

Global 2000 “Knowledge Wall”



Knowledge Wall as installed in the JCC at the Naval War College

The Global 2000 “Knowledge Wall” is the first iteration of a concept developed as part of the Office of Naval Research sponsored *Command 21: Decision Support for Operational Command Centers* applied research program. The wall was developed at the request of COMTHIRDFLT and COMCARGRU ONE for use during the Global 2000 wargame to explore the implications of Network-Centric Warfare to C4I. The wall is designed given the COTS hardware and software capabilities that exist today so as to minimize development costs, and therefore differs from the original Command 21 Knowledge Wall vision.

The knowledge wall hardware consists of an IT-21 compliant workstation running Windows NT4.0 with dual Pentium-III, 750 MHz processors, 1 Gigabyte of RAM, and two large capacity hard drives. The Knowledge Wall display is made up of ten, 21-inch Viewsonic G810 CRTs, and two SmartBoard Rear-projection large screen displays with internal Proxima LX-2 LCD projectors. The displays operate as a single, integrated digital desktop where each physical display has a resolution of 1024x768 pixels, creating a digital desktop of 6144x1536 pixels. The wall is using three, 4-port Appian Jeronimo Pro COTS video boards with a proprietary control panel. An additional

Table 1 Global 2000 Functional Areas

<i>Functional Area (CJTF)</i>	<i>Responsible Agent</i>
Ground Control/CAS	ARFOR MARFOR
OMFTS	MARFOR
TMD	NAVFOR ARFOR
Air Defense	AFFOR
Deep Strike / Interdiction	AFFOR
Sea Control	NAVFOR
SOF	JSOTF
Rear Area Security	(Brown)
ISR	J2
Fires Coordination	J31
Effects	J35
Information Warfare	J39
Logistics	J4

21-inch CRT is dedicated to Video and VTC requirements.

For Global 2000, the Knowledge Wall is functionally limited. It is conceptually a dynamic status board. The small, peripheral displays are intended to provide summary information for each of 14 functional areas identified through knowledge engineering with U.S. Navy Third Fleet, Carrier Group One, and Carrier Group Three staff (Table 1). Each summary display is formatted consistently with a variety of tools dedicated to different operational requirements.

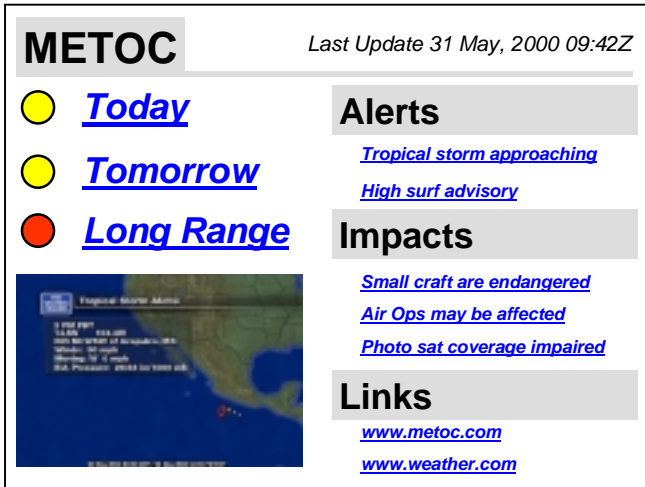


Figure 2 Representative Summary display.

Figure 2 shows how the information looks in the METOC summary display. All pages are implemented as HTML pages on a common server, with numerous links to more detailed pages for supplemental information. (For Global 2000 these pages are being hosted within the NWC WIGS system.) The title line indicates the functional area described by the display. The font or background may be color coded to indicate alerts, etc. The time and date the last change was made to this display is shown to give a sense of the timeliness of the data shown. The “stop lights” in the top left quadrant are designed to be viewable from 15-20 feet away, and indicate the status of activities in various time frames. Light colors indicate status; green indicates no major issues, yellow indicates there are issues that others in the command center should be aware of, while red indicates critical issues. The bottom left quadrant provides space for a summary graphic or multi-media object. It may be set up as an active link to a web page describing the graphic in more detail, e.g., an animated movie. The right side of the screen provides space for amplifying links / headlines. “Alerts” describes specific problems *within* this domain / functional area that might be of interest to others. The text for each issue is a link to a more detailed web page. The “Impacts” links describe the impacts / issues of alerts in terms of effects to *other* functional areas. The “Links” area is a place to point to reference and supplemental material.

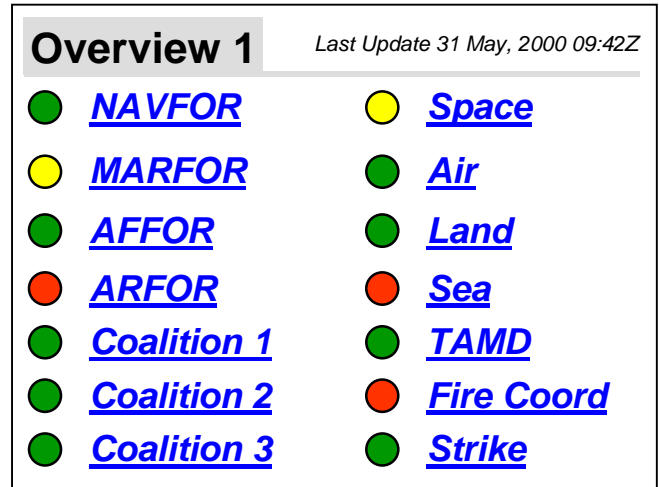


Figure 3 Overview display for all functional areas

Due to the limited display area available in the Global 2000 Knowledge Wall, we have dedicated the top left summary display to be an “Overview” for all functional areas, indicating when there *are* issues requiring attention (Figure 3).

The functionality of the wall has been defined based on the anticipated requirements for the CJTF during the Global 2000 Wargame. The Knowledge Wall is managed through a shell application that manages the content for the various windows and maps them to the desktop. The shell facilitates “drill down” and the use of the large screen displays as “Focus” displays. In addition, a custom mouse handler has been installed to simplify navigation of the Knowledge Wall. The shell application allows the management of the additional applications, e.g., C2PC (providing tactical / map data), and InfoWorkspace (for collaboration). The Knowledge Wall is expected to change dramatically as it is adapted for different applications.

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