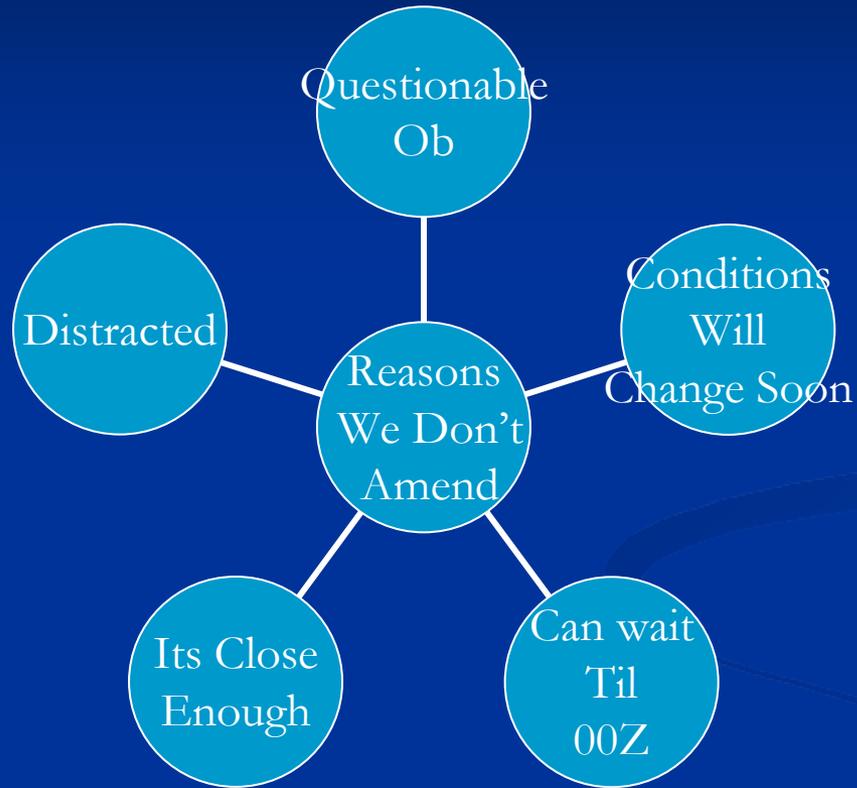


Why we don't amend bad TAFS

Kirk Apffel

Why we don't Amend bad TAFS



Human Factor

January 21, 1998: Escondido CA

- Stephanie Crowe is stabbed to death
- Vagrant Richard Tutie
- Detectives focus on victim's brother (Michael)
- After 9 hours of interrogation Michael confesses
- Michael and two friends charged with murder
- Then blood of the victim is found the sweatshirt of Richard Tutie

Continued...

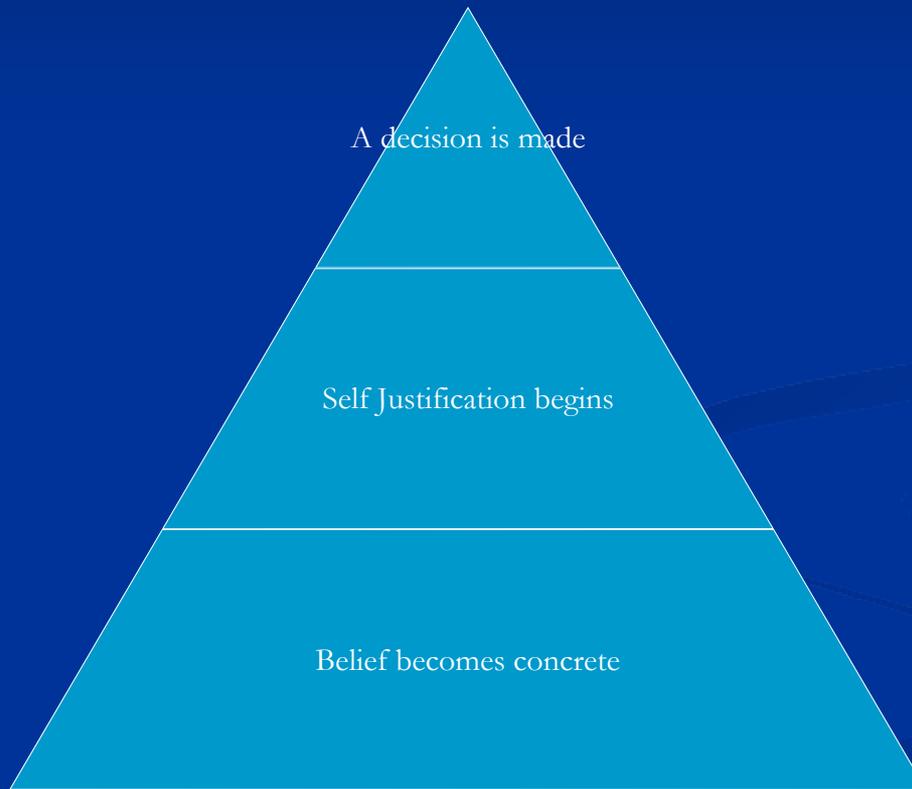
- The new evidence forces the detectives to drop charges.
- These detectives remain convinced Michael Crowe is guilty – refuse to file charges against Tutie
- The case is handed over to detective Vic Caloca.
- Following Caloca's investigation, Tutie is convicted of the murder.

