Who needs climate attribution and how can attribution information be communicated?

Obey (SFWMD) :
Part of his job is to help sort out uncertainties for more senior managers.
3 things: GW, land use & population change issue, natural variability.
Why? -- if natural, multi-decadal cycles, then this is important information.
It is helpful to explain why active hurricane season, for example.
Regarding GW, in this area managers don't want to hear about climate change.
2 schools of thought on vulnerability. More like an outcome attribution. Natural cycles more important than GW to observed changes in hurricane frequency (it's thought, Landsea).
Data on hurricane frequencies … stationarity issue.
UHI issues. Are local feedbacks significant?
If natural (some kind of "cycle"), system will eventually go back to previous statistics (it's felt). With GW, it stays that way.
Natural variability is more palatable (to the population, and these water managers) than GW.
Managers don't want to touch the GW issue.
Why spend so much on everglades situation when it might become the "neverglades" (underwater).
  Why build so much intrastructure, if the expense might be all for nought?
Six inches of sea level rise would reduce effectiveness 80 percent of coastal structures of SE Florida.
Coastal structures are at the head of each canal. Lose their flood control capability with just 6 inches of sea level rise. The observed rise is thought in many circles to be a part of "cycles".
Seeming disconnect: Sea level is observed to be rising, but the explanation is not thought to involve global warming or climate change.

UK public affairs suggested a barbeque summer, turned out to be a real cool wet summer.

Attribution prior to events (forecast) is risky.

Asymmetry in warm versus cold forecasts. Worse to be wrong about warm than cool. The reasons for anomalies do not always matter to the same degree, depending on the sign and magnitude of the anomaly.

How to communicate uncertainty. Need to perform attribution in a probabilistic sense. Discussion of the history of POP (Probability Of Precipitation). Info is there (in NWS forecasts) but is not always re-transmitted. Public is not often aware of the very significant and lengthy discussions that have already occurred, but rather prefers to interpret this information in its own way.
    How to (and whether to) introduce notions of probability (education component) into the public discourse.

Users want to know why to some extent, but really want to know if it will happen again. Don't always care why, more interested in the fundamental information.
Plenty of people want know why, like to know causes of things. Embedded in this is the expectation that things won't go back. The story issue – does this anomaly/event fit into a narrative.

This year's seasonal forecast for hurricane as an example … is it verifying? How much can we trust climate change forecasts if we can't trust forecasts not based on climate change.

What's the difference between a bad forecast and a bad attribution?

Time scale is an issue … climate events generally last a while.   Need attribution over a large span of durations, but especially the longer ones. When to resort to "it happens" (rogue wave analogy)?

Not all bad forecasts are judged similarly. Depends on the outcome, impact, consequences.

Does the government have to say something about every event? Default is to use historical record and put in that context.

Obey: One person asking if a rise in sea level was from GW (2 years).

Rapid versus accurate. Would help to have a common set of past records, is always useful to do this.

Quick and accurate became rapid and authoritative… Multiple story lines   Might be overlap.   Where does authority come from?

What is a "fact" ?

Accuracy matters more than authority (KH). Accurate above all.

Quick response … 3 levels
1. Historical data for context. Matters of fact. Most "on record."
2. Check with literature.
3. Accurate and probabilistic assessment, more deliberative (and slow).
Public attention is limited … will focus only on step one or two.

One thing that can be done is simply to accurately depict the state of understanding.

Media representation of climate issues is getting better (apparently this is documented?).

Want to head toward National Climate Service as being an authoritative source to go to for attribution issues. Federal entity is better. Even so, usually want to get a local angle, regardless of authoritativeness.

Review … not much time to review immediately.

Need to have information readily at hand. Necessary for rapid response. Systemization of this.

Handbook, best practices for attribution issues.

Medical response analogy
Paramedic.
Emergency room
Laboratory diagnosis and tests, or … coroner's report!

New methods for dissemination (twitter, facebook).   Bureaucratic impediments (e.g. NOAA).

Feeder process from local and regions as to what is important to those places. At the local or regional level, what needs to be attributed at the local level? SCs and RCCs generally know what will be asked of "the system" that provides such information.

Not enough reliable regional information. Regional and seasonal dependence of attributability. Not all climate events of interest happen in places or seasons where attribution is

Where are potential future events more likely? Scenario based attribution … what could happen? Forewarned is forearmed. Chance favors the prepared mind.   Having information "pre-positioned". Need to have this at hand, or fairly ready access (often a few minutes to a few hours).

An important audience is other federal agencies. FEMA, COE, DOD and international security issues. State and local governments. Community planners. Reinsurance. Well, ok, … Everyone.

KW. Churchill: an expert is a person who can tell you after the fact exactly why their prognosis was wrong.

Much larger context for the whole attribution issue: How do we know anything about anything? Multiple dimensions to this issue. Physical understanding of the system, but all of this is processed through human beings