

HAIC-HIWC publication update

Prepared by Walter Strapp, Alfons
Schwarzenboeck
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Review

- Before Darwin-2014, it was agreed to poll the HAIC-HIWC team to list all intended publications using the HAIC-HIWC Falcon-20 data.
 - Purpose was to avoid excessive overlap (duplicate publications) and define the areas of focus of the different teams within HAIC-HIWC.
 - This was a negotiated agreement with some compromises by various member of the team.
- Publication list was produced in August 2013, and updated in September 2014 and March 2015 (coinciding with HAIC-HIWC Science Team meetings)
- Strapp circulated an October 2015 update to the plan, for discussion here at his meeting.

Review

- New member have been added to the HAIC-HIWC Science Team, notably HAIC-HIWC SP3.
- Plans have changed since August 2013, and there have been substantial updates

Review and recommended change to information exchange

- These publication plan updates, approximately every 6 months, are intended to keep you informed about plans for new articles, and let you negotiate participation and co-authorship
 - Strapp and Schwarzenboeck do not ‘police’ the publication list on your behalf.
- Sometimes new publications may come up quickly, and get submitted between updates
 - New policy recommended: If you are working on an article using HAIC-HIWC data, please forward basic details to Strapp or Schwarzenboeck for distribution via email to the entire HAIC-HIWC team.
 - Same is recommended for conferences, perhaps when abstracts are submitted for conference approval.

Regulatory topics

Topic	Article #	Originator	article	lead	co-authors	Comments	update Oct. 2015
Regulatory	1	HIWC, HAIC	In-situ deep convective cloud measurements to assess the new ice crystal icing certification envelope Appendix D", maybe to Journal of Aircraft	Strapp	Airbus, Schwarzenboeck, Korolev, NASA, FAA, Airbus, Protat, others	Will not be written until all data is complete (Darwin, Cayenne, DC-8? Etc.)	re-confirmed Oct. 2015:
	56	HIWC	A review of the development of the new ice crystal icing envelope for engineering design and certification, and the development of concepts of in-flight cloud measurements for assessment.	Strapp	Boeing, Airbus and others depending on use of HAIC-HIWC data and final content	This results from a decision to split away from the project overview BAMS paper, and transfer the latter to Schwarzenboeck.	re-confirmed Oct. 2015: Article is well underway. Content is not fully decided, but will mainly emphasize pre-HAIC-HIWC work and review material. Plan to submit to J. Aerospace.
	2	HIWC	Flight Deck Observations During Flight in High Ice Water Content Conditions	Ratvasky	Duchanoy, Bourdinot, Harrah, Strapp, Schwarzenboeck, Dezitter, Grandin		re-confirmed Oct. 2015: , UK. AIAA Aviation 2016, 13-17 June, 2016, Washington DC, (written paper)
	3	HIWC	Ice Water Content Variations Found in Anvil Clouds of Tropical Mesoscale Convective Systems, and application to engine events	Grzych	Strapp, Airbus, other HIWC and HAIC as appropriate	an applications to engine events' added to emphasize industry application (Strapp)	need to re-confirm in Oct. 2015
	4	HAIC, HIWC	Radar extension of statistics for Appendix D/P	Protat or Strapp	Dezitter, Grandin, HIWC and HAIC as appropriate		re-confirmed in Oct. 2015 (still planned)

Project Overview

Topic	Article #	Originator	article	lead	co-authors	Comments	update Oct. 2015
Project Overview	5	HAIC	In-situ cloud microphysical measurements of deep convection for aviation and science	Schwarzenboeck	Strapp & extended list of HAIC and HIWC contributors as appropriate.	BAMS overview article, currently written; content: Climatological context Darwin & cayenne period, satellite analysis of MCS maxima... Experimental design, Field campaigns executions, BOM radar, MTSAT, Flight guidance, Alpha performance for RDT & NASA cloud retrievals. Campaign highlights: cockpit observations, F20 weather radar, PSD & IWC findings, W-band radar F20 research radar products. Field catalog?, Conceptual microphysical ideas/models, cloud modeling?	Changed from Strapp to Schwarzenboeck as first author in 2014. Update Oct. 2015: title changed to "HAIC-HIWC field project"
	57	HAIC	Projet HAIC (High Altitude Ice Crystals): Utilisation du Falcon 20 dans le cadre d'un projet international dédié à la sécurité aéronautique.	Schwarzenboeck	Leroy, Dezitter, Grandin, Protat, Delanoë, Strapp		changed to: SAFIRE : DES AVIONS AU SERVICE DE LA RECHERCHE EN ENVIRONNEMENT. Caroline Lamorthe, SAFIRE, Agnès Borbon, LISA (now LaMP), Alfons Schwarzenboeck LaMP UMR 6016 (Université Blaise-Pascal, CNRS) ; Jean-Christophe Canonici, SAFIRE. La Météorologie (French journal). Replaces La Météorologie paper,