What happened here?

- The original investigative team developed a theory.
- As investigators spend time building and justifying this theory, they become increasingly convinced it is correct.
- When evidence to the contrary is presented, they ignored this, trying to find alternative explanations supporting their original theory.

Cognitive Dissonance and Self Justification

- Cognitive dissonance is a state of tension that occurs whenever a person holds two cognitions that are psychologically inconsistent. (smoking)
- People tend to self-justify dissonant positions.
- In this case, detectives (several) set aside evidence which contradicted their theory.



Supporting Research

- Mills and Anderson – college initiation study
- Jecker and Landy – liking a person more once you have given them something
- Milgram – electroshock experiment
- Source: Mistakes Were Made (but not by me)
 - By Carol Tavris and Elliot Aronson

Cognitive Dissonance and TAFS

- Ok, the day-shift examines BUFKIT, satellite data, etc. The forecaster expects a BKN layer of cumulus to form across Portland at 20Z. The forecaster issues the following TAF:
 - KPWM 051728Z 0518/0618 29006KT P6SM SKC
FM052000 29006KT P6SM BKN025
FM052300 VRB03KT P6SM SKC

Do we still expect this?

- KPWM 051728Z 0518/0618 29006KT P6SM SKC
FM052000 29006KT P6SM BKN025
FM052300 VRB03KT P6SM SKC
- Its 1930Z, and visible satellite shows only SCT clouds in the mountains, SKC near Portland. The forecaster decides to wait it out.

