



Hurricane Gustav, Energy Infrastructure & Production Impacts/Models (Updated!--Thread 2)

Posted by [Nate Hagens](#) on August 29, 2008 - 10:36am

Topic: [Supply/Production](#)

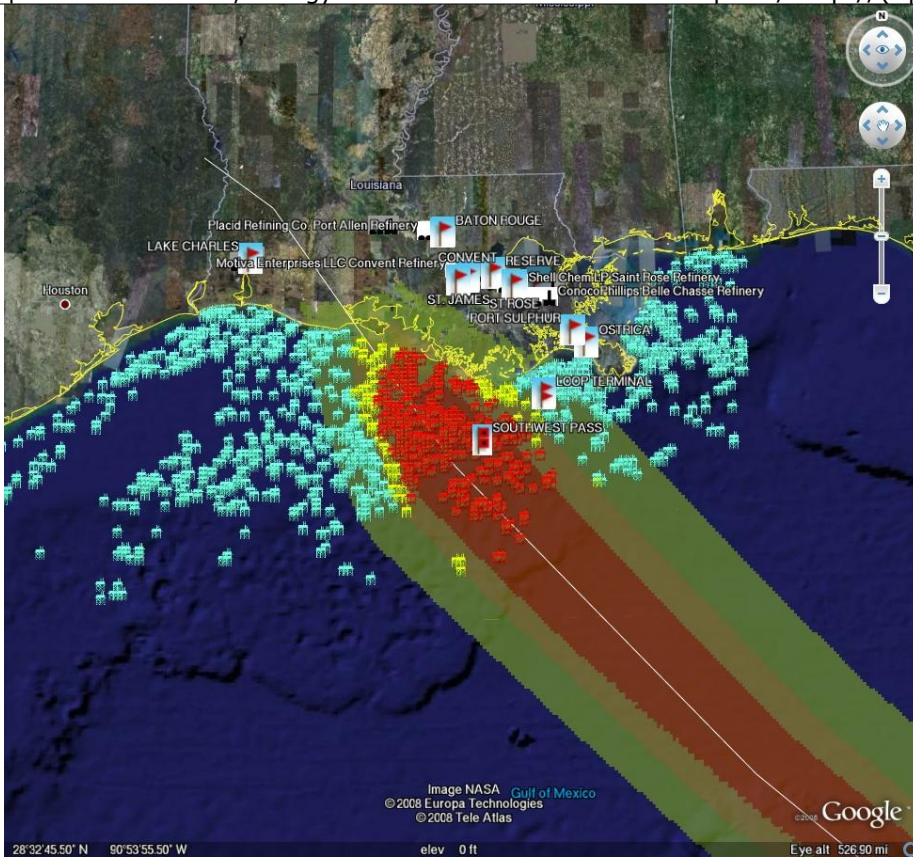
Tags: [chuck watson](#), [energy infrastructure](#), [gulf of mexico](#), [hurricane gustav](#), [hurricanes](#), [methaz](#), [original](#), [shut-in production](#) [[list all tags](#)]

(Welcome: we are now on a later and more updated thread, which can be found here: <http://www.theoil Drum.com/node/4478> NB: you may want to just go the front page (it will be post #1 or #2) to get to the most recent thread: <http://theoil Drum.com> ...)

Hurricane Gustav is on its way. Damage to oil and gas infrastructure from this event is looking more and more likely on current track. Here are the latest damage graphs and updates from [KAC/UCF](#). Update from Chuck Watson 9:24 EST (Next update Saturday 8/30)

Continuing westward shift: this based on the BAMD model, which is doing as well as the more sophisticated runs and is a lot faster (this run based the 8pm position and intensity estimates, so it's almost real time as opposed to waiting 3-4 hrs for GFDL or HWRF).

(Welcome: we are now on a later and more updated thread, which can be found here: <http://www.theoil Drum.com/node/4478> NB: you may want to just go the front page (it will be post #1 or #2) to get to the most recent thread: <http://theoil Drum.com> ...)



