





Advanced Air Quality Management Workshop Sydney Convention Centre, 7 September 2013, 8.30 am to 5.30 pm

PROGRAM

Registration	8.30 - 8.45		
Welcome - Prof. Howard Bridgr	8.45 – 9.00		
Opening Address: Air Quality F Dr Ian Galbally, CSIRO	9.00 – 9.30		
Advances in Emission Quantific	cation & Regional Inventories		9.30 – 12.00
Advances in emission State of regional emis Facilitator: Dr Greg Yarwood, EN			
Nick Agapides NSW EPA	Biogenic and geogenic emission estimation advances	15 min	9.30- 9.45
Dr John Todd, Director, Eco- Energy Options Pty Ltd, Hobart	Real world emission estimation for wood heaters	10 min	9.45- 9.55
Dr Yvonne Scorgie NSW OEH	Non-road diesel and locomotives	10 min	9.55- 10.05
Judith Cox PEL	Emission factor development and mobile monitoring applications within the coal mining industry	10 min	10.05- 10.15
Dr Robin Smit Qld Dept. Science, Information Technology, Innovation and the Arts	Vehicle emission estimation techniques and development of COPERT Australia	15 min	10.15- 10.30
TEA			10.30 – 11.00
Nick Agapides NSW EPA Dr Robin Smit Qld Dept. Science, Information Technology, Innovation and the Arts	Overview of Regional Air Emission Inventories in Australia:	40 min	11.00 – 11.40
Dr Paul Torre Vic EPA			
Pushan Shah EPA, South Australia			
Panel Discussion	Open discussion of developments and work needed	15 min	11.40 – 11.55
Session Chair	Summary of significant advances and key information gaps	5 min	11.55- 12.00

How good do our source inventories have to be to support this modelling? Which models and methods are appropriate for application in Australia? And how well are they likely to perform? What progress is needed to support the application of such modelling to support air quality management policy and planning? Facilitator: Dr Mark Hibberd, CSIRO Dr Greg Yarwood International perspective (US and Europe) 20 min 12.00-12.20 ENVIRON Dr Martin Cope Developing a fine particle modelling 20 min 12.20-12.40 GSIRO Dr Martin Cope Developing a fine particle modelling 20 min 12.20-12.40 GSIRO GSIRO Gramework as part of the Sydney Particle Study Hiep Duc / Michael Johnson Panalysis for AOMP purposes in NSW 10.00pm 10.00pm 2pm 2pm 2pm 2pm 2pm 2pm 2pm 2pm 2pm 2	Photochemistry and Secondary	12.00 –		
. Which models and methods are appropriate for application in Australia? And how well are they likely to perform? . What progress is needed to support the application of such modelling to support air quality management policy and planning? Facilitator: Dr Mark Hibberd, CSIRO Dr Greg Yarwood EnVIRON Dr Marin Cope Developing a fine particle modelling framework as part of the Sydney Particle Study Hiep Duc / Michael Johnson NSW OEH analysis for AQMP purposes in NSW OEH analysis for AQMP purposes in NSW LUNCH Panel Discussion Open discussion of developments and work needed Session Chair Summary of significant advances and key information gaps Particle Speciation and Source Apportionment Key questions: . How is organic and inorganic speciation of particles done in Australia – and how does this compare to methods implemented overseas? . What models and methods are available to support the use of particle speciation for source apportionment? . Where is this method being successfully applied in Australia to inform air quality management? . How can we integrate particle size distribution and particle number data with particle speciation data for improved source apportionment? Facilitator: Dr Dennys Angove, CSIRO Dr Adrian Friend Overview of Particle Source Apportionment 15 min 2.30-2.45 Thow can be integrate particle size distribution and particle number data with particle speciation data for improved source apportionment? Facilitator: Dr Dennys Angove, CSIRO Dr Adrian Friend Overview of Particle Source Apportionment 15 min 2.45-3.00 CSIRO International advances in particle speciation 15 min 2.45-3.00 Dr David Cohen Using local advances in source apportionment 15 min 3.00-3.15 ANSTO Using local advances in source apportionment; 15 min 3.00-3.15 Dr Mark Hibberd Lessons learned from the Upper Hunter 15 min 3.30-3.45 Dr Mark Hibberd Lessons learned from the Upper Hunter Fine Particle Characterisation Study Dr Perry Davy Advances in source apportionment; integrating time-resolved sampling	Key questions:	2.30pm		
