

# International and National SAR Research and Practice

**Where is SAR at?**



# Key Statistics

## Alzheimer's NZ Economic Impact Report 2008\*\*

- In 2008 there were 40,000+ dementia cases, increasing at 12,000+ each year
- This equates to approximately 240 new cases each week – or 35 new cases each day
- By 2026 there will be almost 75,000 people with dementia increasing by 25,500/yr or 70 each day
- By 2050 this will be 150,000 cases increasing by nearly 45,000 each year



# International and National SAR Research

- Greek physician Hippocrates first to note dementia – thought to be normal part of ageing
- 1907 Alois Alzheimer first to note changes in the brain
- Pre 1970 the diagnosis of Alzheimer's disease was restricted to patients less than 65 years-old



# International and National SAR Research

- 1973 Dennis Kelly collates the first stats of missing persons – does not include Alzheimer's
- 1977 William Syrotuck was the first to include elderly as an LPB subject category, but combined healthy elderly with Alzheimer's
- 1986 Ken Hill introduced the term 'walkaway'
- 1992 Stooksbury and Koester conduct studies into specific Alzheimer's Wandering in Virginia



# International and National SAR Research

- 1992 Robert Koester adds the Alzheimer's, Autistic, Despondent, Psychotic, and Retardation search profiles to LPB data
- 1996 the first 'comprehensive' search data for missing/lost Alzheimer's subjects published
- This data was included by Ross Gordon on SAR training courses in NZ - MLSO and S/Methods
- 2003 SARINZ hosted Robert Koester in NZ to deliver a series of one-day "Searching for Alzheimer's subjects" workshops



# International and National SAR Research

- 2008 Alzheimer's NZ publish the economic impact report
- 2010 SARINZ with funding from NZOG commission a study to predict the SAR response and operational requirements through to 2030
- Development of the International Search and Rescue Incident Database (ISRID) leads the way in providing search data for dementia (Alzheimer's) subjects
- SARINZ continue to run a one-day training course on Searching for Alzheimer's subjects