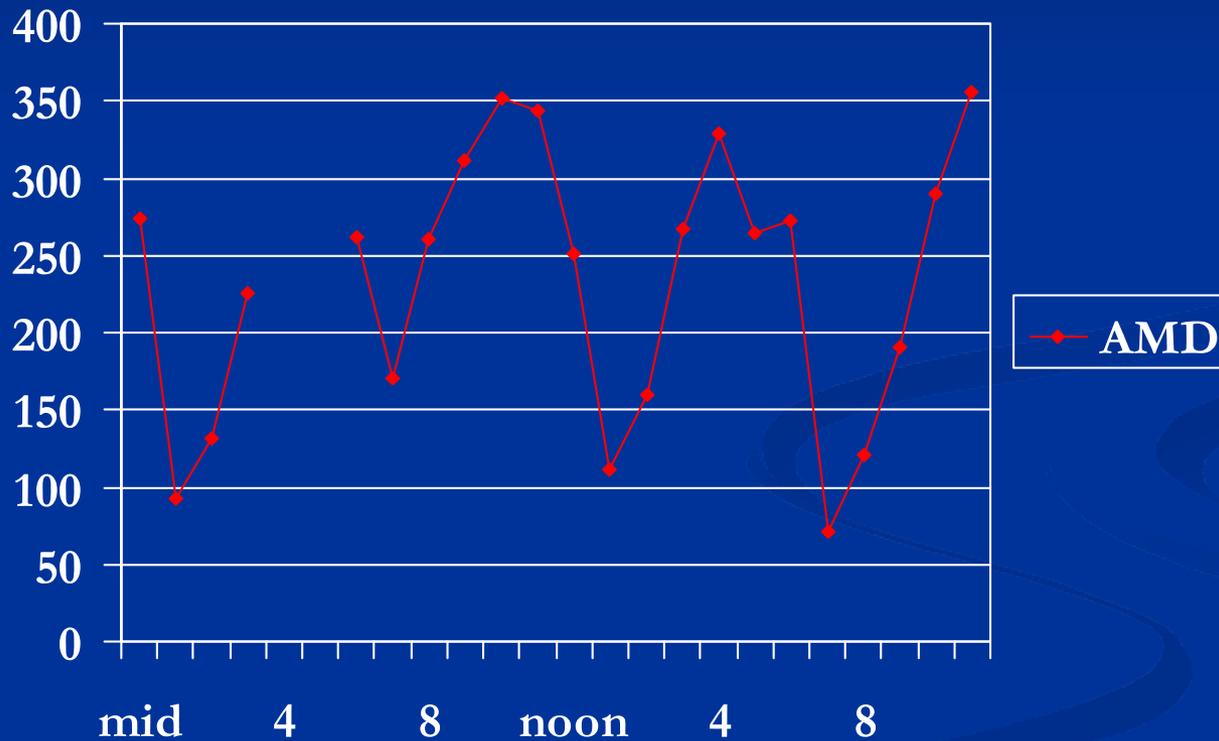
Must be the timing

- KPWM AMD 051728Z 0520/0618 29006KT P6SM SKC
FM052100 29006KT P6SM BKN025
FM052300 VRB03KT P6SM SKC
- Its 20Z and dayshift concludes the clouds are on the way, just running late. He AMDs the TAF to push back timing.
- Evening shift takes over at 2030Z, re-evaluates, and based on the data, removes the BKN025 from the TAF.

