From: Jaymes Kenyon <jaymes.kenyon@gmail.com>
Subject: **Major AR**
Date: 16 January 2013 12:59:14 PM EST
To: Jaymes Kenyon <jaymes.kenyon@gmail.com>
▶ 2 Attachments, 196 KB

Forwarded conversation
Subject: **Major AR**

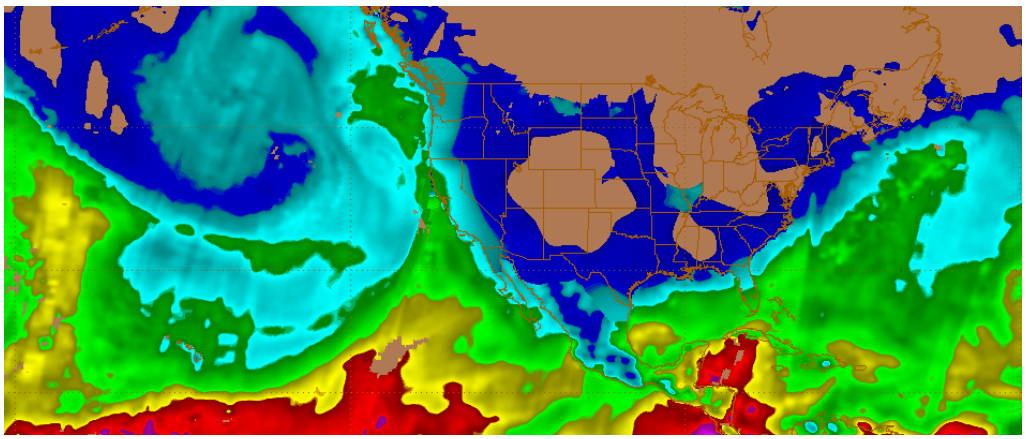
From: **Alexander Tardy** <alexander.tardy@noaa.gov>
Date: Wed, Nov 28, 2012 at 2:52 PM
To: MAP@listserv.albany.edu

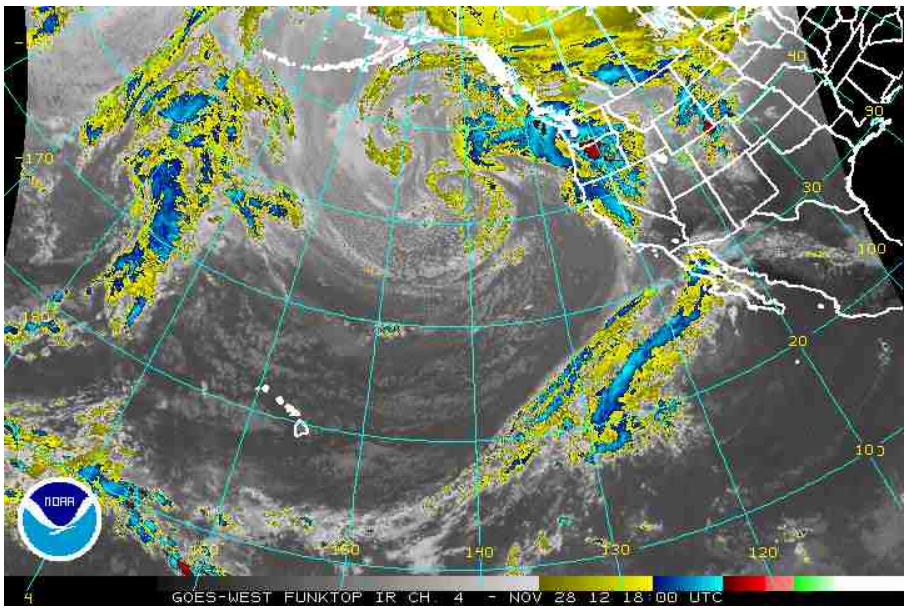
Check out the analogs for upcoming West Coast event potential.. 1996-97 is one match which had major high snow level and heavy rain in Northern CA.

This appears to originate moisture from the above normal SST near the equatorial dateline area and westward.