Cloud Microphysics (1 of 3)

Topic	Article #	Originator	article	lead	co-authors	Comments	update Oct. 2015
Observational Microphysics		8HIWC	On the origin of high altitude, high ice water content regions in oceanic deep convection	Korolev	Schwarzenboeck, Zipser, Varble, others as appropriate	Schwarzenboeck 2nd author; overview article and first microphysics article of project, but with limited detail allowing other articles below to proceed	re-confirmed in Oct. 2015 as still planned
		9HIWC, HAIC	Characterization of the dynamical and microphysical (PSD, MMD, IWC, m(D), A(D), etc...) properties of HIWC regions and their spatiotemporal distribution using Falcon in-situ and radar data	Schwarzenboeck	HAIC and HIWC as appropriate	Korolev 2nd author, CIRA interest	need to reconfirm in Oct. 2015
		12HIWC, HAIC	Initiation and evolution of ice in mixed phase convective environment: What can we learn from CPSD (and HSI or PDI or CPI probes) measurements	Schwarzenboeck	Korolev, Esposito, Wobrock, Duroure, other HAIC and HIWC as appropriate	Korolev 2nd author; CIRA interest	title and author list change Oct. 2105: Initiation and evolution of ice in mixed phase convective environment: Measurement of droplets and small ice crystals in high IWC. Combined use of CDP and 2D-S probes (F20 Cayenne data). D. Leroy, G. Febvre, P. Coutris, A. Schwarzenboeck, ... & contributing scientists from HAIC-HIWC ...?
		77HAIC	Ice Crystal Sizes in High Ice Water Content Clouds. Part 2: Median Mass Diameter Statistics in Tropical Convection Observed within HAIC/ HIWC.	Leroy	Fontaine, Schwarzenboeck, Strapp, Korolev, McFarquhar, Dupuy, Goubeyre, Lilie, Protat, Delanoe, Dezitter and Grandin.		new title, draft available, not yet submitted, probably JOAT

Cloud Microphysics (2 of 3)

Topic	Article #	Originator	article	lead	co-authors	Comments	update Oct. 2015
Observational Microphysics	16	HAIC	Mass-diameter relationships constrained from ice particle imagery and absolute IWC data (IKP) as well as cloud radar reflectivities	Coutris	Leroy, Schwarzenboeck, Delanoe, Protat, Korolev, Strapp, McFarquhar, other HAIC and HIWC scientists as appropriate		re-confirmed in Oct. 2015. Authorship lead changed to Coutris
	11	HAIC	The dynamical characteristics of HIWC regions and the link to the microphysical processes	Protat or Delanoë	Schwarzenboeck, Korolev, Zipser, Strapp, Grzych, other HAIC and HIWC as appropriate	This articles now proposed to include material from withdrawn article #23 regarding vertical profiles of radar reflectivity.	Not re-confirmed in Oct. 2015. Likely similar work in new titles below
	78	HAIC	Ice Crystal Sizes in High Ice Water Content Clouds. Part 1: Mass-Size Relationships Derived from Particle Images and TWC for Various Crystal Diameter Definitions and Impact on Median Mass Diameter.	LeRoy	E. Fontaine, A. Schwarzenboeck, J. W. Strapp		new title Oct. 2015: Submitted to JOAT. (in review process)
	79	HAIC	Comprehensive analysis of ice crystal size and morphology from merged Darwin & Cayenne high IWC datasets in tropical convection. '	LeRoy	Coutris, Febvre, Fontaine, Schwarzenboeck, Strapp, Korolev, McFarquhar, Lilie, Protat, Delanoe, Dezitter ,Grandin, ... & other contributing scientists from HAIC-HIWC		new title Oct. 2015
	14	HAIC	Relative humidity inside and in the vicinity of deep convective clouds	DLR	Korolev, HAIC and HIWC as appropriate		need to re-confirm in Oct. 2015

Cloud Microphysics (3 of 3)