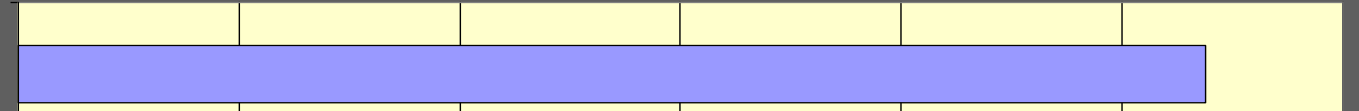
# Country Contributors to ISRID



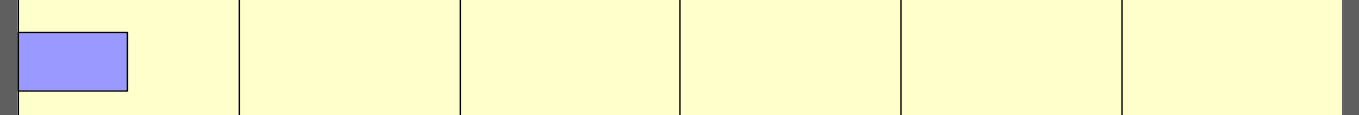
# Country Contribution



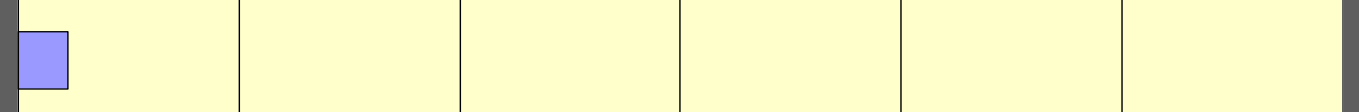
United States



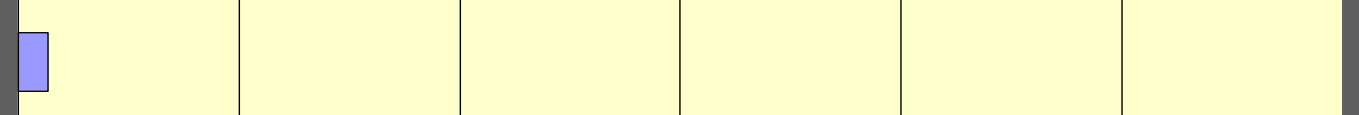
New Zealand



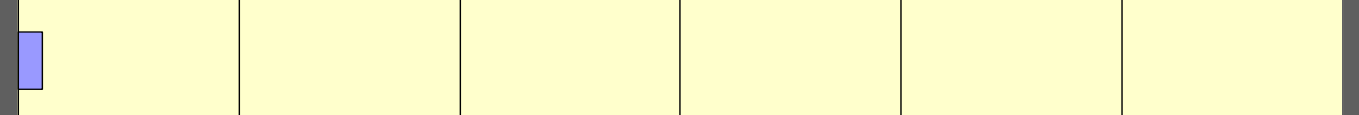
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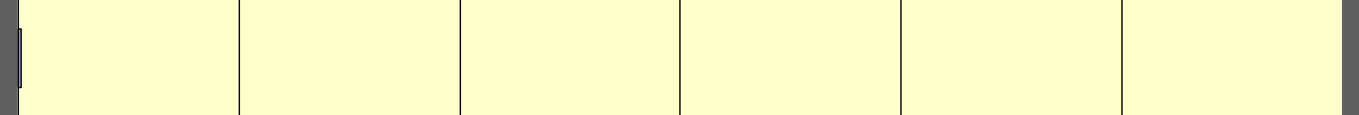
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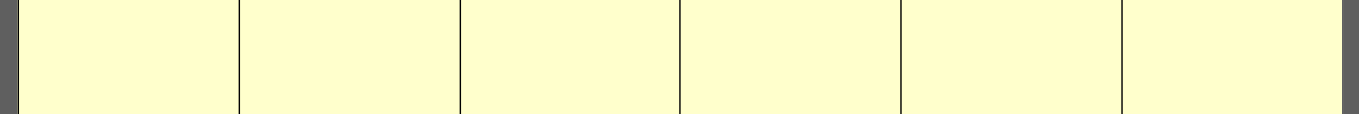
Australia



Switzerland



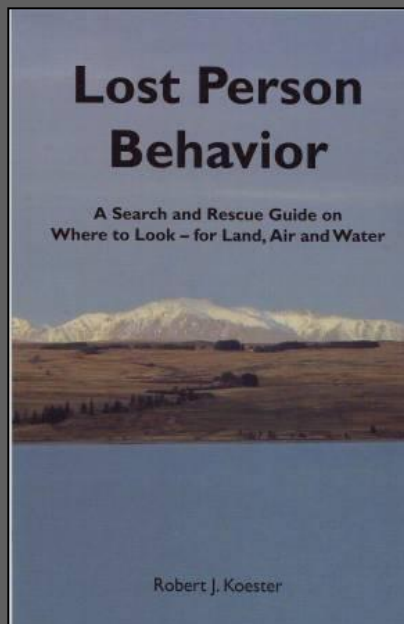
South Africa



0 5000 10000 15000 20000 25000 30000

# ISRID Current Categories

- Abduction (735)
- Aircraft (426+107)
- Angler (328)
- ATV (228)
- Autistic (62)
- Camper (196)
- Caver (254)
- Child (1179)\*
- Climber (336)
- **Dementia (1051)**
- Despondent (962)
- Gatherer (63)
- Hiker (3837)
- Horseback (105)
- Hunter (2230)
- Mental Retardation (263)
- Mountain Biker (343)
- Mushroom Picker (150)
- Other (BASE, Extreme, Motorcycle)
- Psychotic (180)
- Runner (30)
- Skier – Alpine (225)
- Skier – Nordic (125)
- Snowboarder (81)
- Snowmobiler (548)
- Snowshoer (22)
- Substance Abuser (68)
- Urban Entrapment
- Vehicle (Vehicle, 4wd, Left) 757
- Water (Boats, non powered, PIW) 777
- Worker (191)
- Youth (415)