### Author Progress is needed to support the application of such modelling to support air quality management policy and planning? Facilitator: Dr Mark Hibberd, CSIRO	 Which models and method 			
Pacilitator: Dr Mark Hibberd, CSIRO Dr Greg Yarwood ENVIRON Dr Martin Cope CSIRO Developing a fine particle modelling framework as part of the Sydney Particle Study Hiep Duc / Michael Johnson NSW OEH Analysis for AQMP purposes in NSW Depended of Summary of significant advances and key information gaps Particle Speciation and Source Apportionment Key questions: How is organic and inorganic speciation of particles done in Australia – and how does this compare to methods implemented overseas? What models and methods are available to support the use of particle speciation for source apportionment? Where is this method being successfully applied in Australia to inform air quality management? How important is sea salt to fine particle concentrations? How can we integrate particle size distribution and particle number data with particle speciation data for improved source apportionment? Facilitator: Dr Dennys Angove, CSIRO Dr Adrian Friend Queensland University of Technology Dr Melita Keywood CSIRO Dr David Cohen ANSTO Dr David Cohen ANSTO Dr David Cohen ANSTO Dr Mark Hibberd Lessons learned from the Upper Hunter CSIRO Dr Mark Hibberd Lessons learned from the Upper Hunter CSIRO Dr Mark Hibberd Lessons learned from the Upper Hunter CSIRO Dr Mark Hibberd Lessons learned from the Upper Hunter CSIRO Dr Mark Hibberd Lessons learned from the Upper Hunter Fine Particle Characterisation Study Dr Perry Davy GNS Science, New Zealand Open discussion of developments and work needed Open discussion of developments and work needed Dr Melita Keywood CSIRO Dr Mark Hibberd Lessons learned from the Upper Hunter Fine Particle Characterisation Study Dr Perry Davy GNS Science, New Zealand Dr Perry Davy GNS Science, New Zealand Open discussion of developments and work needed	 What progress is needed 			
Dr Greg Yarwood ENVIRON Dr Martin Cope CSIRO Developing a fine particle modelling framework as part of the Sydney Particle Study Hiep Duc / Michael Johnson NSW OEH Analysis for AQMP purposes in NSW LUNCH Panel Discussion Open discussion of developments and work needed Session Chair Summary of significant advances and key information gaps Particle Speciation and Source Apportionment Key questions: How is organic and inorganic speciation of particles done in Australia – and how does this compare to methods implemented overseas? What models and methods are available to support the use of particle speciation for source apportionment? Where is this method being successfully applied in Australia to inform air quality management? How important is sea salt to fine particle concentrations? How can we integrate particle size distribution and particle number data with particle speciation data for improved source apportionment? Facilitator: Dr Dennys Angove, CSIRO Dr Adrian Friend Queensland University of Technology Dr Melita Keywood CSIRO International advances in particle speciation and how speciation in the Sydney Particle Study stacks up Dr David Cohen ANSTO Using local advances in source apportionment methods in the ASP and A- PAD studies Dr Mark Hibberd Lessons learned from the Upper Hunter CSIRO Fine Particle Characterisation Study Advances in source apportionment; 15 min 3.15-3.30 Ten Party Davy GNS Science, New Zealand Tep Particle Sicussion of developments and work needed Open discussion of developments and work needed Dr Party Davy GNS Science, New Zealand Tea Open discussion of developments and work needed	4			
ENVIRON Dr Martin Cope Developing a fine particle modelling framework as part of the Sydney Particle Study 12.20-12.40	Facilitator: Dr Mark Hibberd, CS	SIRO		
CSIRO Study Corne Corne Study Corne Corn	ENVIRON	, , , , , , , , , , , , , , , , , , , ,		
NSW OEH analysis for AQMP purposes in NSW 1.00pm	CSIRO	framework as part of the Sydney Particle Study		
Commonstration Comm			20 min	
