

# **InFire Conference 2004**

## **A safe community: the information network**

### **Perth, Australia, 11-15 October, 2004**

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# Usage of an integrated decision support system in respect of a safe community and risk management

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presented by

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# A safer society



# Accidents still occur...





# The Swedish Rescue Services Agency (SRSA)

- A national authority
- From accidents of everyday life to catastrophes and war
- Preventive methods reduces incidents and accidents
- Knowledge is important
- Active role in international cooperation
- Cooperation and consideration for the environment
- Training personnel of the municipal fire & rescue services
- 780 employees

# Our areas of work

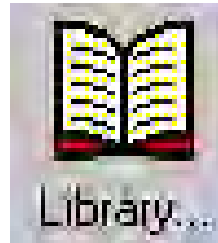
- Accident & injury prevention
- Emergency response
- Road & rail transport of dangerous goods
- Flammable & explosive goods
- Preparedness for nuclear energy emergencies
- Combating oil pollution
- Serious chemical emergencies

- Supervision
- International co-operation
- Training
- Research & development
- Global analysis and feedback of lessons learned
- Information
- Participation in societal emergency management
  - Hazardous substances
  - Protection, rescue & care



# Integrated decision support system





- Digital library (in RIB) and traditional library
- Complete text for approx. 3800 documents (60 000 pages); relevant legislation, manuals, articles, science & development reports, classroom literature, lessons learned, fire investigations (2500) and FEMA reports (100)
- 16 000 references to reports, manuals, regulations, reference books, videos and maps
- All publications issued by SRSA in the digital library

# Library database

RIB RIB Utgåva 2-2004 - [Sök bibliotek]

Arkiv Redigera Visa Fönster Nyheter Hjälp

Sök | Brandutredningar | Träfflista  Ingen text  Sammanfattning  Fulltext  Brandutredningar

Valfria ord: forest fire  Matcha hela ord

Titel:  Författare:

Utgivande inst:

Serie:  SRV-ort:

Utg datum (from):  (tom):  Medietyp:

Klassificering...  Färliga ämnen...

Sök

Antal träffar: 15

Töm fälten

Träfflista

Nr	Titel	Författare	Utgivande institution	Utg datum	Klassificering	Presentation
2	Utsläpp från bränder till miljön : Utsläpp av dioxin, PAH och...	Blomqvist Per; Persson...	Räddningsverket	2002	86 - Ekologi	Fulltextdokument
7	Brandriskprognoser med hjälp av en skiktad markfuktighet	Gardelin Marie	Räddningsverket	2001	342.4 - Skog	Fulltextdokument
6	Fireworks : Explosion Risk Vs Class 1.4 Definitions : Rafael...	Basset Blesa José M		2000-08	401 - Kemikaliehantering	Fulltextdokument
10	Gräsbrand : Uttorkning och brandspridning i relation till brä...	Granström Anders; B...	Räddningsverket	2000	341 - Brandförlopp	Sammanfattning
9	Skogsbränder i Grekland : Sommaren 2000	Bengtsson Thomas;	Räddningsverket	2000	342.4 - Skog	Fulltextdokument
1	Skopan ett flygplan för skogsbrandsläckning och kustbev...	Lundström Sören	Räddningsverket	1996	342.4 - Skog	Fulltextdokument
3	Skopan : Ett flygplan för skogsbrandsläckning och kustbev...	Lundström Sören	Räddningsverket	1996	342.4 - Skog	Fulltextdokument
8	Släckmedelstillsatser för skogsbrandbekämpning	Rosvall Anne; Ander...	Räddningsverket	1995	343.0 - Släckmedel	Sammanfattning
5	Undersökning om skogsbränder 1994	Sandahl Leif; Bratt M	Räddningsverket	1995	040 - Räddningstjänststatistik	Sammanfattning
4	Handbook on Forest Fire Control : A guide for trainers	Heikkilä Timo V; Gro...	National Board of Educatio	1993	329 - Övrig utbildning	Sammanfattning
13	Forest Fire Simulation using Phoenix	Näslund E	Försvarets forskningsansta	1991-02	342.4 - Skog	Sammanfattning
11	Estimation of the Rate of Heat Release and Induced Wind	Corley D; Ohlemiller	US Department of Commer	1990-10-01	342.4 - Skog	Sammanfattning
15	A guide for prescribed fire in southern forests		United States Department of	1988	342.4 - Skog	Ingen text
12	Brandforskning i USA och Kanada, April 1973 : Studieres...	Sjölin V; Önnemark	Försvarets forskningsansta	1973-11	340 - Allmän brandkunskap	Sammanfattning
14	Ecological effects of fire in North Swedish forests	Uggla Ewald	Universitetet i Uppsala	1958-09	342.4 - Skog	Sammanfattning