TPW
http://www.osdpd.noaa.gov/bTPW/TPW_Animation.html?fromDate=20121127&fromHour=18&endDate=20121128&endHour=18&product=GLOBAL_TPW&interval=3hours

Analog info
http://cipsanalog.blogspot.com/2012/11/potentially-historic-west-coast.html?m=1





Warning Coordination Meteorologist. NWS San Diego
Sent by Alex iPhone

From: **Cliff Mass** <cliff@atmos.washington.edu>
Date: Wed, Nov 28, 2012 at 3:06 PM
To: MAP@listserv.albany.edu

Alex,
Here is the 72 hr precipitation total ending 12z Sunday from the UW WRF 12-km system. **10-20 inches over significant portions of northern CA**. As shown by the Integrated Wave Vapor chart for 21z on Thursday, the atmospheric river is not coming from the SW but from the W. Not a Pineapple Express. Better described as the Teriyaki Express.
..cliff

On 11/28/12 11:52 AM, Alexander Tardy wrote:

> Check out the analogs for upcoming West Coast event potential.. 1996-97 is one match which had major high snow level and heavy rain in Northern CA.
>
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>
> Analog info
> http://cipsanalog.blogspot.com/2012/11/potentially-historic-west-coast.html?m=1
>
> Warning Coordination Meteorologist. NWS San Diego
> Sent by Alex iPhone
>
> ---
>
>

From: **Richard Grumm - NOAA Federal** <richard.grumm@noaa.gov>
Date: Wed, Nov 28, 2012 at 3:08 PM
To: MAP@listserv.albany.edu

Alex,

Looks like a 3-5 sigma event in the PW fields in the GFS and 3-4 sigma in the GEFS, due to averaging. Looks like multiple surges too. Over 2 inches in 24 hours for several periods is impressive.

Deep moisture, strong winds orthogonal to big mountains. Gives one an uplifting feeling.

Over 125mm in the GEFS in 24 hours I bet that is an outlier! With all member forecasting 2 to 2.5 sigma low-level wind anomalies into the mountains with over 2.5 sigma PW anomalies.

GEFS shows high prob high QPF amounts. Pattern plus QPF probabilities provide high confidence.

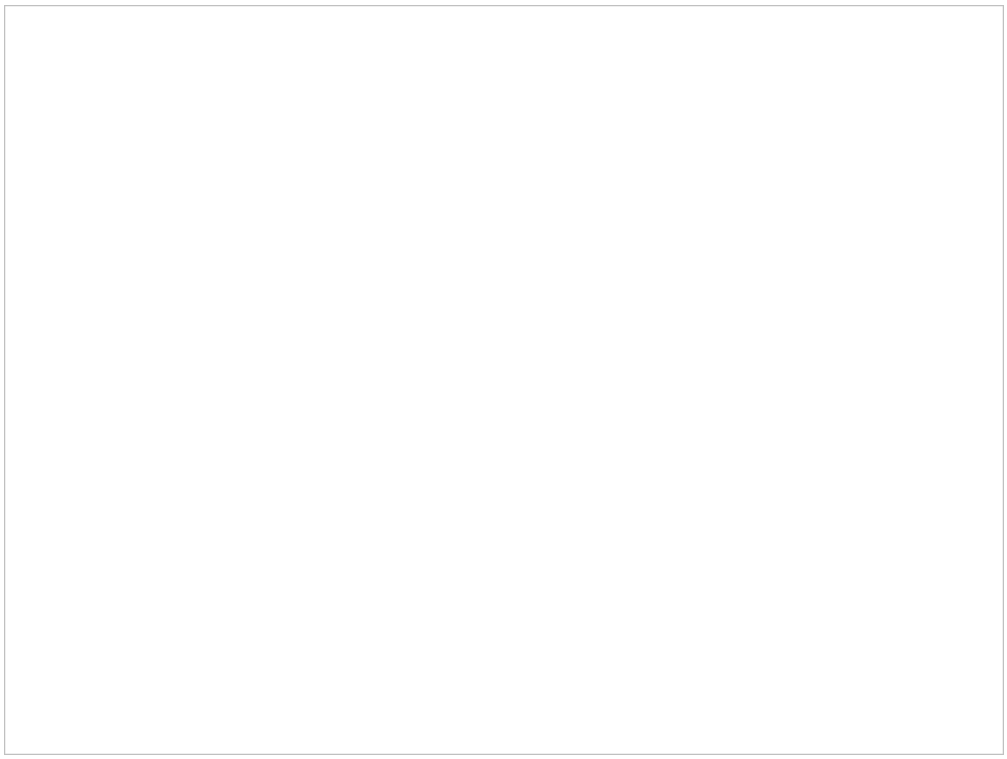
Right out of this paper I would guess:

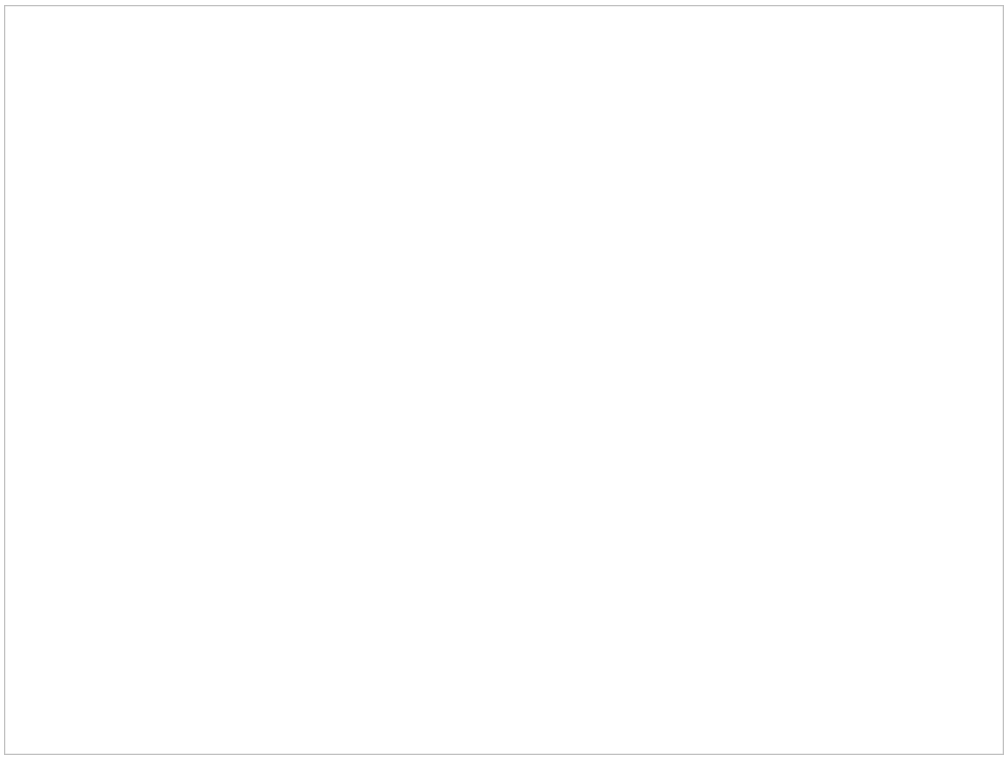
Junker, Norman W., Michael J. Brennan, Frank Pereira, Michael J. Bodner, Richard H. Grumm, 2009: Assessing the Potential for Rare Precipitation Events with Standardized Anomalies and Ensemble Guidance at the Hydrometeorological Prediction Center. *Bull. Amer. Meteor. Soc.*, **90**, 445–453.
doi: http://dx.doi.org/10.1175/2008BAMS2636.1