Panel Discussion Open discussion of developments and work needed Session Chair Summary of significant advances and key information gaps Particle Speciation and Source Apportionment Key questions: How is organic and inorganic speciation of particles done in Australia – and how does this compare to methods implemented overseas? What models and methods are available to support the use of particle speciation for source apportionment? Where is this method being successfully applied in Australia to inform air quality management? How important is sea salt to fine particle concentrations? How can we integrate particle size distribution and particle number data with particle speciation data for improved source apportionment? Facilitator: Dr Dennys Angove, CSIRO Dr Adrian Friend Queensland University of Technology Dr Melita Keywood International advances in particle speciation and how speciation in the Sydney Particle Study stacks up Dr David Cohen ANSTO Dr David Cohen ANSTO Using local advances in source apportionment methods in the ASP and A-PAD studies Dr Mark Hibberd CIRSO Lessons learned from the Upper Hunter fine Particle Characterisation Study Dr Perry Davy GNS Science, New Zealand TEA Open discussion of developments and work and the Asp and A-panel Discussion Open discussion of developments and work and the Asp and A-panel Discussion Open discussion of developments and work and the Asp and A-panel Discussion Open discussion of developments and work and the Asp and A-panel Discussion Open discussion of developments and work and the Asp and A-panel Discussion Open discussion of developments and work and A-queed		analysis for AQMP purposes in NSW		
Session Chair Summary of significant advances and key information gaps Particle Speciation and Source Apportionment Key questions: How is organic and inorganic speciation of particles done in Australia – and how does this compare to methods implemented overseas? What models and methods are available to support the use of particle speciation for source apportionment? Where is this method being successfully applied in Australia to inform air quality management? How important is sea salt to fine particle concentrations? How can we integrate particle size distribution and particle number data with particle speciation data for improved source apportionment? Facilitator: Dr Dennys Angove, CSIRO Dr Adrian Friend Queensland University of Technology Dr Melita Keywood CSIRO International advances in particle speciation and how speciation in the Sydney Particle Study stacks up Dr David Cohen ANSTO Dr David Cohen Queensland Using local advances in source apportionment methods in the ASP and A-PAD studies Dr Mark Hibberd Lessons learned from the Upper Hunter Sine Particle Characterisation Study Dr Perry Davy Advances in source apportionment; integrating time-resolved sampling TEA Open discussion of developments and work and the Asp and A-Panel Discussion Open discussion of developments and work and the Asp and A-Panel Discussion Open discussion of developments and work and and the Asp and A-Panel Discussion Open discussion of developments and work and and the Asp and A-Panel Discussion Open discussion of developments and work and and the Asp and A-Panel Discussion		Open discussion of developments and work	25 min	
Information gaps 2.30 - 4.20pm	T dilet biodession	1 .	2011111	,
Key questions: How is organic and inorganic speciation of particles done in Australia – and how does this compare to methods implemented overseas? What models and methods are available to support the use of particle speciation for source apportionment? Where is this method being successfully applied in Australia to inform air quality management? How important is sea salt to fine particle concentrations? How can we integrate particle size distribution and particle number data with particle speciation data for improved source apportionment? Facilitator: Dr Dennys Angove, CSIRO Dr Adrian Friend Queensland University of Studies in Australia and New Zealand Technology Dr Melita Keywood CSIRO International advances in particle speciation and how speciation in the Sydney Particle Study stacks up Dr David Cohen ANSTO Using local advances in source apportionment methods in the ASP and A-PAD studies Dr Mark Hibberd CSIRO Eine Particle Characterisation Study Dr Perry Davy GNS Science, New Zealand Tean Open discussion of developments and work needed Open discussion of developments and work needed Time Australia and New Zealand integrating time-resolved sampling Tean 3.45 - 4pm 3.40 - 4.15		information gaps	5 min	2.25 – 2.30