# ISRID - Which Category?

- A 10-year old and his 6-year old brother are last seen departing their house on their mountain bikes carrying fishing poles to fish their favorite spot across a shallow river
- A 64-year old with mild Alzheimer's is dropped off to go scout out fly-fishing spots. He plans on hiking 3 miles to reach the spot



# ISRID Subject Category Hierarchy

## 1. Subject's Mental Status

Autistic, Dementia, Despondent, Mental Retardation,  
Psychotic, Substance Abuse

## 2. Subject's Age

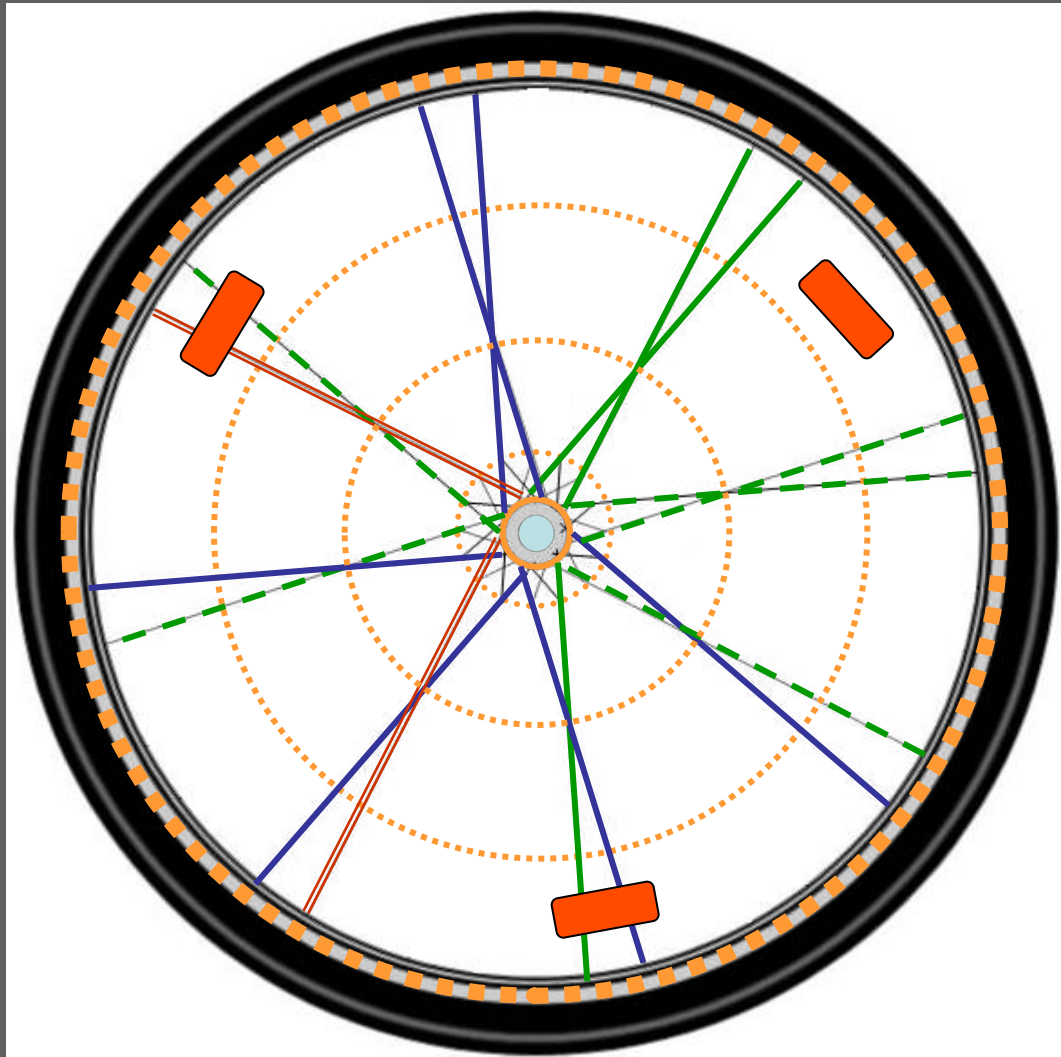
- 0-12
- Youth?
- Elderly

## 3. Activity



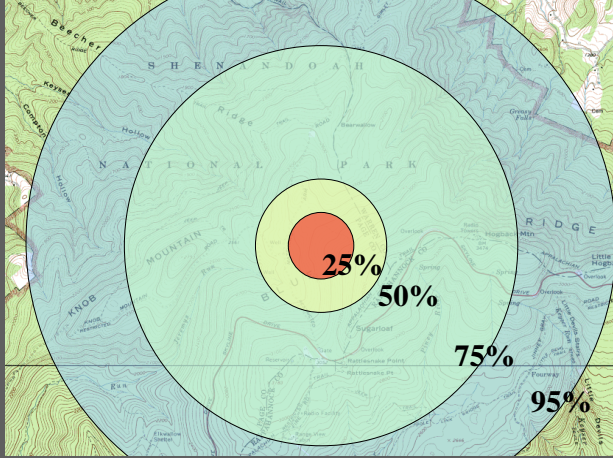
# Search Theory - The “Wheel”