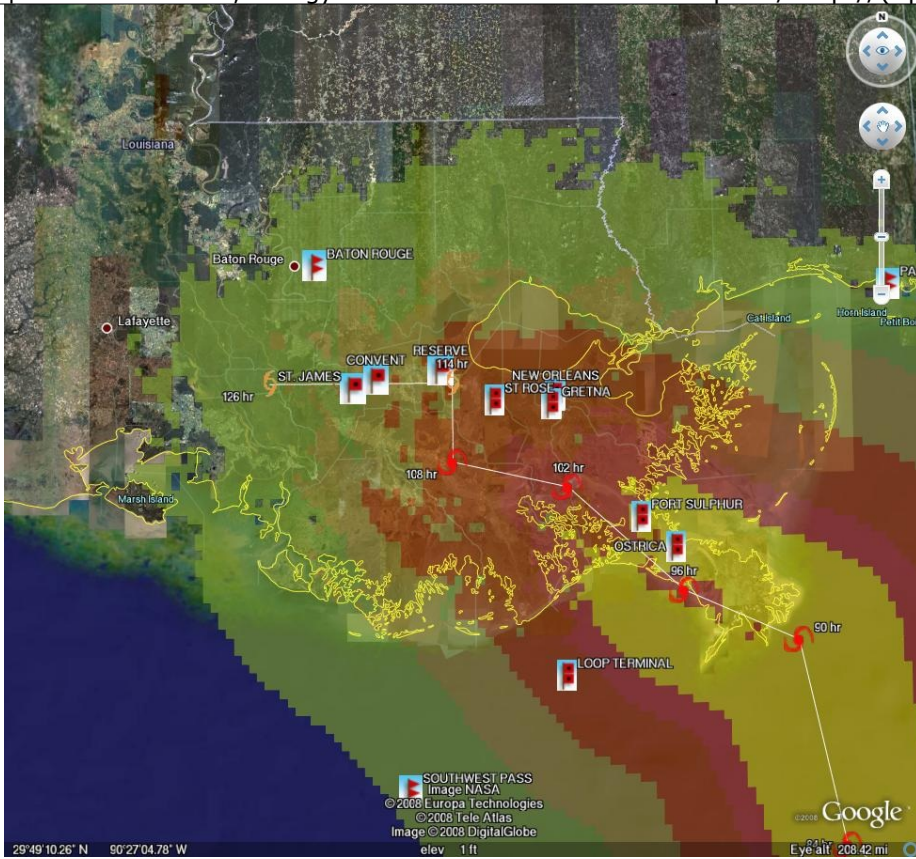
Latest damage run based on BAMD

Chuck Watson update 3:44 pm 8/29:

"This from the latest damage run based on the HWRF model. Note how the storm stalls out after landfall as a tropical storm. Bad news for recovery, especially if wet. This scenarios results in a loss of nearly 50% of the GOM production/processing capacity for the rest of the year. Ouch." (Note: this analysis on oil/gas damage is based on [HWRF](#) run verifying)

Rig damage run based on latest HWRF

From [KAC/UCF google earth link](#)



Port damage run based on latest HWRf

Refinery damage run based on latest HWRf

Though the Methaz runs based on HWRf model are among the most eastward of the ensemble models,(Chuck has been east of consensus since storm began) the damage using the current official 5 pm NHC path is just as bad. It shows a bit more production loss (about 60% of the rest of the year), plus about a month down time for the LOOP and inland pipeline damage.

Damage run based on latest official forecast

Click to go to WUnderground

Latest updates from Chuck Watson:
(3:34 pm 8/29)

Unfortunately it seems the favorable options for this storm are dropping off one by one. I think we're seeing a trend in the dynamic models towards the central LA coast and into a "target rich" environment with respect to oil production, as a strong enough storm to cause significant damage. Our in-house models are now showing a 50% chance of long term (more than 10% production loss for more than 30 days) damage from this storm. The GFDL scenario, for example, whacks the LOOP pretty hard.

Keep in mind that this storm is still not a hurricane (although it may well be any time now)(***Ed note, it is now a hurricane**), and while the track models have been fairly consistent, intensity forecasts are a very tricky business. There are still some big unknowns with respect to shear the day or so before landfall. A small change in wind

speed (10 knots) can make a big difference in damage since damage is proportional to the cube of the wind speed. So a 110 knot storm might cause 10% damage, but a 120 knots storm would cause 15% to the same structure.