How is organic and inorganic speciation of particles done in Australia – and how does this compare to methods implemented overseas? What models and methods are available to support the use of particle speciation for source apportionment? Where is this method being successfully applied in Australia to inform air quality management? How important is sea salt to fine particle concentrations? How can we integrate particle size distribution and particle number data with particle speciation data for improved source apportionment? Facilitator: Dr Dennys Angove, CSIRO Dr Adrian Friend Queensland University of Studies in Australia and New Zealand CSIRO International advances in particle speciation and how speciation in the Sydney Particle Study stacks up Dr David Cohen ANSTO Using local advances in source apportionment methods in the ASP and A-PAD studies Dr Mark Hibberd CSIRO Dr Mark Hibberd CSIRO Fine Particle Characterisation Study Dr Perry Davy GNS Science, New Zealand Open discussion of developments and work needed Open discussion of developments and work needed		Apportionment		2.30 – 4.20pm
does this compare to methods implemented overseas? What models and methods are available to support the use of particle speciation for source apportionment? Where is this method being successfully applied in Australia to inform air quality management? How important is sea salt to fine particle concentrations? How can we integrate particle size distribution and particle number data with particle speciation data for improved source apportionment? Facilitator: Dr Dennys Angove, CSIRO Dr Adrian Friend Queensland University of Technology Dr Melita Keywood CSIRO International advances in particle speciation and how speciation in the Sydney Particle Study stacks up Dr David Cohen ANSTO Using local advances in source apportionment methods in the ASP and A-PAD studies Dr Mark Hibberd CSIRO Dr Mark Hibberd CSIRO Dr Perry Davy GNS Science, New Zealand Open discussion of developments and work needed Open discussion of developments and work needed	•	and a second of a second of the second of th		
What models and methods are available to support the use of particle speciation for source apportionment? Where is this method being successfully applied in Australia to inform air quality management? How important is sea salt to fine particle concentrations? How can we integrate particle size distribution and particle number data with particle speciation data for improved source apportionment? Facilitator: Dr Dennys Angove, CSIRO Dr Adrian Friend Queensland University of Technology Dr Melita Keywood CSIRO International advances in particle speciation and how speciation in the Sydney Particle Study stacks up Dr David Cohen ANSTO Using local advances in source apportionment methods in the ASP and A-PAD studies Dr Mark Hibberd CSIRO Dr Mark Hibberd CSIRO Dr Perry Davy GNS Science, New Zealand Advances in source apportionment; integrating time-resolved sampling TEA Panel Discussion Open discussion of developments and work needed Australia to inform air quality and australia to inform air quality and surfaction and particle concentrations? 15 min 3.30-3.45 3.45 - 4pm 4.00- 4.15			and now	
for source apportionment? Where is this method being successfully applied in Australia to inform air quality management? How important is sea salt to fine particle concentrations? How can we integrate particle size distribution and particle number data with particle speciation data for improved source apportionment? Facilitator: Dr Dennys Angove, CSIRO Dr Adrian Friend Queensland University of Technology Dr Melita Keywood CSIRO International advances in particle speciation and how speciation in the Sydney Particle Study stacks up Dr David Cohen ANSTO Dr Mark Hibberd CSIRO Dr Mark Hibberd CSIRO Dr Perry Davy GNS Science, New Zealand TEA Panel Discussion Fine Particle Characterisation Study Dopen discussion of developments and work needed Australia to inform air quality and australia to inform air quality management? 15 min 2.30-2.45 2.30-2.4			peciation	
