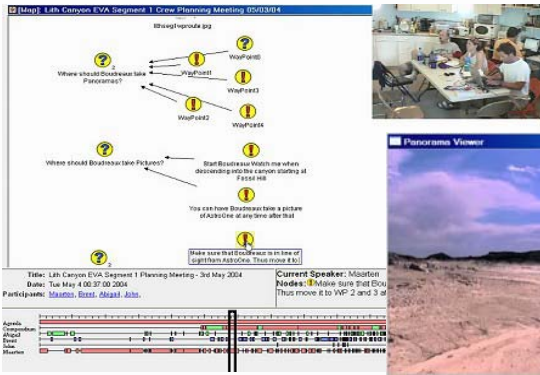


A Glue to Join Distributed Places, People and Expertise

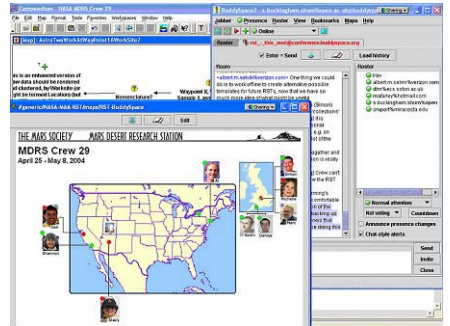
Scientists located in different geographical regions are increasingly working closer and relying on each other to accomplish their common goals. Technologies such as the Access Grid and VRVS provide a communications platform for these collaborations. However, as the tasks become more ambitious and complex, the need grows for additional structured support. The Advanced Knowledge Technologies Interdisciplinary Research Collaboration (AKT IRC) project is developing knowledge management technologies that provide a foundation for distributed knowledge sharing.

The CoAKTinG (Collaborative AKT in the Grid) project draws on and integrates AKT technologies to provide a set of complementary tools that provides this structured support. BuddySpace provides an informal communication channel and awareness of others' presence states. Compendium provides hypertext tools for visual domain modelling and real-time discussion capture. The I-X System facilitates task capture, allocation, execution and coordination. The Meeting Replay tool enables annotated and cross-referenced access to the records of previous meetings and interactions. The combined use of these loosely-coupled tools provides a knowledge-rich collaboration platform.

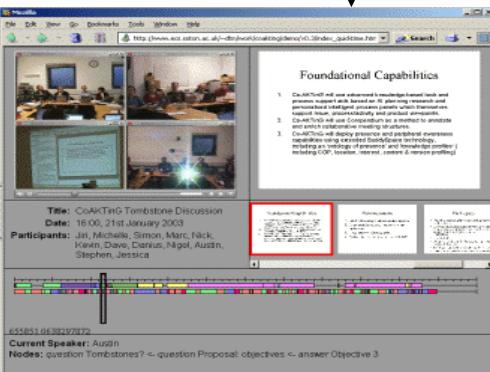


*Compendium in Meeting
 Replay Web Interface*

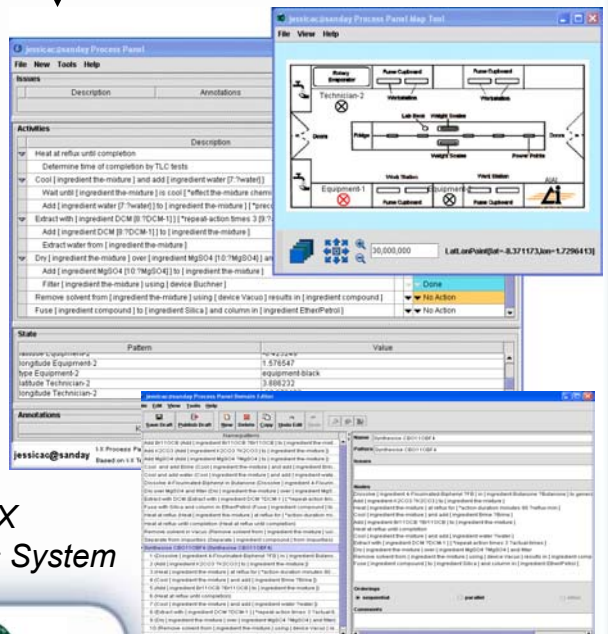
BuddySpace



*Mars Exploration
 Mission*



*Meeting Capture and
 Structural Replay*



*I-X
 Process System*

CoAKTinG Aids Mars Exploration

The Mars Society (www.marssociety.org) runs the Mars Analog Research Station (MARS) project, simulating the conditions under which scientists will have to conduct their field research on any future mission to Mars. The CoAKTinG tools were deployed to help the scientists during a recent mission – and this also provided useful feedback about the practicalities of using the tools (see panel to the right). The exercise involved using Compendium to map the scientists' EVA planning meetings, and then integrating this with video, audio and other data streams into the Replay tool. As well as documenting the mission, this provided the scientists with a means to review their rationale and approach during subsequent planning meetings.

Applying CoAKTinG to e-Science Combechem

The Combechem (www.combechem.org) e-Science project aims to enhance structure and property correlation and prediction by increasing the amount of knowledge about materials via the synthesis and analysis of large compound libraries.

The CoAKTinG tools provide integrated task support for CombeChem: support for the experimental process, tracking and awareness of people and machine states, capturing the discussions about data as well as the traditional metadata, and enriched meta-data regarding these components.

The I-X Process System describes processes for experiments so that each process may be executed or decomposed into smaller steps. It contains a graphical representation of a real chemistry lab where states of mobile units are changeable and reflected in I-X Process Panel. By sharing information with BuddySpace, properties of devices are updated and described in the same panel.

Support e-Science: Learning from Experience

Excerpts/summary from Mars Desert Research Station, Crew Log Book May 8 2004

Danius Michaelides and Kevin Page (Univ. of Southampton, UK): On the final day of the rotation, Maarten managed to video the morning EVA planning meeting. It was late morning in the UK by the time the video was uploaded. It was a real squeeze to get the final replay generated before the RST met – but we managed to rush something out. The Compendium and Meeting Replay tools complement each other very well to provide a structure view of the meeting and data involved. In the last fortnight we've gained valuable experience using our tools to support distributed scientists which is what the CoAKTinG project is all about.

Marc Eisenstadt (Open Univ., UK): [by the time of the] teleconference on May 8th most had BuddySpace installed, with their presence displayed live and a groupchat instant messaging room [running]. If someone loses their internet access, this is immediately obvious as they disappear from BuddySpace.

Simon Buckingham Shum (Open Univ., UK): A critical theme to emerge was the way in which scientific data is organized, with some very interesting ideas emerging on the best ways to navigate data, and of particular interest to us, how the spatial/semantic interface offered by Compendium could support the work practices of the [team] when they are being asked to make sense of huge amounts of data in a short timeframe. It was deeply rewarding to see Compendium operating as an integrated modelling, sense-making and dialogue environment.

<http://www.marssociety.org/MDRS/>
<http://www.aktors.org/coaktin/mars/>

Compendium provides the means to ensure the capture of the analysis for the tasks in hand, while Replay tool allows annotated playback of experiments.

CoAKTinG is funded through the UK e-Science programme and involves teams from the Universities of Edinburgh and Southampton, and the Open University. Project web site: www.aktors.org/coaktin.