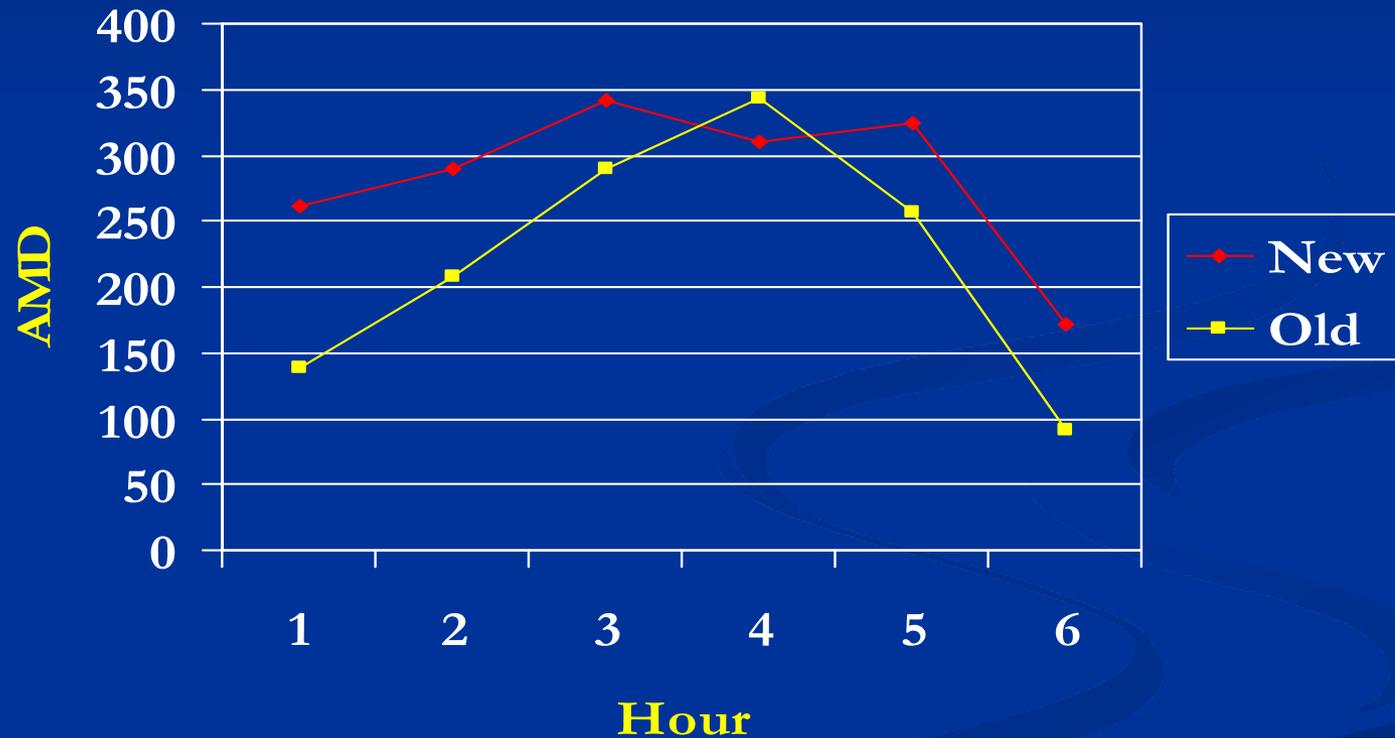
Why its hard to amend

- Note the similarities to the Stephanie Crow case.
- Consider, the forecaster spent a fair amount of time on these TAFs
- Cognitive Dissonance theory predicts there will be a tendency to “self-justify” or “sit on” the TAF.
 - This could be correct, maybe that BKN025 is on the way.
 - Or it could be a human factor causing the TAF to ride.

GYX TAF AMD 2008 - 2009



GYX TAF AMD 2008 - 2009



Cognitive Dissonance Can Play a Role in Forecasting

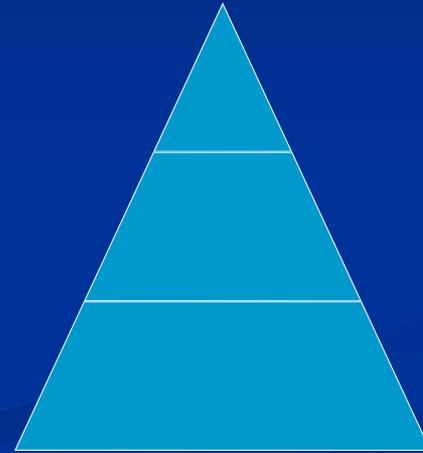
- A new forecaster resulted in a 28% increase in TAFS.
- You may also see evidence of this in the 12 Planet chat room.

Getting past cognitive dissonance.

- First: Be aware of cognitive dissonance.
- Forecasters should understand what cognitive dissonance is, as this is the first step to mitigating it.

Don't fall down the pyramid

- Don't get stuck on one forecast idea
- The further down the pyramid you slide, the harder it is to make a good forecast.



Getting past cognitive dissonance.

- *Avoiding the slide: Routinely Re-evaluate*
- *Get into the habit:*
 - *Monitor observations*
 - *Forget the existing TAF – Make new forecast based only on the latest observations*
 - *Objectively compare the new and old forecasts*
 - *Which does the facts support*

Getting past cognitive dissonance.

- Avoid the slide: Learn to trust others
- The difference between the best forecaster in the NWS and the worst, isn't *that* much. Everyone has an opinion worth listening to.
- Learn not to be defensive, use the knowledge of others.
- Consider asking for help from numerous neighboring offices.

Cognitive Dissonance and the Forecast Process

- Forecasters utilize available data
- Open discussion of key points
 - Must be early on “the pyramid”
 - Focus on science, experience, personal confidence
- Produce forecast
- Constantly re-evaluate forecast
 - Focus on observations – what does the evidence tell you.

In an ideal world...

- Just imagine if we could eliminate cognitive dissonance bias from all TAF forecasts.
- Science would dominate, with the forecaster having the best grasp on any given day leading the way.
- All would benefit.

The End

