEAN:

THAT'S RIGHT, JAMES!

ON MAY 9TH, JUPITER WILL BE AT OPPOSITION.

THAT MEANS IT WILL BE IN A GREAT LOCATION FOR VIEWING.

JAMES:

WHAT ARE WE TALKING

ABOUT?

LET'S SHOW YOU!

(STOP AND DROP)

DEAN:

JUPITER IS THE LARGEST OF ALL THE PLANETS IN OUR SUN'S FAMILY AND IS THE FIFTH PLANET FROM THE SUN.

EARTH IS, ON AVERAGE

93 MILLION MILES AWAY FROM THE SUN, WHEREAS JUPITER'S AVERAGE DISTANCE IS 484 MILLION MILES.

THOSE ARE PRETTY BIG NUMBERS AND BECAUSE THE PLANETS ARE SO FAR AWAY FROM EACH OTHER, ASTRONOMERS DON'T OFTEN REFER TO THE DISTANCES IN THE

SOLAR SYSTEM USING TERRESTRIAL UNITS LIKE MILES OR KILOMETERS. THAT WOULD BE LIKE MEASURING THE DISTANCE FROM YOUR HOUSE TO THE GROCERY STORE IN INCHES OR CENTIMETERS.

JAMES:

INSTEAD, WE USE THE AVERAGE DISTANCE BETWEEN THE EARTH AND THE SUN AS OUR MEASURING STICK.

WE CALL THAT DISTANCE AN ASTRONOMICAL UNIT OR A.U. -- SO, IF WE CONVERTED OUR UNITS FROM MILES TO AU'S, EARTH IS ONE ASTRONOMICAL UNIT FROM THE SUN AND JUPITER ON AVERAGE IS 5.2 ASTRONOMICAL UNITS FROM THE SUN.

DEAN:

AS JUPITER AND EARTH ORBIT THE SUN, THEY CONSTANTLY VARY THEIR DISTANCE FROM EACH OTHER.

WHEN JUPITER IS AT ITS FARTHEST DISTANCE FROM US AND IS ON THE OTHER SIDE OF THE SUN AS SEEN FROM EARTH, IT CAN BE AS FAR AS 6.2 ASTRONOMICAL UNITS AWAY.

JAMES:

HOWEVER, ONCE EVERY YEAR, EARTH AND JUPITER LINE UP ON THE SAME SIDE OF THE SUN AND ARE A WHOLE 2 ASTRONOMICAL UNITS CLOSER TO EACH OTHER.

WHENEVER THIS HAPPENS WE SAY JUPITER IS AT OPPOSITION BECAUSE JUPITER IS OPPOSITE THE SUN IN THE SKY AS SEEN FROM EARTH.

DEAN:

AND WHEN JUPITER IS AT OPPOSITION, IT IS ALWAYS AT ITS CLOSEST, BRIGHTEST AND BEST FOR VIEWING.

JUPITER WILL BE AT OPPOSITION THIS YEAR ON WEDNESDAY, MAY 9TH AND ONLY 4.4 ASTRONOMICAL UNITS AWAY.

SO, THIS MAKES IT GREAT FOR VIEWING IN A SMALL TELESCOPE.

(STOP AND DROP)

DEAN:

OK, WE HAVE OUR SKIES SET FOR 11:00 PM,

ANY NIGHT THIS WEEK.

IF YOU LOOK TOWARD THE EAST, YOU'LL SEE JUPITER AMONG THE STARS OF LIBRA THE SCALES.

ON MAY 9TH, JUPITER WILL BE CLOSE TO ZUBENELGENUBI, WHICH IS THE FORMER 'SOUTHERN CLAW' OF NEARBY SCORPIUS THE SCORPION. THE OTHER BRIGHT STAR IN LIBRA IS ZUBENESCHEMALI, THE FORMER 'NORTHERN CLAW' OF SCORPIUS.

JAMES:

IF YOU KEEP AN EYE ON JUPITER AS WE TRAVEL PAST IT, YOU'LL NOTICE

IT CONTINUES TO TRAVEL WESTWARD THROUGH LIBRA REACHING ITS CLOSEST APPROACH TO ZUBENELGENUBI ON JUNE 6TH AND THEN ON JULY 10TH, IT WILL PAUSE AND THEN BEGIN TRAVELLING EASTWARD AGAIN.

THEN ON AUGUST 8TH, JUPITER WILL PASS CLOSE TO ZUBENELGENUBI AGAIN.

DEAN:

NO WONDER THEY CALLED THE PLANETS "WANDERING STARS".

(STOP AND FLY)

DEAN:

THE PLANET JUPITER HAS BEEN OBSERVED IN THE SKY SINCE ANTIQUITY. THE ANCIENT ROMANS NAMED IT AFTER THE KING OF THEIR GODS, WHOM THE GREEKS REFERRED TO AS ZEUS.

JAMES:

BABYLONIAN ASTRONOMERS HAVE RECORDS OF JUPITER DATING BACK TO THE 7TH CENTURY B.C. IN HIS BOOK THE ALMAGEST, GREEK ASTRONOMER CLAUDIUS PTOLEMY USED JUPITER'S MOTION WITH RESPECT TO THE EARTH TO REFINE HIS EARTH-CENTERED MODEL OF THE SOLAR SYSTEM.

DEAN:

BY DOING THIS, PTOLEMY SHOWED THAT JUPITER TOOK ALMOST 12 YEARS TO MAKE A COMPLETE CIRCUIT OF THE SKY, WHICH WE NOW KNOW AS THE AMOUNT OF TIME IT TAKES JUPITER TO ORBIT THE SUN.

JAMES:

IN 1610, ITALIAN ASTRONOMER GALILEO GALILEI STUDIED JUPITER USING A TELESCOPE AND IS CREDITED WITH DISCOVERING THE FOUR LARGEST MOONS OF JUPITER; IO, EUROPA, GANYMEDE AND CALLISTO. THE MOTIONS OF THESE MOONS AROUND JUPITER PROVIDED GALILEO WITH AN EXAMPLE SUPPORTING NICHOLAS COPERNICUS' VIEW OF A SUN-CENTERED SOLAR SYSTEM.

(STOP - CLOSE UP ENDING)

DEAN:

LASTLY, AS PLANETS GO, JUPITER IS ENORMOUS.

IF JUPITER WERE HOLLOW, YOU COULD FIT OVER 1000 EARTHS INSIDE IT.

JAMES:

JUPITER ALSO SPINS

VERY FAST.

OF ALL THE PLANETS IN OUR SOLAR SYSTEM, JUPITER HAS THE SHORTEST DAY,

AT ONLY 9.8 HOURS.

THIS RAPID SPINNING HAS CAUSED JUPITER TO LOOK LIKE AN M & M; AND YOU KNOW HOW MUCH I LIKE M&MS.

DEAN:

YES INDEED. SO, GET OUTSIDE AND GAZE UPON THE KING OF THE PLANETS.

JAMES:

IT'S EASY TO DO WHEN YOU REMEMBER TO...

BOTH:

KEEP LOOKING UP!
