KSCO

The KSCO Community and its Coalition Experiments

http://ksco.info

KSCO Events

◆ KSCO-1999 – International Workshop on Knowledge-Based Planning for Coalition Operations, May 1999, Edinburgh, Scotland.

  ◆ Working parties proposed series of Coalition Experiments Binni scenario adopted for community experimentation.

  ◆ Working Group on KSCO formed and first meeting held to plan community activities.

◆ Coalition Experiments and multi-national joint experimentation encouraged.

◆ KSCO-2002 – Second Conference on Knowledge Systems for Coalition Operations, June 2002, Toulouse, France.

◆ IEEE Intelligent Systems, Special Issue on Knowledge Systems for Coalition Operations, Volume 17 Number 2, May/June 2002.

◆ KSCO-2004 – Volume of Papers on Knowledge Systems for Coalition Operations, October 2004. Planned conference in Pensacola, Florida, USA cancelled during active hurricane season (Ivan in September 2004).

◆ KSCO-2006 – Third Conference on Knowledge Systems for Coalition Operations, part of IEEE Workshop on Distributed Intelligent Systems (DIS-2006), June 2006, Prague, Czech Republic.

◆ KSCO-2007 – Fourth Conference on Knowledge Systems for Coalition Operations, part of IEEE International Conference on Integration of Knowledge Intensive Multi-Agent Systems Modeling, Evolution and Engineering (KIMAS-2007), May 2007, Waltham, MA, USA.

◆ http://ksco.info – Web site and relevant occasional communications for community.

KSCO Working Group

- Jean Berger (DRDC, Canada)
- Jeff Bradshaw (IHMC, USA)
- David Brown (MITRE, USA)
- Richard Davis (DSTO, Australia)
- Roberto Desimone (QinetiQ, UK)
- Jerry Dussault (AFRL, USA; TTCP Representative)
- Dan Fayette (AFRL, USA)
- Scott Fouse (IS, USA)
- Nort Fowler (AFRL, USA; now retired)
- Vladimir Gordoteski (St. Petersburg Inst. for Info. and Automation, Russia)
- Jim Hendler (University of Maryland, USA)
- Jan Jelínek (Honeywell, USA)
- James Lawton (AFRL, USA)
- Jitu Patel (Dstl, UK)
- Paul Losiewicz (EOARD/London, USA)
- Vijay Kowtha (ONR Global/London, USA)
- Dale Lambert (DSTO, Australia)
- Barry McKinney (EOARD/London, USA)
- Rick Metzger (AFRL, USA)
- Jitu Patel (DSTL, UK; TTCP Representative)
- Michal Pěchouček (Czech Technical University in Prague, Czech Republic)
- Tony Rathmell (DSTL, UK)
- Martin Rehák (Czech Technical University in Prague, Czech Republic)
- Niranjan Suri (IHMC, USA)
- Austin Tate (AIAI, University of Edinburgh, UK)

KSCO Topics

- Innovative theory and techniques for coalition formation and support to similar "virtual organisations"
- Applications and requirements for knowledge-based coalition planning and operations management
- Knowledge-based approaches to command and control
- Knowledge-based approaches to coalition logistics
- Knowledge-based approaches to Operations-Other-Than-War - such as peace keeping missions and other humanitarian operations
- Multi-agent systems and the concept of agency in coalitions
- Tools and techniques for knowledge-based simulation and modelling of coalition operations
- Security and maintenance of private information or knowledge in coalition operations
- Autonomous vs. centrally managed coalition operations

KSCO Issues

◆ Different doctrine, decision making, rules of engagement and, in general, mission "agendas"

◆ Different technology skill and equipment levels

◆ Questionable compatibility of respective national information systems

◆ Limited models for coalition force operations

◆ Command authorities - agreement and transfers

◆ Information systems resource sharing agreements & capacity

◆ Different interpretation of situational information

◆ Lack of compatible security architectures

From LeRoy Pearce, Canadian MOD

TTCP
The Technical Cooperation Program

◆ Australia, Canada, New Zealand, UK, USA

◆ C3I Group - Command, Control, Communication and Information Systems

◆ Created Binni Scenario

◆ Encouraged KSCO and Coalition Experiments

◆ http://www.dtic.mil/ttcp/

Binni - Gateway to the Golden Bowl of Africa

Rathmell, R.A. (1999) A Coalition Force Scenario 'Binni - Gateway to the Golden Bowl of Africa', in Proceedings of the International Workshop on Knowledge-Based Planning for Coalition Forces, (ed. Tate, A.) pp. 115-125, Edinburgh, Scotland, 10th-11th May 1999.