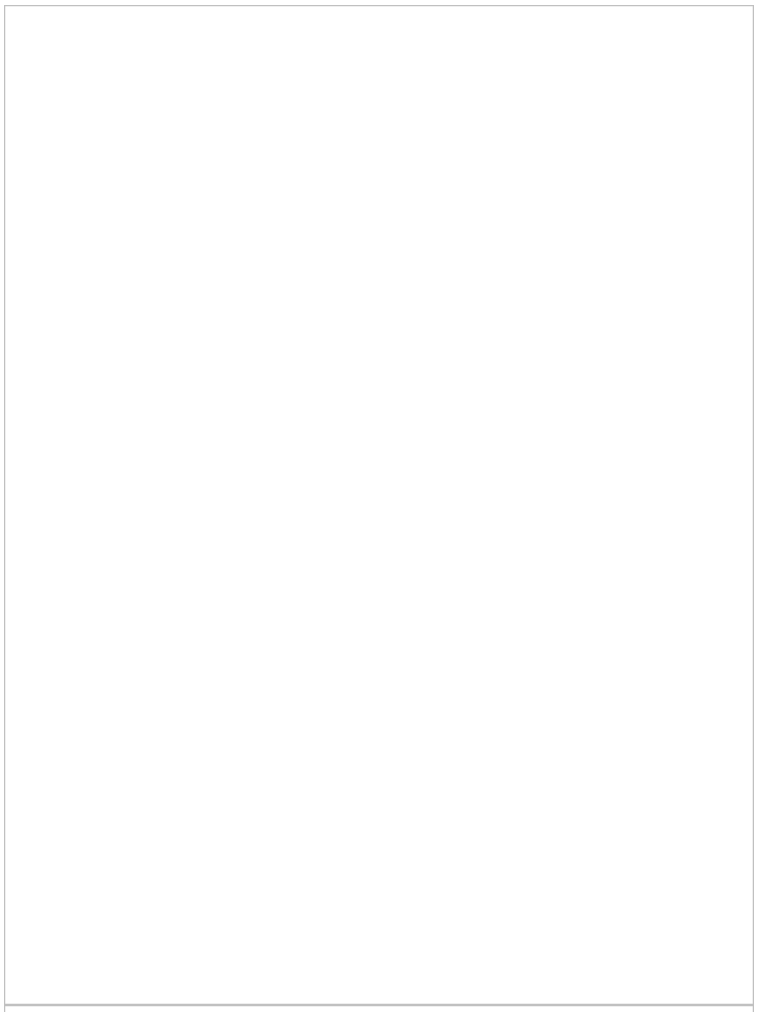
I bet a bot could extract this from the GEFS and predict this and similar HIWE's. We could in effect "automate this".

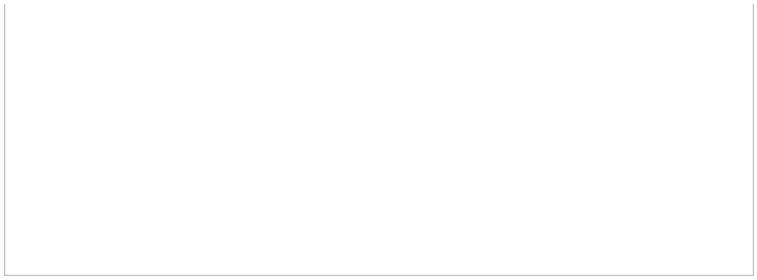
Can you burn analogs for heat?