2003 Koester, Gordon

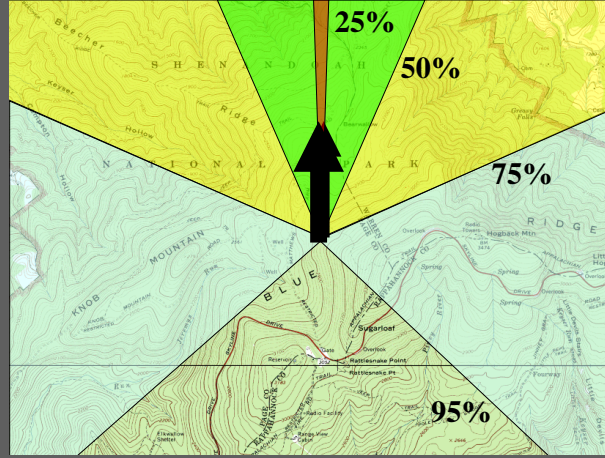


# ISRID - Different Models for POA

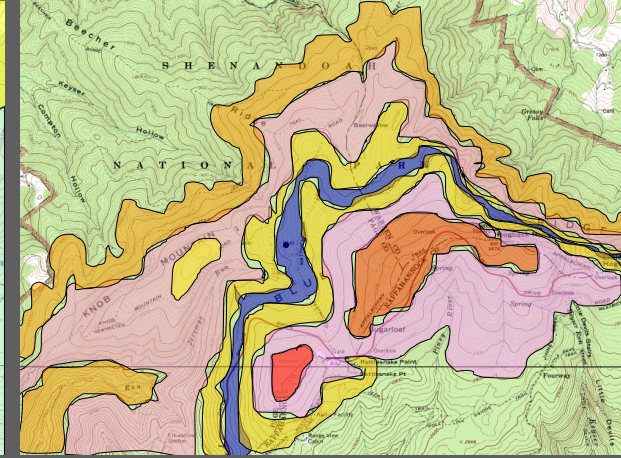
### Distance from IPP



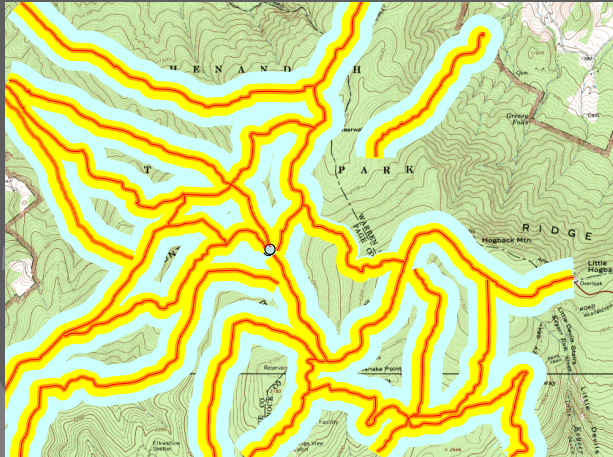
### Dispersion Angle



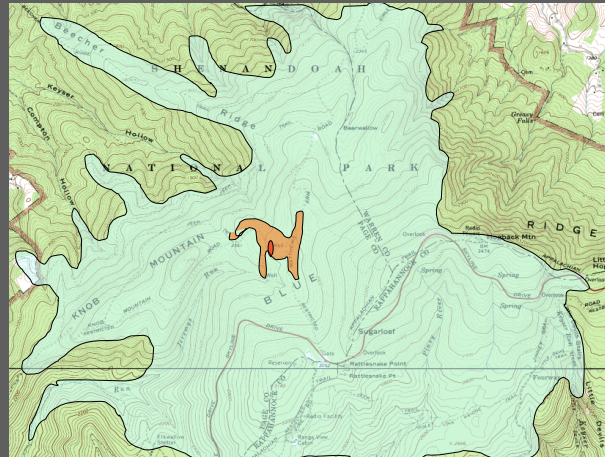
### Elevation Change



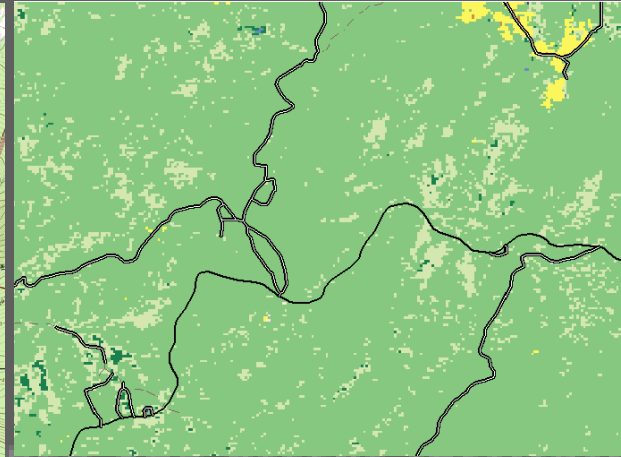
### Linear Feature Offset



### Mobility Model



### Terrain Feature



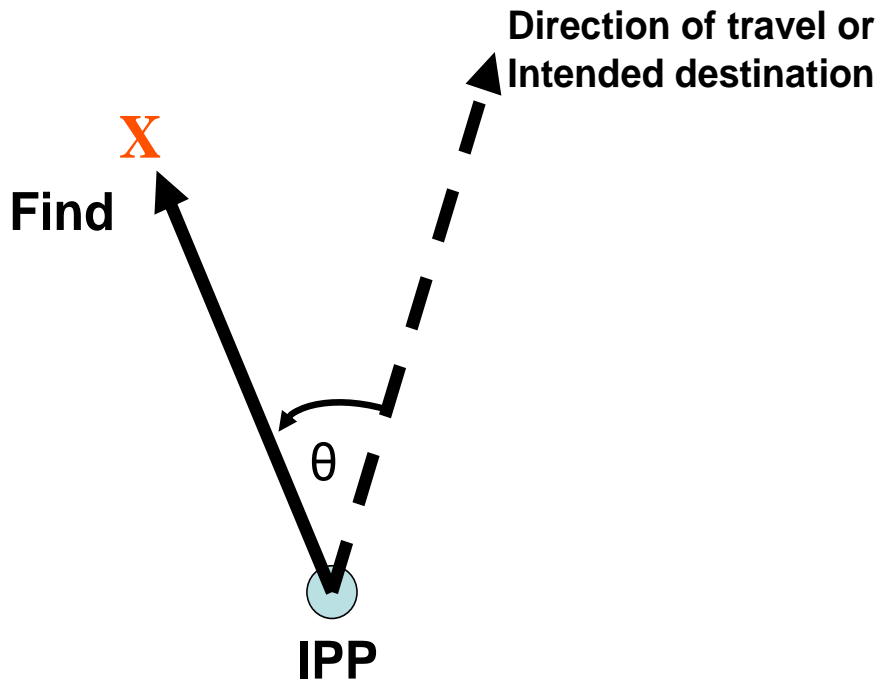