Topic	Article #	Originator	article	lead	co-authors	Comments	update Oct. 2015
Observational Microphysics	28	HIWC	The representation of ice cloud size distributions as gamma distributions as a function of meteorological and cloud conditions using observations from convective core anvils and other regions in tropical cloud systems	McFarquhar	HIWC and HAIC as appropriate		title change Oct. 2015: Zhu, S., G.M. McFarquhar, W. Wu, A. Schwarzenboeck, A.V. Korolev, J.W. Strapp and D. Leroy, 2016: The dependence of ice cloud size distributions represented as gamma functions on meteorological and cloud conditions: Results from the High Ice Water Content Campaign. J. Atmos. Sci., planned submission
	29	HIWC	Development and implementation of mesoscale model parameterizations of single-particle properties and fallout using observations from tropical cloud systems	McFarquhar	Zhu, Korolev, Schwarzenboeck, Strapp, Leroy, Varble and Zipser		title change Oct. 2015: Development and implementation of model parameterizations for ice cloud single-scattering and fallout using observations from the High Ice Water Content Campaign. To submit to JAS 2016
	58	HIWC	Analysis of morphologies of ice crystals to build a database for a development of empirical habit classification scheme: A comparison between tropical and mid-latitude ice clouds	Um	McFarquhar, Schwarzenboeck, Korolev, Leroy, and Strapp		new title Oct. 2015: JGR intended
	13	HAIC	Microphysical findings in convection cores of A340 measurement data post-processed with m(D) relations and Robust probe efficiencies retrieved within HAIC.	Duroure	Grandin, Dezitter, Weber, Schwarzenboeck, Protat, Strapp		need to re-confirm in Oct. 2015
	15	HAIC	Interaction of growth mechanisms of ice in tropical deep convection	Duroure	Schwarzenboeck, Korolev, HAIC and HIWC as appropriate		need to re-confirm in Oct. 2015
	14	HAIC	Relative humidity inside and in the vicinity of deep convective clouds	DLR	Korolev, HAIC and HIWC as appropriate		need to re-confirm in Oct. 2015

Cloud Modeling (1 of 2)

Topic	Article #	Originator	article	lead	co-authors	Comments	update Oct. 2015
Cloud Modeling	26	HIWC	Using measurements of low radar reflectivity collocated with high ice water content to constrain representation of microphysical processes in cloud-resolving models of deep tropical convection	NASA GISS	HIWC and HAIC as appropriate	used A340 data for two papers at right	Title changed pre-Oct. 2015: High ice water content at low radar reflectivity near deep convection: Part I. Consistency of in situ and remote-sensing observations with stratiform rain column simulations. Fridlind, Ackerman, Grandin, Dezitter, Weber, Strapp
	65	HIWC				see above	Title changed pre-Oct. 2015: High ice water content at low radar reflectivity near deep convection: Part II. Evaluation of microphysical pathways in updraft parcel simulations, 2015. Ackerman, Fridlind, Grandlin, Dezitter, Weber, Strapp, and Korolev, et al.
	66	HIWC	Investigation of microphysical pathways to high ice water content observed during the HAIC-HIWC campaign using bin microphysics simulations	Fridlind	Ackerman, Korolev, Schwarzenboeck, Leroy, Strapp, et al.		new title Oct. 2015: Journal TBD. 3D simulations planned, details depending on future analysis of recently released data; appropriate author list TBD
	67	HIWC	Use of NASA GPM satellite and HAIC-HIWC in situ data to evaluate tropical stratiform precipitation microphysics in the GISS ModelE GCM	Fridlind	Ackerman, Schwarzenboeck, Leroy, Strapp, Protat, et al.		new title Oct. 2015: if submitted proposal funded; appropriate author list TBD
	68	HIWC	Use of NASA GPM satellite and HAIC-HIWC in situ data to investigate tropical stratiform microphysical pathways	van Lier-Walqui	Ackerman, Fridlind, McFarquhar, Williams, Schwarzenboeck, Leroy, Strapp, Protat, et al.		new title Oct. 2015: if submitted proposal funded; appropriate author list TBD
	69	HIWC	Use of cloud-resolving models of deep tropical convection to interpret mechanisms and locations of conditions with low radar reflectivity collocated with high ice water content	NASA GISS	Zipser, HIWC and HAIC as appropriate		need to re-confirm in Oct. 2015

Cloud Modeling (2 of 2)