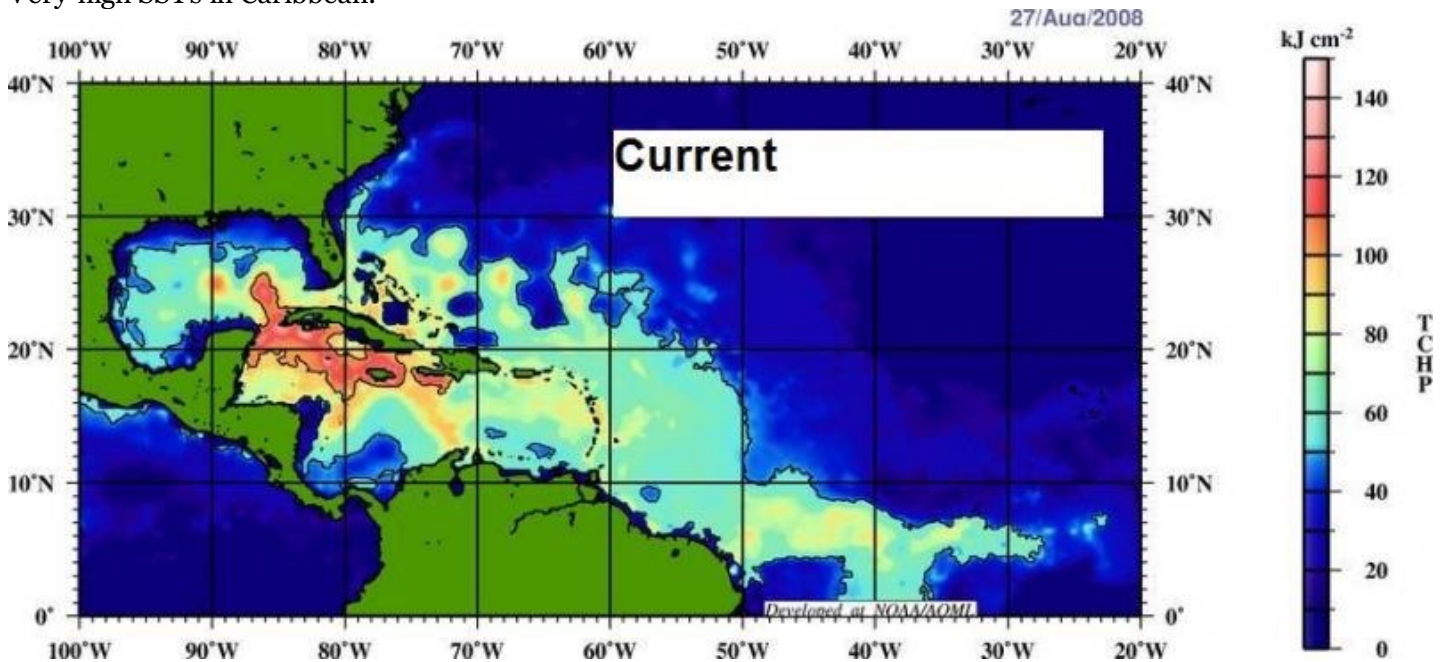
(8:35 am 8/29)

Gustav is a bit better organized this morning, and continuing to slowly drift westward, but there are signs the turn to the northwest has started. But the track across the GOM oil/gas lease sites and potential impact on refineries is still very much an open question. We're pretty sure it will turn north-northwest, and move across western Cuba or the Yucatan straits. The key question is the timing of the interaction with a high pressure system that could cause a sharp left (west) turn is unknown. That will also increase shear and weaken the storm, so it could well be the difference between this being a major disruption and a no-big-deal event depending on when the shear and turn kick in. To repeat myself, we'll know more when Gustav clears the Yucatan straits, which is looking like tomorrow evening.

Chuck has put together a dynamically updating page that will reflect the latest damage models/forecasts at this link: [KAC/UCF models](#).

On current track, which the weather geeks (and I use the term "geek" in kinship...) at <http://easternuswx.com> and [Jeff Masters at WU](#) say is too early to say for sure, but this could do a lot of damage.

Very high SSTs in Caribbean:



UPDATED

PRODUCTION/INFRASTRUCTURE MAPS AND REFINERY INFORMATION

[Here's a link to a really good map of oil refining/SPR storage facilities in respect to the path of Katrina \(NB: OLD TRACK MAP!\)](#) and [here is a listing of production and refining capability for the state of LA.](#)



Just to give you a rough idea of where things are, the map above is a [probability swath for Katrina](#) (OLD TRACK MAP!) with the [Thunder Horse](#) platform as the red dot, and the other purple dot represents the [Mad Dog](#) development (100,000 bd); the [Holstein](#) development that produces at peak, around 100,000 bd of oil; and the [Atlantis field](#) that may have ramped up to around 200,000 bd in all. Put together these projects have the potential of around 650,000 bd, but as can be seen, they were sitting in an uncomfortable spot relative to the track of the Katrina. The white dot is where Port Fourchon is. This is where the [Louisiana Offshore Oil Port, or LOOP](#), is located. [Rigzone](#) pointed out that this is where the foreign tankers offload, [Google](#) and [Terraserve](#) maps you can see that the area is very low-lying. One of the big concerns is that there will be sub-sea landslides or other ground movement that might affect the LOOP. Were this to be disrupted, then foreign tankers would need to be diverted elsewhere, with the likely port being Houston.

[Here is a really good link/map \(from "Rod and Reel" no less\) of the LA southern coastline showing all of the Submersible and Floater Gulf rigs.](#)

We have accumulated resources from previous hurricanes below, but we'd like to find updated materials if you know of them. Recent refinery maps, recent rig maps in the gulf, recent gas fields, SPR facilities, the Intercoastal Canal, pipeline stations and transfer points, etc., etc. Leave links in the comments please.