# ISRID Statistical Tables

Distance (horizontal) from the IPP (kilometers)					
	Temperate		Dry		Urban
	Mtn.	Flat	Mtn.	Flat	
<b>n</b>	<b>95</b>	<b>175</b>	<b>14</b>	<b>15</b>	<b>336</b>
25%	0.3	0.3	1.0	0.5	0.3
50%	0.8	1.0	1.9	1.6	1.1
75%	1.9	2.4	3.1	3.6	3.2
95%	8.3	12.8	6.1	11.8	12.6



# ISRID Statistical Tables

## Dispersion Angle ( $\theta$ )<sup>o</sup>

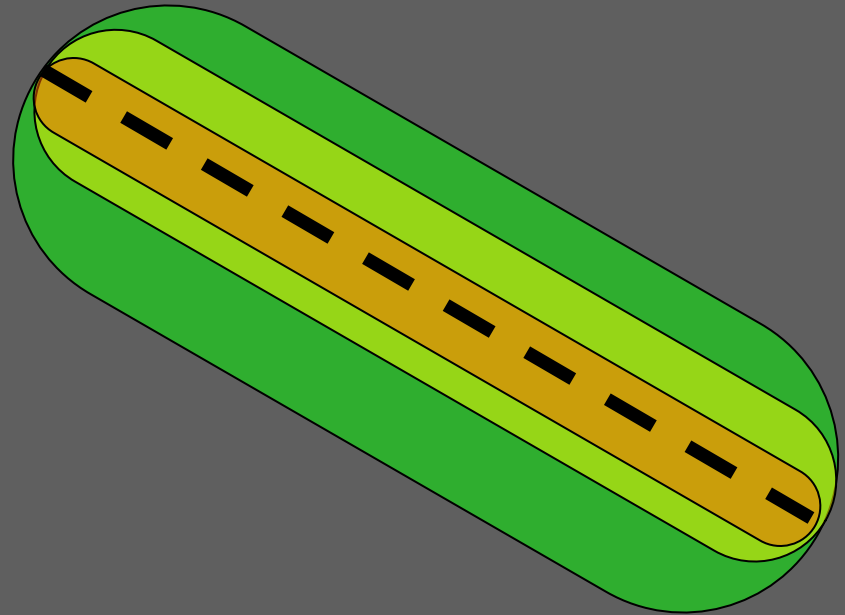


	Dispersion Angle (degrees)	
	Temperate	
<b>n</b>		<b>519</b>
25%		<b>2</b>
50%		<b>30</b>
75%		<b>76</b>
95%		<b>140</b>