management? How important is sea salt to fine particle concentrations? How can we integrate particle size distribution and particle number data with particle speciation data for improved source apportionment? Facilitator: Dr Dennys Angove, CSIRO Dr Adrian Friend Queensland University of Technology Dr Melita Keywood CSIRO International advances in particle speciation and how speciation in the Sydney Particle Study stacks up Dr David Cohen ANSTO Dr Mark Hibberd CSIRO Dr Ma				
- How important is sea salt to fine particle concentrations? - How can we integrate particle size distribution and particle number data with particle speciation data for improved source apportionment? Facilitator: Dr Dennys Angove, CSIRO Dr Adrian Friend Queensland University of Technology Dr Melita Keywood CSIRO International advances in particle speciation and how speciation in the Sydney Particle Study stacks up Dr David Cohen ANSTO Dr Mark Hibberd CSIRO Dr Mark Hibberd CSIRO Dr Perry Davy GNS Science, New Zealand Panel Discussion Open discussion of developments and work needed Overview of Particle Source Apportionment Study Using local advances in particle speciation and how speciation in the Sydney Particle Study stacks up 15 min 3.00- 3.15 3.00- 3.15 3.30- 3.45 3.45- 4pm Panel Discussion Open discussion of developments and work needed	 Where is this method bei 			
- How can we integrate particle size distribution and particle number data with particle speciation data for improved source apportionment? Facilitator: Dr Dennys Angove, CSIRO Dr Adrian Friend Queensland University of Technology Dr Melita Keywood CSIRO International advances in particle speciation and how speciation in the Sydney Particle Study stacks up Dr David Cohen ANSTO Dr Mark Hibberd CSIRO Dr Mark Hibberd CSIRO Dr Perry Davy GNS Science, New Zealand TEA Panel Discussion Overview of Particle Source Apportionment 15 min 2.30-2.45 Using local advances in particle speciation and how speciation in the Sydney Particle Study stacks up 15 min 3.00-3.15 15 min 3.15-3.30 3.30-3.45 3.30-3.45				
Particle speciation data for improved source apportionment? Facilitator: Dr Dennys Angove, CSIRO Dr Adrian Friend Queensland University of Technology Dr Melita Keywood CSIRO International advances in particle speciation and how speciation in the Sydney Particle Study stacks up Dr David Cohen ANSTO Dr Mark Hibberd CSIRO Dr Mark Hibberd CSIRO Dr Perry Davy GNS Science, New Zealand TEA Panel Discussion Overview of Particle Source Apportionment Study end of Particle Source Apportionment Anstrol Dr Mark Hibberd CSIRO TEA Open discussion of developments and work needed Overview of Particle Source Apportionment 15 min 2.30-2.45 15 min 2.45-3.00 15 min 3.00-3.15 15 min 3.30-3.45 15 min 3.30-3.45				
Dr Adrian Friend Queensland University of Technology Dr Melita Keywood CSIRO Dr David Cohen ANSTO Dr Mark Hibberd CSIRO Dr Mark Hibberd CSIRO Dr Perry Davy GNS Science, New Zealand Dr David Discussion Dr David Cohen All Discussion Dr David Cohen All Discussion Dr David Cohen ANSTO Dr David Cohen Anston Ansto				
Queensland University of TechnologyStudies in Australia and New ZealandDr Melita Keywood CSIROInternational advances in particle speciation and how speciation in the Sydney Particle Study stacks up15 min2.45- 3.00Dr David Cohen ANSTOUsing local advances in source apportionment methods in the ASP and A- PAD studies15 min3.00- 3.15Dr Mark Hibberd CSIROLessons learned from the Upper Hunter Fine Particle Characterisation Study15 min3.15- 3.30Dr Perry Davy GNS Science, New ZealandAdvances in source apportionment; integrating time-resolved sampling15 min3.30- 3.45TEA3.45 - 4pmPanel DiscussionOpen discussion of developments and work needed15 min4.00- 4.15	Facilitator: Dr Dennys Angove,			
Technology Dr Melita Keywood CSIRO International advances in particle speciation and how speciation in the Sydney Particle Study stacks up Dr David Cohen ANSTO Using local advances in source apportionment methods in the ASP and A-PAD studies Dr Mark Hibberd CSIRO Dr Perry Davy GNS Science, New Zealand Panel Discussion International advances in particle speciation and how speciation in the Sydney Particle Study and how speciation in the Sydney Particle Study and how speciation in the ASP and A-PAD studies 15 min 3.00- 3.15 15 min 3.30- 3.45 3.30- 3.45 TEA Panel Discussion Open discussion of developments and work needed	Dr Adrian Friend	Overview of Particle Source Apportionment	15 min	2.30- 2.45