Also, here's the EIA's [Alabama](#), [Louisiana](#), [Mississippi](#), and [Texas](#) Resources pages. They will also likely come in handy. Also, here's a [link to the national page](#).

[Here's another good resource for infrastructure maps and such. \(scroll down a bit\)](#)

[Here's a map from CNN with large and small refineries laid out.](#) (though it is an old storm track)

[Very detailed piece by RIGZONE on rigs and other infrastructure in the area.](#) (thanks mw)

[Here's a flash graphic of the oil refineries and rig maps from Hurricane Rita, it emphasizes Beaumont and Galveston's importance.](#) Click on oil production in the tab. Note the many rigs on the east side of the storm that will get the brunt of the damage from the NE quad of the storm...hence the high long-term GOMEX oil production damage estimates below.

You want a detailed map? Well [here's the probably the best MMS map I could find. Very detailed and lots of interesting stuff. \(VERY big .pdf warning\)](#)

Also, Scott Wilmoth at [Simmons & Co](#) was kind enough to send us this map. The map below captures only deepwater infrastructure. For a complete list of deepwater development systems (includes operator, depth, location): <http://www.gomr.mms.gov/homepg/offshore/deepwatr/dpstruct.html>

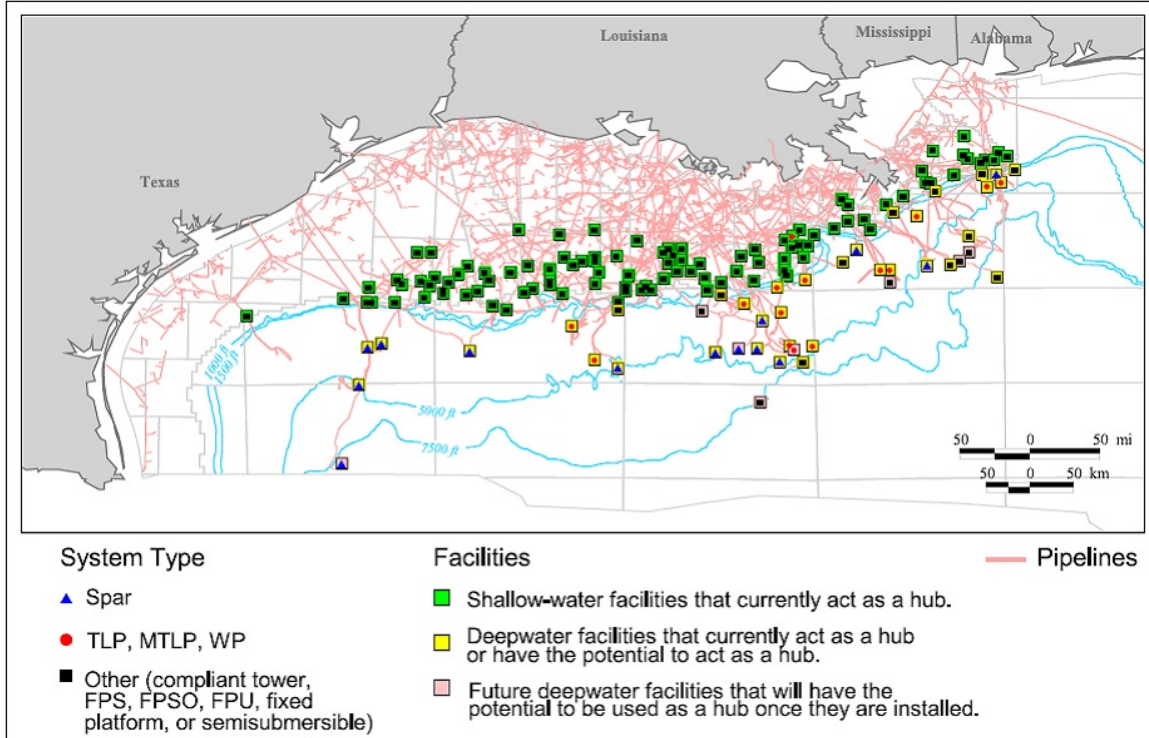


Figure 10. Current, potential, and future hub facilities.

(Please deposit new relevant links, graphs, and comments in this new thread...we have updated the resources part of this post with new maps and some more old maps and articles from Katrina on the LOOP and Port Fourchon--important parts of the infrastructure, as we learned about three years ago. We will start a third thread when we get new info or Sat am)



This work is licensed under a [Creative Commons Attribution-Share Alike 3.0 United States License](https://creativecommons.org/licenses/by-sa/3.0/).