Visa dokument Skriv ut dokument Var finns dokument...

NUM

# Literature in full text

processer som är nära knutna till varandra, nämligen:

- $q''_{conv}$  (den energi som når bränslet men som inte används till förångning)
- $q''_r$  (värmn från flammen)
- $q''_{rad}$  (strålningen från omgivande områden)

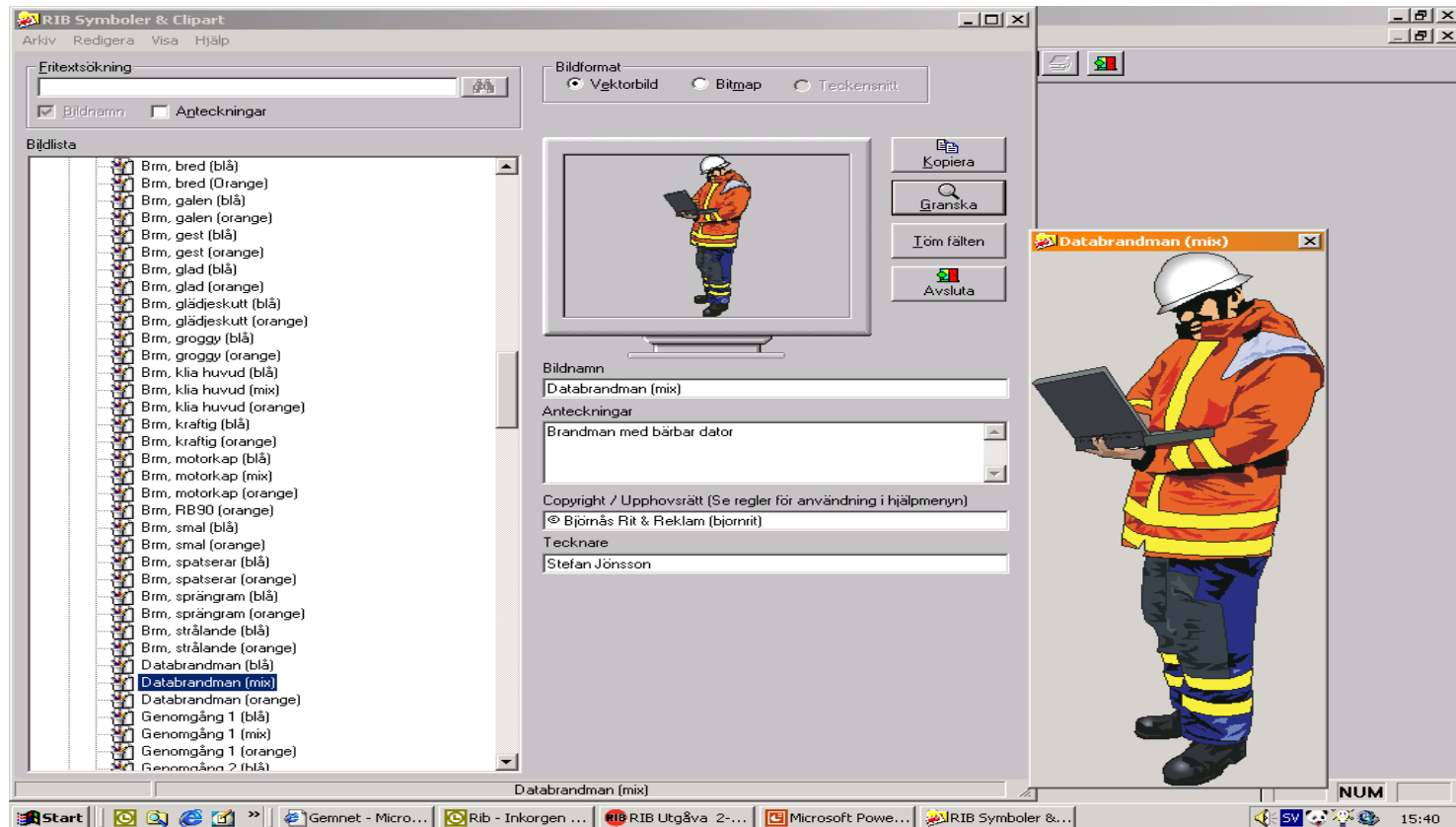
$q''_{conv}$

I början av brandförloppet används en stor del av den energi som transporteras till bränslet för att höja temperaturen hos bränslet istället för att producera ångor från ytan. Ett exempel på detta är en brinnande termoplast som inte kommer att nå sin maximala förbränningshastighet förrän en stor del av materialet har smält till en pölbrand. Denna process tar upp mycket energi. Efter ett tag kommer dock bränslet och dess underliggande ytor att bli mättade med värme och då kommer  $q''_{conv}$  att minska. Enligt ekvation 21 ökar då förbränningshastigheten.

**Figur 63. Värmebalans vid en bränsleyta.**

94 - ÖVERTÄNDNING

# Symbols & Clipart



# A safe community

- A model for injury prevention for SRSA and WHO
- 14 municipalities have been granted in Sweden
- Further development and spreading at the local level
- References to literature in RIB Library

# Sweden's risk management approach

- Risk management must start on the local level
- Basic approach in the new Swedish law
- Local authorities take responsibility for accident prevention as well as emergency operations
- Risk inventory, risk analysis, assessment, measures, follow-up



- Fire and rescue specialists
- Community planners who wish to examine risks
- Technical experts responsible for infrastructure:  
*Power, water, sewer, roads.*
- Risk managers at the county level
- Risk consultants
- Environmental specialists





# Risk-Era



- Geographic information system (GIS) for use by municipalities: location, analysis, documentation and illustration of accident risks.
- Used with local digital maps upon which risk locations are marked.
- Risks are classified and assigned the appropriate symbol.
- Sources of risks at each site are identified and accident scenarios described.
- Accident probability and the potential consequences of these scenarios are estimated.
- Risk-Era - a tool in RIB

**Map - Vilhelmina (shape).karta**

File View Tools Window Help

Scale and position **1:10 000**  
 7169864N ↓  
 1541012E ↔

Symbol information  
 (Move the mouse pointer to a symbol)