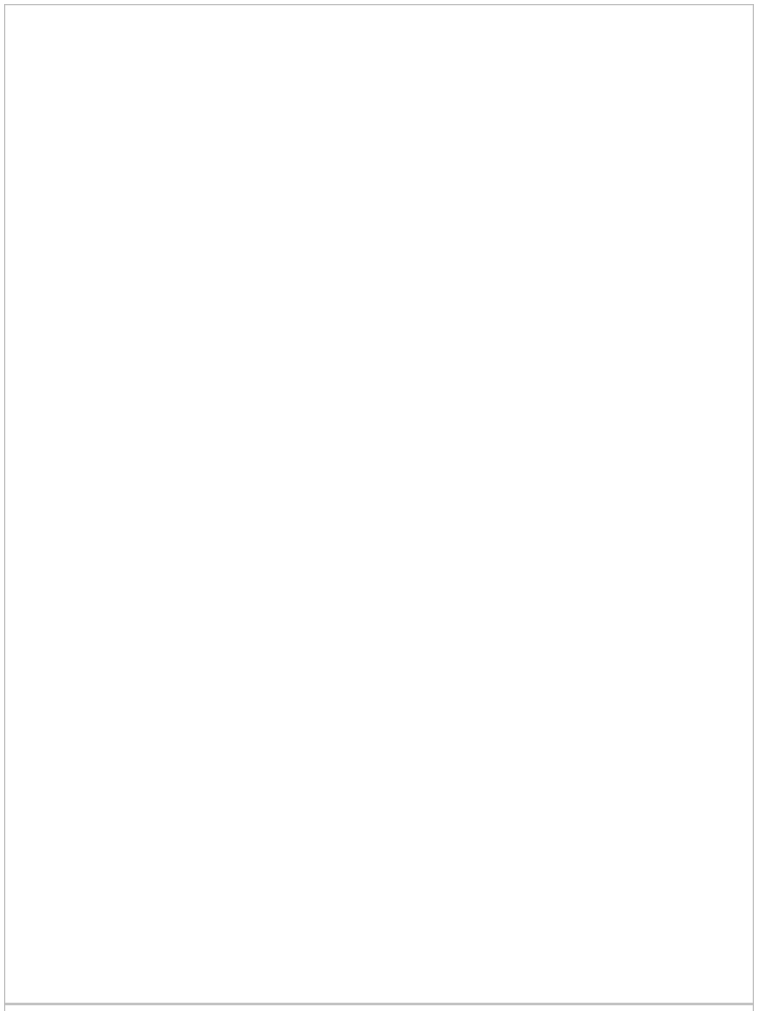
Rich

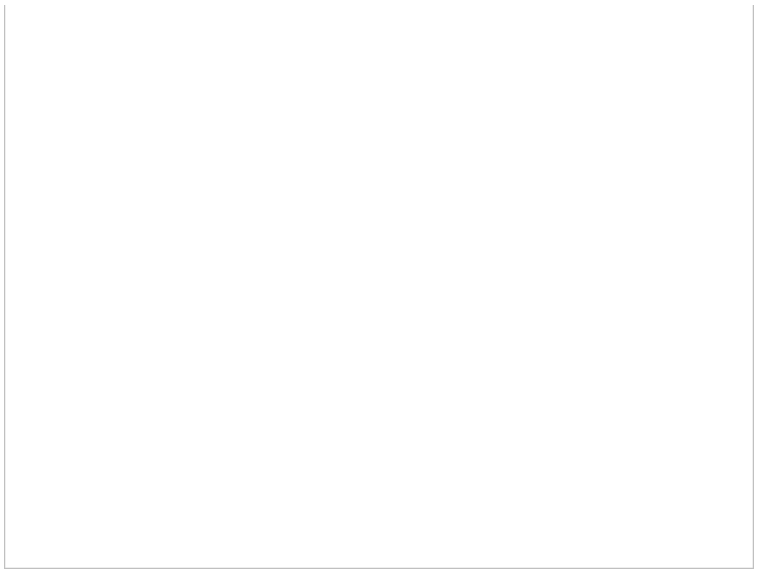












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Procrastination, how to get others to act the way you want, with out asking.

Science is the only way of knowing...everything else is superstition.

From: **Alexander Tardy** <alexander.tardy@noaa.gov>
Date: Wed, Nov 28, 2012 at 3:32 PM
To: MAP@listserv.albany.edu

Thanks Rich

The PW field on Dec 2 has that look of December 2010 (Alex analog!) as it points
To SoCal . At day 7 of that event it only looked
Like central and NorCal if you just viewed QPF

Looks like both forecast processes give you the same confidence.

Warning Coordination Meteorologist. NWS San Diego
Sent by Alex iPhone

> http://cipsanalog.blogspot.com/2012/11/potentially-historic-west-coast.html?m=1
>
> <image.png>
>
> <image.jpeg>
>
> Warning Coordination Meteorologist. NWS San Diego
> Sent by Alex iPhone

MAP-SIGNOFF-REQUEST@LISTSERV.ALBANY.EDU

--

Procrastination, how to get others to act the way you want, with out asking.

Science is the only way of knowing...everything else is superstition.

From: **Ben Moore** <benmo3@gmail.com>
Date: Wed, Nov 28, 2012 at 4:30 PM
To: MAP@listserv.albany.edu

Rich, Alex, and Cliff:

To add to the discussion, here is a GIF animation of vertically integrated water vapor transport (IVT) from today's 12Z deterministic GFS run. This loop indicates that multiple consecutive pulses of strong water vapor transport could impact the west coast between today and Sunday, potentially resulting in huge precipitation accumulations. A time integration of IVT from 12Z 29 Nov to 12Z 2 Dec (see attached) demonstrates the persistence of "atmospheric river" conditions produced by these pulses and helps to highlight the potential for very large precipitation accumulations along the west coast, particularly in California into which the "nose" of the IVT corridor is directed.