Topic	Article #	Originator	article	lead	co-authors	Comments	update Oct. 2015
Cloud Modeling	30	HIWC	Model investigations of ice water content and the properties of the updrafts feeding the upper tropospheric ice mass	Varble	Protat, Korolev,	New article inked to article 11 above.	title change Oct. 2015: Factors influencing the evolution of simulated high ice water content regions and comparison with observations from the High Ice Water Content campaign. Varble, Zipser, Strapp, Schwarzenboeck, and others if their observational data
	32	HIWC	Evaluation of WRF high resolution simulations of tropical convective systems using in-situ and remote sensing data measured during the 2014 HAIC/HIWC campaign	Varble or Zipser	HIWC and HAIC as appropriate		title change Oct. 2015: Comparison of observed and simulated convective drafts in tropical monsoon mesoscale convective systems during the High Ice Water Content campaign. Stanford, Varble, Zipser, Strapp, Schwarzenboeck, and others if their observational
	70	HIWC	Reducing bulk microphysics parameterization biases using High Ice Water Content field campaign measurements	Varble	Zipser, Strapp, Schwarzenboeck, and others if their observational datasets are used		New title Oct. 2015: Journal TBD.
	33	HAIC	Comparisons of LaMP cloud model simulations with observations (especially 95 GHz radar)	Wobrock	HIWC and HAIC as appropriate	title provided by Strapp from Wobrock objectives	need to re-confirm in Oct. 2015
	34	HAIC	Sensitivity studies on ice nucleation rate and aggregation efficiencies	Wobrock	HIWC and HAIC as appropriate	title provided by Strapp from Wobrock objectives	need to re-confirm in Oct. 2015
	35	HIWC	Evaluation and improvement of high ice water content simulations in deep convective storms using the ACCESS model	Franklin	HIWC and HAIC as appropriate		new title Oct. 2015: Controls on phase composition and ice water content in a convection permitting model simulation of a tropical mesoscale convective system. Franklin and Protat. Journal probably QJRMS, to be submitted early Nov. 2015

Satellite/Nowcasting (2 of 2)

Topic	Article #	Originator	article	lead	co-authors	Comments	update Oct. 2015
Satellite and Nowcasting	38	HAIC	General paper on satellite detection of HIWC	Defer	Delanoë, Parol, Protat, other HIWC and HAIC as appropriate		title change pre-Oct. 2015: Overview of the HAIC Space-Borne Observation and Nowcasting of High Ice Water Content Regions Sub-Project and Mid-Term Results. Brenguier, De Laat, Delanoë, Dezitter, Faivre, Gounou, Grandin, Guignard, Meirink, Moisselin, Paro
	39	HAIC	CloudSat-CALIPSO detection of HIWC	Guignard or Ceccaldi	Delanoë, Protat, HAIC and HIWC as appropriate		need to re-confirm in Oct. 2015
	40	HAIC	Verification and refining of High IWC detection algorithm developed in WP3.3 from remote sensing and in situ F20 measurements, Ground-based radar, Concurrent coincident space-based observations (LEO mission), possible submission	Meteo France	HIWC and HAIC as appropriate; collaborate with HIWC nowcasting if possible		need to re-confirm in Oct. 2015, possibly same as title #59
	75	HAIC	The Use of RDT Nowcasting Tool for Detecting Convective Areas Associated with High Ice Water Content during HAIC/HIWC Field Campaign	Gounou	Moisselin, Autones, Levallant, Brenguier, Defer, Faivre		new title pre-Oct. 2015: SAE Technical Paper 2015-01-2124, 2015, doi:10.4271/2015-01-2124.
	76	HIWC	Studies of Cloud Characteristics Related to Jet Engine Ice Crystal Icing Utilizing Infrared Satellite Imagery	Grzych	Tritz, Mason, Bravin, Sharpsten	Minimal use of HAIC-HIWC data	SAE Technical Paper 2015-01-2086, 2015, doi:10.4271/2015-01-2086. SAE 2015 International Conference on Icing of Aircraft, Engines, and Structures, Prague, Czech Republic. June 2015.

OTHER (1 of 1)

Topic	Article #	Originator	article	lead	co-authors	Comments	update Oct. 2015
Applications to Tunnel Simulations	50	HIWC	Comparisons of cloud data to NASA PSL simulation	NASA	HIWC and HAIC contributors		need to re-confirm in Oct. 2015
	51	HAIC	Comparison ice crystals generated in DGA test facility with those collected during the 2014 Darwin Field Campaign	DGA	HAIC and HIWC as appropriate		need to re-confirm in Oct. 2015
	52	HAIC	Comparison of simulated glaciated and mixed phase conditions in TU BS icing wind tunnel with the Falcon-20 Darwin data	TUBS	HAIC and HIWC as appropriate		need to re-confirm in Oct. 2015
Topic	Article #	Originator	article	lead	co-authors	Comments	update Oct. 2015
Other	53	HIWC	Particle trajectories around the Falcon-20 aircraft	Bidwell (NASA)	HIWC and HAIC contributors		cancelled due to retirement (as per Tom Ratvasky, 21-Oct-15)
	54	HAIC	Numerical simulations of the INCAS ice crystal trajectory and ice accretion package	INCAS	HIWC and HAIC contributors, if any		need to re-confirm in Oct. 2015
	55	HAIC	Ice particles trajectory, impingement and accretion modeling and representativeness	ONERA P.Villedieu	C.Tropea, D.Raps, HAIC and HIWC, if appropriate		need to re-confirm in Oct. 2015

End of Presentation

Merci, Thank You