Show

Show kilometre grid  
 Show risk and protected objects  
 Show labels

Name  
 Original ID

Map tinting  
 Light

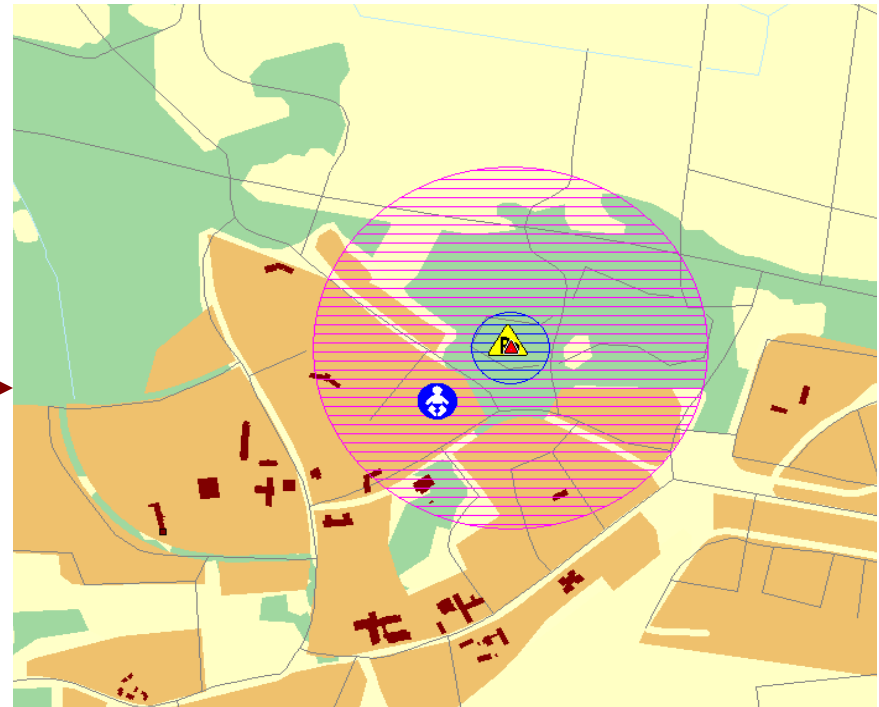
Point  
 Line  
 Polygon

Dwelling  
 Medical and other care centre  
 Public place  
 Infrastructure  
 Natural environment  
 Cultural or historic site

A total of three rings can be shown around a source of risk:

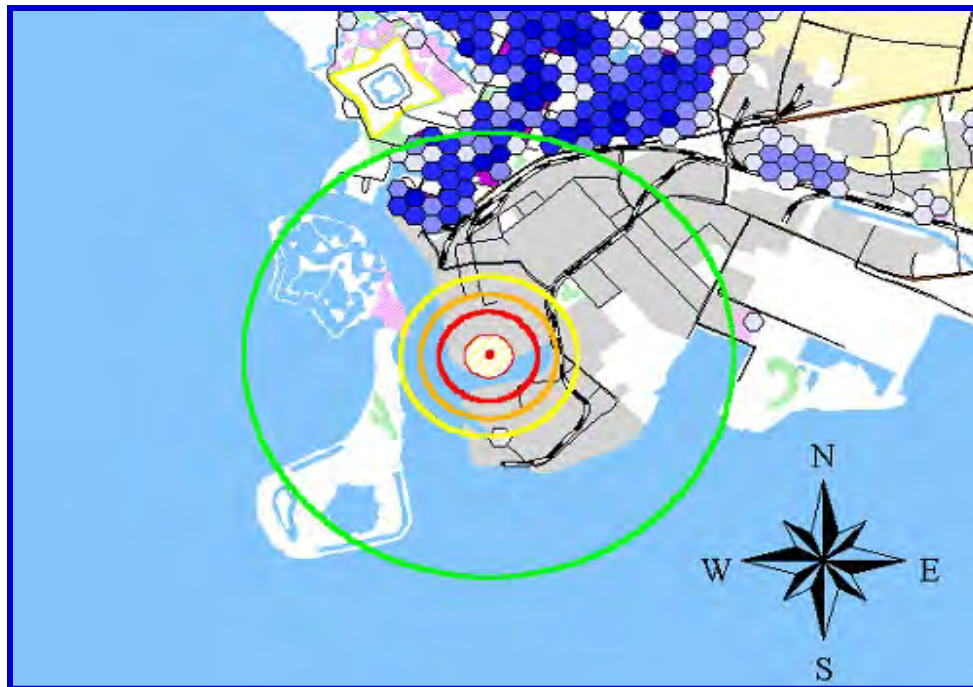
The rings represent the risk zone for:

- life/health,
- environment
- property.



