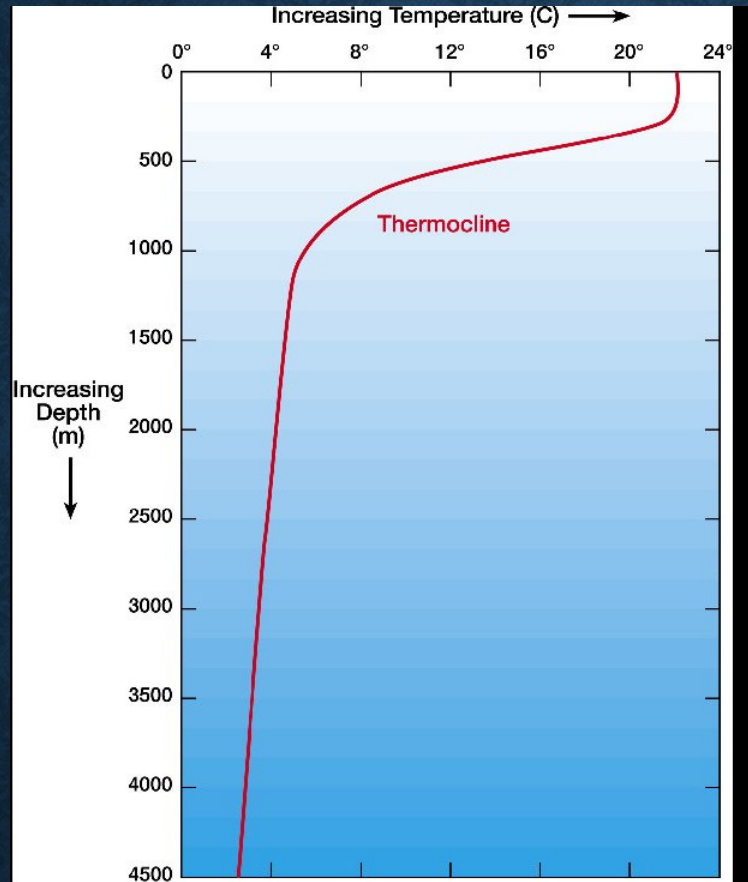


CS 428
WEBSTER #2

Winter 2022

Bruce F. Webster



This is a simple temperature-depth ocean water profile. You can see temperature decreases with increasing depth. The thermocline are layers of water where the temperature changes rapidly with depth. This temperature-depth profile is what you might expect to find in low to middle latitudes.
Windows to the Universe original image

WEB #6: THE THERMOCLINE OF TRUTH (2008) [\[LINK\]](#)

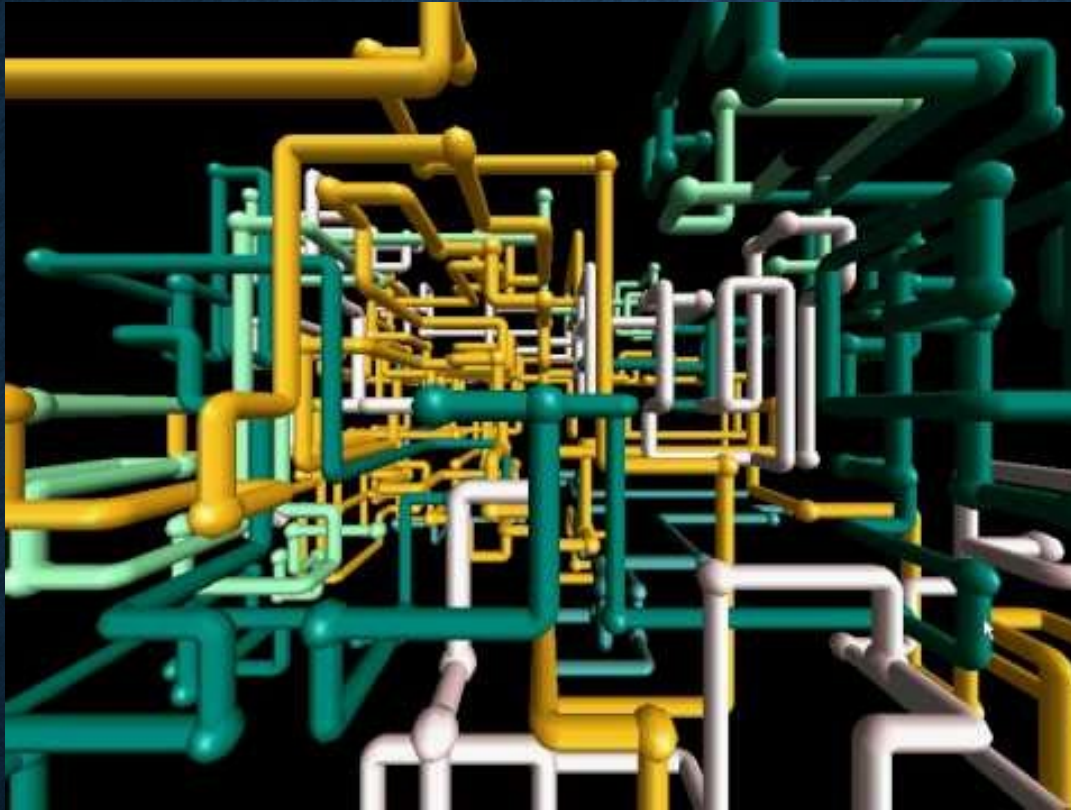
- A line drawn across the organizational chart that represents a barrier to accurate information regarding the project's progress
 - Those below this level tend to know how well the project is actually going
 - Those above it tend to have a more optimistic (if unrealistic) view
- Why does it form?
 - Lack of true metrics (objective, automated, predictive) on project status
 - Excessive optimism on part of engineers
 - Self-protection on the part of managers going up the chain
 - Top management tends to reward good news and punish bad news

THE THERMOCLINE OF TRUTH (CONT.)

- **Consequence:** as the deadline draws near, the actual project status tends to move upward in the management chain
 - Hence the classic “slip the project schedule three weeks before delivery” pattern
- **How to avoid it**
 - Honesty and outspokenness on the part of engineers and managers
 - Rewarding that honesty
 - Upper management actively seeking out from lower levels realistic feedback on project
 - Avoiding the temptation of the “quick fix to ship”

THE THERMOCLINE OF TRUTH (CONT.)

- Experience reviewing massive (\$500M) failing IT project at Fortune 50 corporation



“REMEMBER CONWAYS LAW” (2013) [[LINK](#)]

- Coined by Fred Brooks in *The Mythical Man-Month*:
 - Any organization that designs a system (defined broadly) will produce a design whose structure is a copy of the organization's communication structure.
- Put simply, **architecture tends to follow organization**, not the other way around
- Thus, you need to **make sure your organization reflects your anticipated architecture** (hint: **you may end up revising your org charts**)
- Observations and experience?

“REMEMBER CONWAY’S LAW” (CONT.)

- Temptation: the appearance (illusion, really) of progress
 - Prototyping user interface
 - Use of third-party libraries, engines, utilities
 - Getting important modules to “80% completion” and then moving on
- Finishing that last 10-20% is where things drag on forever
 - All the hardest problems have been deferred to the end
 - Can find yourself in “solution deadlock” among remaining hard problems
- Solution: courage to actively identify and tackle hardest problems first
 - Initial progress will be slow, but you will be more likely to be able to predict completion

**DO NOT DEFER THE DIFFICULT IN IT
PROJECTS (BASELINE, 2008) [[LINK](#)]**