CLOUDS	CLIMATE	MJO	CAUSE & EFFECTS	MJO & CLIMATE
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## Clouds, climate, & the most important weather phenomenon you never heard of



Sharon L. Sessions New Mexico Tech 2015 49ers Tech Talk

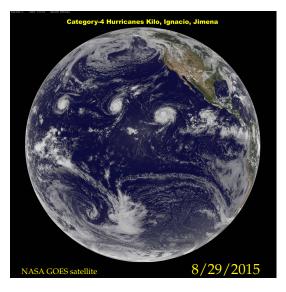
CLOUDS	CLIMATE	MJO	CAUSE & EFFECTS	MJO & CLIMATE
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## CLOUDS



CLOUDS	Climate	MJO	CAUSE & EFFECTS	MJO & CLIMATE
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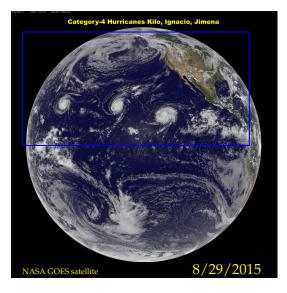
### CLOUD ORGANIZATION



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CLOUDS	Climate	MJO	CAUSE & EFFECTS	MJO & CLIMATE
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### CLOUD ORGANIZATION



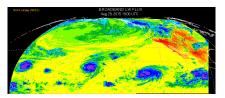
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CLOUDS	CLIMATE	MJO	CAUSE & EFFECTS	MJO & CLIMATE
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#### CLOUDS REGULATE GLOBAL TEMPERATURE

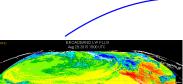


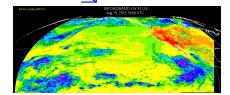
higher temperatures promote organization

CLOUDS	CLIMATE	MJO	CAUSE & EFFECTS	MJO & CLIMATE
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## CLOUDS REGULATE GLOBAL TEMPERATURE

more radiation escapes





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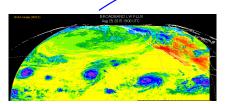
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higher temperatures promote organization

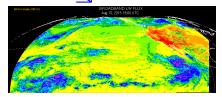
CLOUDS	CLIMATE	MJO	CAUSE & EFFECTS	MJO & CLIMATE
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#### CLOUDS REGULATE GLOBAL TEMPERATURE

more radiation escapes



higher temperatures promote organization



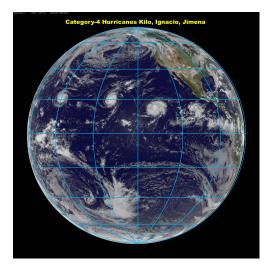
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disorganized convection traps radiation



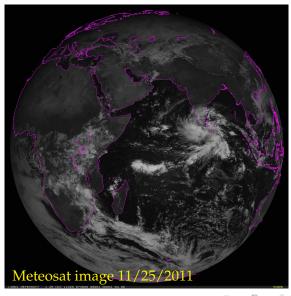
CLOUDS	CLIMATE	MJO	CAUSE & EFFECTS	MJO & CLIMATE
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#### WHY IS MODELING THE CLIMATE SO HARD?



CLOUDS	CLIMATE	MJO	CAUSE & EFFECTS	MJO & CLIMATE
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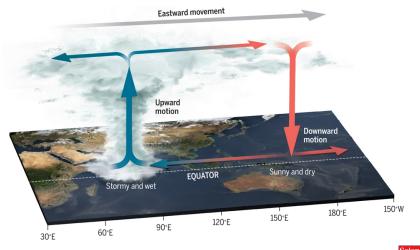
## MADDEN-JULIAN OSCILLATION (MJO)



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CLOUDS	CLIMATE	MJO	CAUSE & EFFECTS	MJO & CLIMATE
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## MADDEN-JULIAN OSCILLATION (MJO)



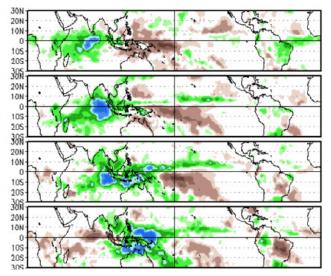
Eric Hand, Science 2015; 350:22-25



CLOUDS	CLIMATE	MJO	CAUSE & EFFECTS
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MJO & CLIMATE 00

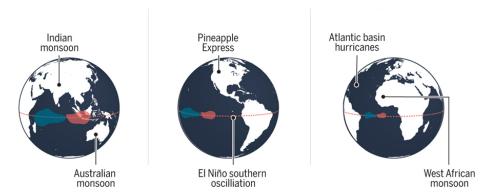
## MADDEN-JULIAN OSCILLATION (MJO)



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CLOUDS	CLIMATE	MJO	CAUSE & EFFECTS	MJO & CLIMATE
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## MADDEN-JULIAN OSCILLATION (MJO)





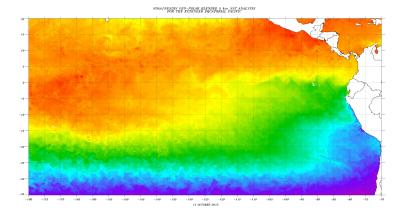
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CLOUDS	CLIMATE	MJO	CAUSE & EFFECTS	MJO & CLIMATE
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#### 'NORMAL' SURFACE TEMPERATURE FOR PACIFIC



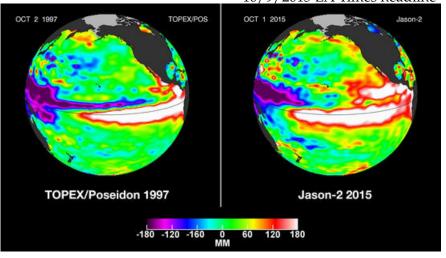


www.ospo.noaa.gov

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CLOUDS	CLIMATE	MJO	CAUSE & EFFECTS	MJO & CLIMATE
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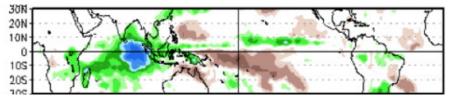
# MASSIVE EL NIÑO IS NOW 'TOO BIG TO FAIL,' SCIENTIST SAYS 10/9/2015 LA Times headline



CLOUDS	CLIMATE	MJO	CAUSE & EFFECTS	MJO & CLIMATE
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## WHAT CAUSES MJO?





#### Short answer: We don't know

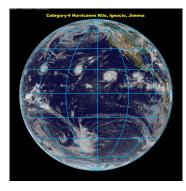
Clouds 00	Climate 00	MJO 0000	Cause & Effects 000	MJO & CLIMATE ●○

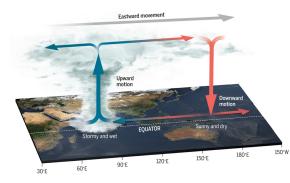
## HOW WILL MJO CHANGE WITH CLIMATE?



 CAUSE & EFFECTS 000	MJO & CLIMATE ○●

#### IN CLOSING...





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