Cheers,
Ben Moore
CIRES/NOAA/ESRL/PSD

From: **John Molinari** <jmolinari@albany.edu>
Date: Wed, Nov 28, 2012 at 4:58 PM
To: MAP@listserv.albany.edu

At 04:30 PM 11/28/2012, Ben Moore wrote:
> Rich, Alex, and Cliff:
>
> To add to the discussion, <ftp://ftp.etl.noaa.gov/users/bmoore/NOV_2012/IVT_20121128_12.gif>here is a GIF animation of vertically integrated water vapor transport (IVT) from today's 12Z deterministic GFS run. This loop indicates that multiple consecutive pulses of strong water vapor transport could impact the west coast between today and Sunday, potentially resulting in huge precipitation accumulations. A time integration of IVT from 12Z 29 Nov to 12Z 2 Dec (see attached) demonstrates the persistence of "atmospheric river" conditions produced by these pulses and helps to highlight the potential for very large precipitation accumulations along the west coast, particularly in California into which the "nose" of the IVT corridor is directed.

Hello everyone, can someone tell me the formal expression for integrated water vapor transport? I am not clear on how units of kg/m can arise (I assume kg represents the mass of vapor). Since it is shaded, I assume this is a scalar quantity, but isn't transport a vector quantity (like, for instance velocity * q)? Since this is such an interesting field, I am hoping someone can enlighten me.

Cheers,
John
###

From: **Ben Moore** <benmo3@gmail.com>
Date: Wed, Nov 28, 2012 at 5:46 PM
To: MAP@listserv.albany.edu

John,

In the gif animation I sent out, the vectors correspond to the vertical integral of water vapor transport/flux (a vector quantity) from 1000 hPa to 300 hPa, and the shading simply represents the magnitude of that vector quantity. Units of vertically integrated water vapor transport (IVT) are kg/m/s. The static image I attached previously depicts the time integral of IVT, which was computed over a 72-h period (29 Nov-2 Dec). As in the IVT animation, in that image the magnitude of time-integrated IVT is shaded and vectors are overlaid. The integration of IVT with respect to time yields units of kg/m.

Cheers,
Ben

On Wed, Nov 28, 2012 at 2:58 PM, John Molinari <jmolinari@albany.edu> wrote:
> At 04:30 PM 11/28/2012, Ben Moore wrote:
> > Rich, Alex, and Cliff:
> >
> > To add to the discussion, <ftp://ftp.etl.noaa.gov/users/bmoore/NOV_2012/IVT_20121128_12.gif>here is a GIF animation of vertically integrated water vapor transport (IVT) from today's 12Z deterministic GFS run. This loop indicates that multiple consecutive pulses of strong water vapor transport could impact the west coast between today and Sunday, potentially resulting in huge precipitation accumulations. A time integration of IVT from 12Z 29 Nov to 12Z 2 Dec (see attached) demonstrates the persistence of "atmospheric river" conditions produced by these pulses and helps to highlight the potential for very large precipitation accumulations along the west coast, particularly in California into which the "nose" of the IVT corridor is directed.
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> Hello everyone, can someone tell me the formal expression for integrated water vapor transport? I am not clear on how units of kg/m can arise (I assume kg represents the mass of vapor). Since it is shaded, I assume this is a scalar quantity, but isn't transport a vector quantity (like, for instance velocity * q)? Since this is such an interesting field, I am hoping someone can enlighten me.
>
> Cheers,
> John

---------- Forwarded message ----------
From: **John Molinari** <molinari9162@gmail.com>
Date: Wed, Nov 28, 2012 at 9:04 PM
To: MAP@listserv.albany.edu

Thanks, Ben. I assume then if we had constant IVT along the wind it would indicate zero moisture flux convergence. Presumably rainfall would be more closely related to the latter, and the heaviest rain might be expected downwind of a maximum in IVT...

Cheers,
John

---------- Forwarded message ----------
From: **Ben Moore** <benmo3@gmail.com>
Date: Thu, Nov 29, 2012 at 12:11 PM
To: MAP@listserv.albany.edu

That is a good point, John. On a related note, below is a link that Jonathan Rutz (University of Utah) sent to me this morning and asked me to share with the MAP list. The page contains companion loops of IVT and IVT divergence from the 00Z 29 Nov GFS run. Particularly notable in these loops is that, as the atmospheric river features make landfall, strong IVT convergence occurs in the presence of large along-flow IVT gradients over the high terrain of California where orographic forcing for ascent and precipitation are likely to be vigorous.

http://www.inscc.utah.edu/~rutz/ivt_00z_westernUS.html

Ben