Geography / Borders

Binni - All Features

KEY

- · 175 — Heights (metres)
- ● BANDAR — Population centres
- · Brongo — Ports
- – – – — Railways
- × — Military airfields
- Q — Civilian Airfields
- —— — Tarmac roads
- —— — Gravel roads
- ······ — Tracks

LAYERS:
- Setting
- Geography
- Transport
- Water
- Names
- Lat / Long
- Return

N W E S

To Cecil
To Cunmma
To Tijko
To Pample
To Tagumbo
To Falo
To Hama
To Petit Paris
To Escallope

GAO

Akwapin-Gao Range
Jacal
Kaso Lagoon
Cape Amstado
Caca
LAKE CACA
Daka
Gambaga Escarpment
Mawli
White Caca
Kapowa
Black Caca
Ofin
Ankobra
Pra
Amisa
Atewa Range
Kwahu Plateau
Afram
Cape Vincent

CACA REGION
EASTERN REGION
BANDAR REGION
NORTHERN REGION
ASHANTI REGION
CENTRAL REGION
UPPER REGION
WESTERN REGION
AGADEZ

Population centres and places:

Grandville, Antok, Kaso, Dado, Minga, Gamba, Bave, Kolla, 876, Hakkali, Laval, Biloo, Anala, Libar, Zatu, Dinga, Higgville, Masembi, 527, Brongo, Caca Dam, Nanga, Esuko, Laponga, SIKASSO, BANDAR, Blackman, Tonka, Asoba, Gambaga, 268, Jinja, Kamongo, Sagiba, 788, Bonrope, 775, Wonka, UGWULU, Zaribe, Adaido, 123, 175, Aida, Ashobo, Saltpond, Kwanabouri, Libretto, Gonobo, Grandvache, Zingato, Diplombo, Elmina, Epidurango, 613, Nedalla, 707, Komenda, Jamestown, 482, St Andrews, LAKI, Donga, Sandosta, Slafito, Polia, COSTA DEL MARIA, Slabo, 390, Kingtown, Sago-town, Sonara, Sellerham, 752, Lissa, 436, Langford, Bisha, 588, Salisbury, Belucar, Wazilla, Suthertown, Akimbo, Kutchi, Wampimba, Anguiba, 542, 613, Bisa, Deanville

Grid references (Lat/Long):

31E, 32E, 33E, 34E, 35E, 36E, 37E, 38E, 39E
15N, 16N, 17N, 18N, 19N, 20N, 21N

Laki Safari Park

Laki Safari Park is a nature preserve administered by the *World Foundation for the Protection of Wildlife (WFPW)*. Located to the west of Laki in the Binni region of NE Africa, the preserve is home to a wide variety of animal and plant life in a natural setting. While the primary purpose of the preserve is conservancy, ongoing scientific studies monitor wildlife on a continuous basis.

Animal Monitoring at Safari Park

In June 2009, Safari Park began an international exploratorium nature monitoring program. Larger mammals (elephants and lions at present) were fitted with monitoring devices that capture each animal's

- location - latitude, longitude, altitude
- direction of movement
- field conditions - air temperature, humidity
- animal health conditions - body temperature, pulse, blood pressure, basal skin response

Results of key observations are sent at the beginning of each month by wireless email to a central database which the public can query using a natural language interface (try it out - **OBJS MBNLI**). To see how a query about elephant herd location over time might look when plotted on a map, click **map**. Scientists and the public are invited to subscribe to receive periodic updates on their favorite animals (using **OBJS eGents system**) - results are shown here (**status**).
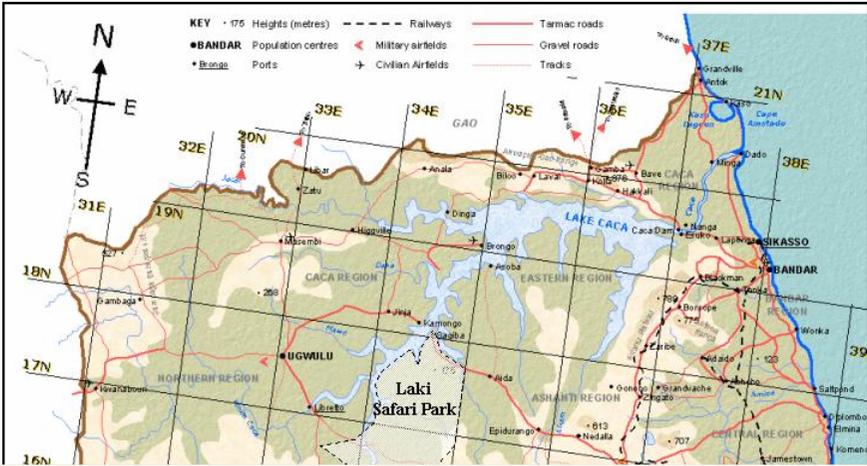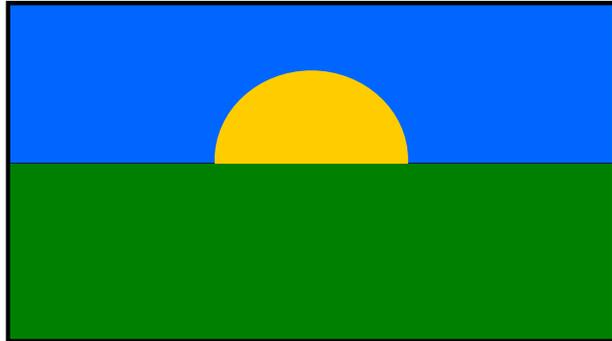
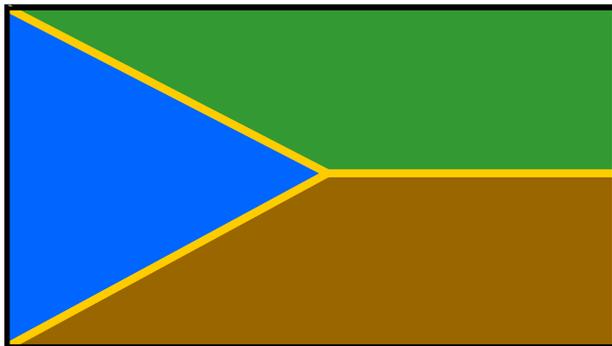# Binni Vexillology