# ISRID Statistical Tables

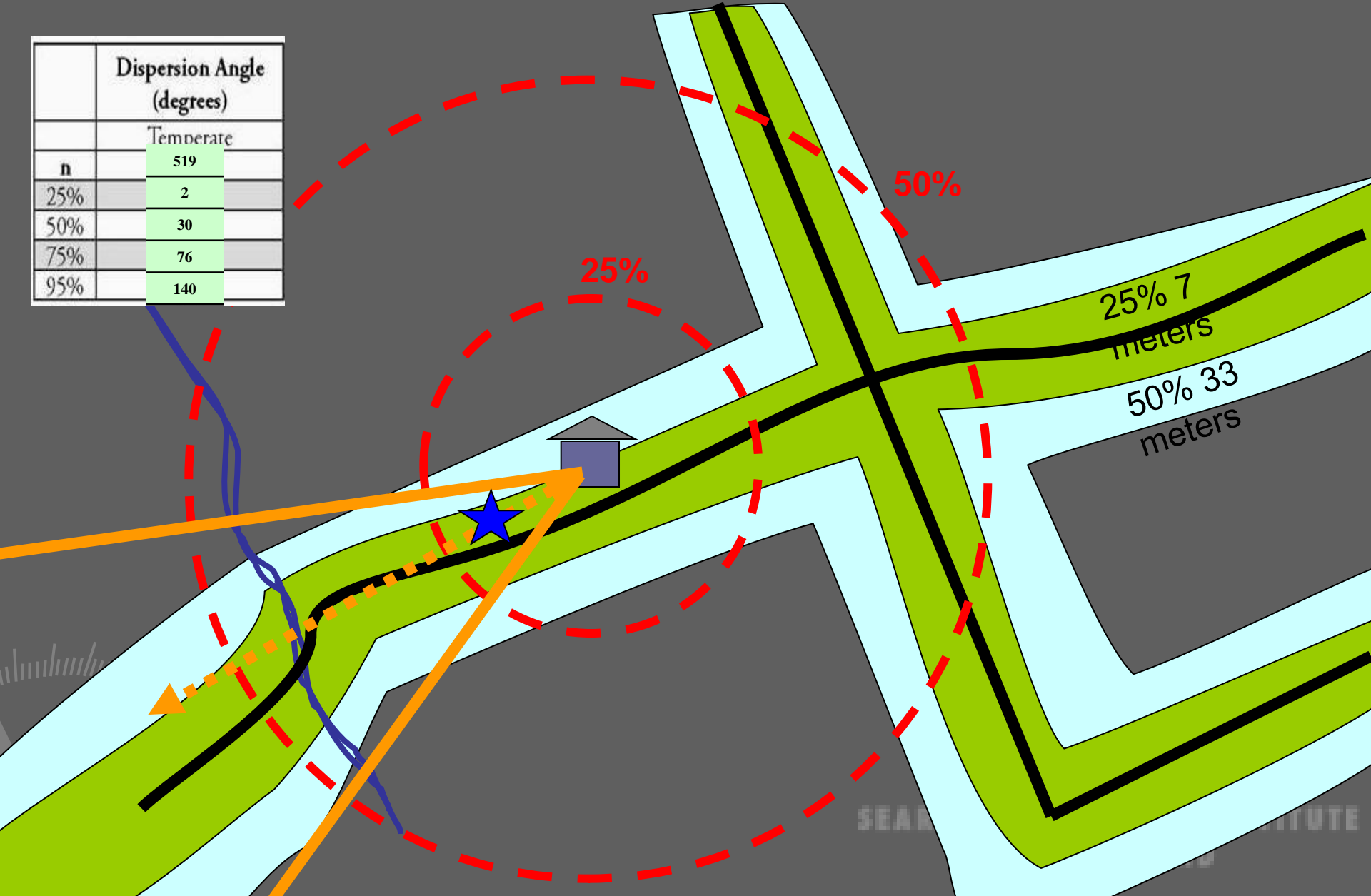
## Track Offset Model

- Dementia
  - 25% 7 meters
  - 50% 33 meters
  - 75% 150 meters



# Exercise - using the Stats

Dispersion Angle (degrees)	
	Temperate
<b>n</b>	519
25%	2
50%	30
75%	76
95%	140



# SAR now and into the future...

- Detection rates are good and getting better
- Pendants are doing a good job on diagnosed subjects – knowledge and skill is increasing but a need for national register and guidelines
- Research into slowing the onset and/or managing the effects continues worldwide
- Danger area for SAR are the first time wanderers and undiagnosed subjects yet to receive help
- Key area is going to be preventative wandering and education for at home caregivers



# SAR now and into the future...

## Key areas:

- preventative wandering techniques
- education for at home caregivers
- training of response personnel for actual on-the-ground searching and investigation/intel gathering
- availability of future volunteers – ageing population
- improvements in technology/tracking
- scientific research into specific indicators
- research into delaying the onset



# Questions?



# ISRID - Month Last Seen