Dr Melita Keywood CSIRO International advances in particle speciation and how speciation in the Sydney Particle Study stacks up Dr David Cohen ANSTO Using local advances in source apportionment methods in the ASP and A-PAD studies Dr Mark Hibberd CSIRO Dr Perry Davy GNS Science, New Zealand Advances in source apportionment; integrating time-resolved sampling TEA Panel Discussion International advances in particle speciation 15 min 3.00-3.15 15 min 3.15-3.30 Time Particle Characterisation Study Advances in source apportionment; integrating time-resolved sampling 3.30-3.45 3.45-4pm 4.00-4.15		Studies in Australia and New Zealand		
CSIRO and how speciation in the Sydney Particle Study stacks up Dr David Cohen ANSTO Using local advances in source apportionment methods in the ASP and A- PAD studies Dr Mark Hibberd CSIRO Dr Perry Davy GNS Science, New Zealand Panel Discussion And how speciation in the Sydney Particle Study stacks up 15 min 3.00-3.15 3.15-3.30 Advances in source apportionment; integrating time-resolved sampling 3.30-3.45 3.45-4pm 4.00-4.15			45 .	0.45.0.00
Dr David Cohen ANSTO Using local advances in source apportionment methods in the ASP and A- PAD studies Dr Mark Hibberd CSIRO Dr Perry Davy GNS Science, New Zealand Panel Discussion Using local advances in source apportionment methods in the ASP and A- PAD studies Lessons learned from the Upper Hunter Fine Particle Characterisation Study Advances in source apportionment; integrating time-resolved sampling 3.30-3.45 3.30-3.45 TEA Open discussion of developments and work needed		and how speciation in the Sydney Particle	15 min	2.45- 3.00
ANSTO apportionment methods in the ASP and A-PAD studies Dr Mark Hibberd CSIRO Dr Perry Davy GNS Science, New Zealand TEA Panel Discussion apportionment methods in the ASP and A-PAD studies Lessons learned from the Upper Hunter Fine Particle Characterisation Study Advances in source apportionment; integrating time-resolved sampling 3.30-3.45 3.45 - 4pm 4.00-4.15	Dr David Cohen		15 min	3.00- 3.15
CSIRO Fine Particle Characterisation Study Dr Perry Davy GNS Science, New Zealand Advances in source apportionment; integrating time-resolved sampling TEA Panel Discussion Open discussion of developments and work needed Fine Particle Characterisation Study Advances in source apportionment; integrating time-resolved sampling 3.30- 3.45 3.45 - 4pm 4.00- 4.15		apportionment methods in the ASP and A-		
GNS Science, New Zealand integrating time-resolved sampling TEA Panel Discussion Open discussion of developments and work needed 15 min 4.00- 4.15		· ·	15 min	3.15- 3.30
TEA 3.45 - 4pm Panel Discussion Open discussion of developments and work needed 15 min 4.00- 4.15			15 min	3.30- 3.45
Panel Discussion Open discussion of developments and work needed 15 min 4.00- 4.15	GNS Science, New Zealand	integrating time-resolved sampling		
Panel Discussion Open discussion of developments and work 15 min 4.00- 4.15 needed	TEA			3.45 - 4pm
Session Chair Summary of significant advances and key 5 min 4 15- 4 20	Panel Discussion		15 min	
information gaps	Session Chair	Summary of significant advances and key information gaps	5 min	4.15- 4.20

Air Quality Management	4.20- 5.30pm		
 Advances in the manage particles. 			
Facilitator: Nick Agapides, NSW			
Dr Greg Yarwood ENVIRON	Major Strategies implemented in California to Address Fine Particles	10 min	4.20- 4.30
David Robinson NSW EPA	Upper Hunter Air Particles Action Plan	10 min	4.30- 4.40
Rapunzel Mulawin NZ MfE	Managing Wood Smoke Emissions in New Zealand	10 min	4.40- 4.50
Bob Hyde and John Innis TAS EPA	Managing Particle Emissions, TAS EPA	10 min	4.50- 5.00
TBD	Implementation of an Exposure Reduction Framework for Fine Particles – the EU Experience	10 min	5.00- 5.10
Panel Discussion	Open discussion of developments and work needed	10 min	5.10- 5.20
Session Chair	Summary of significant advances and key information gaps	5 min	5.20- 5.25
Close Workshop			5.30