# Scenario: chemical discharge at a factory

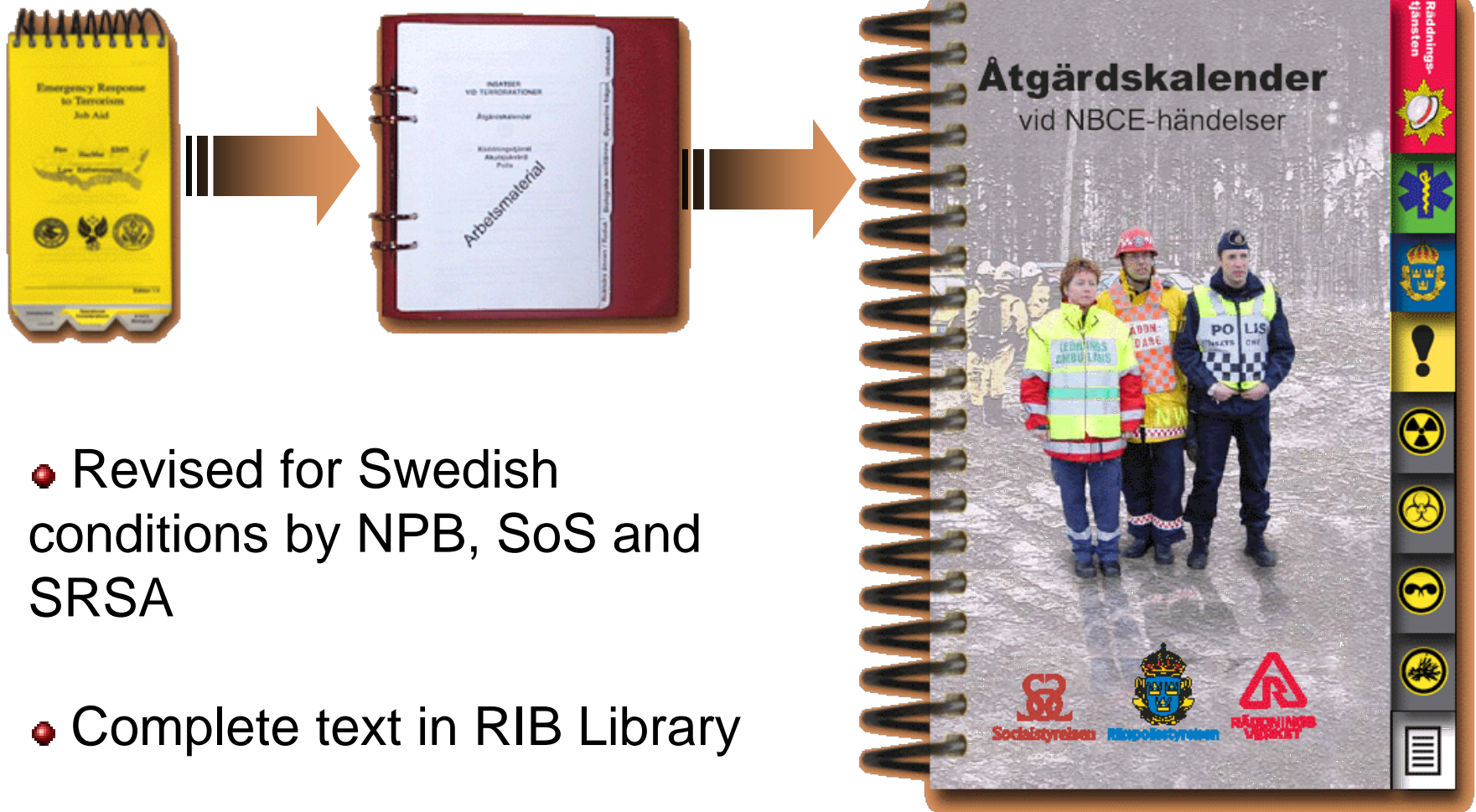
- Show chemical concentrations
- Show population statistics within affected areas



# After September 11...



- Increased co-operation between authorities concerning NBC
- Training program containing basic measures in case of NBC-accidents
- Translation of "Emergency Response to Terrorism Job Aid" into Swedish



- Revised for Swedish conditions by NPB, SoS and SRSA
- Complete text in RIB Library

# After March 11...



Estacion de El Pozo. Trabajando en el interior del desastre.

Fotos cedidas por la Unidad de Captacion de Datos





- Observation group gather experiences
- Apply to Swedish conditions and different scenarios
- Follow-up and advanced report
- What kind of resources do we need in Sweden?
- Cooperation with the rescue services in Madrid
- Digitization films and accident reports for use in RIB

# 3-D models



# RIB is also ...

- Hazardous substances database
- Chemical dispersion models
- Resource database with experts and equipment
- Accident statistics
- Guidelines, tactics, and methods for hazardous material accidents
- A system for command & control and staff support
- Education and training programs

# RIB main menu



# RIB division



# Sweden 2006?