Binni

Represents the hopes of the Binni Founding Fathers that the Sun will rise and set in a cloudless sky over a lush and prosperous landscape.

Gao

Reflects the anguish of the history of Gao with nature alternating between poverty and plenty divided by the crimson stained path of tribal conflict.

Agadez

Represents the union of Mountain (blue), Upland (green) and Lowland (brown) peoples of Agadez each maintaining their independence yet united against all opponents.

Arabello

Represents the five fiefdoms of Arabello unified under a sultan of wealth and power.

Binni Scenario Materials

binni.org

or via KSCO web site ksco.info

Coalition Experiments

◆ Coalition Logistics 1, 2000 – San Diego, CA, US

◆ Coalition Logistics 2, 2000 – Malvern, UK

◆ CoAX Binni 2000 – Malvern, UK

◆ CoAX Binni 2001 – Malvern, UK

◆ CoAX Binni 2002 – Newport, RI, USA

◆ Coalition Search and Rescue, 2003-4
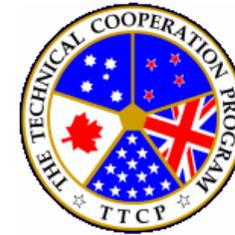
CoAX – Coalition Agents eXperiment

**AIAI, BBN, CMU, Dartmouth, DSTO, GITI,
Lockheed Martin ATL, NRL, Potomac Inst., U.Maryland,
U.Michigan, QinetiQ, UT-Austin, UWF/IHMC**
**Support from AFRL, ARL, Boeing, DRDC, DSTL, ISX, MITRE,
MIT Sloan, NWDC, OBJS, Schafer, Stanford, TTCP, USC/ISI, USPACOM**

http://www.aiai.ed.ac.uk/project/coax/
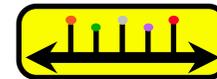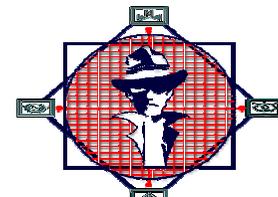
CoAX Technology Contributions

- AIAI's I-X Task, Process and Event Panel Technology
- BBN Technologies MPS - Mixed-Initiative Planning and Interaction Agents, Dynamic Agent Information Coordination Protocols, Airlift Mission Planning System Agent.
- CMU's Retsina Grid Agent Communications Visualisation and DAML-S Matchmaker. See here for more details.
- DSTO's Future Operations Centre Analysis Laboratory (FOCAL) and Logistics Planning using the ATTITUDE multi-agent architecture.
- Dartmouth College's Field-observation System and Mobile Agents for Medical Monitoring
- GITI/ISX CoABS Program Grid Infrastructure
- Lockheed Martin ATL's EMAA mobile agent technology, CAST information management agents, and I2AT agent development toolkit
- Michigan's Multilevel Coordination Agent
- MIT's Robustness Service
- NRL's Intelligent Agents for GCCS-M
- OBJS's eGents E-mail Agents and AgentGram
- QinetiQ's Decision Desktop and Master Battle Planner
- Stanford's Market Mechanisms Technology
- UMD's IMPACT agents for reasoning with probabilistic temporal information
- UTexas at Austin's Sensible Agent technology - Trust Evaluation and Organization Adaptation
- USC/ISI's Ariadne Project
- UWF/IHMC and Boeing's KAoS Technology
- UWF/IHMC NOMADS Technology

KSCO Further Information and Involvement

◆ KSCO, Binni, CoAX materials and documentation:

- ◆ http://binni.org
- ◆ http://ksco.info
- ◆ http://www.aiai.ed.ac.uk/project/coax/

◆ We encourage your participation…

- ◆ In addressing key coalition and technical drivers
- ◆ In seeking operational opportunities
- ◆ In creating collaborative projects
- ◆ In future demonstrations