IceCube M&O Staffing Matrix sort by WBS v25.1 2018.1218

WBS L2	WBS L3	Institution	Lab or Cat.	Names	Tasks	NSF M&O Core	NSF Base Grants	U.S. Institutional In-Kind	Europe & Asia Pacific In-Kind	Grand Total
2.1 Program Management	2.1.1 Administration	LBNL	KE	KLEIN, SPENCER	Supervise LBNL effort	0.05				0.05
2.1 Program Management	2.1.1 Administration	LBNL	KE	KLEIN, SPENCER	PINGU Coordination Committee			0.03		0.03
2.1 Program Management	2.1.1 Administration	LBNL	KE	KLEIN, SPENCER	Gen2 HEA/Surface working group			0.05		0.05
2.1 Program Management	2.1.1 Administration	UWRF	KE	MADSEN, JIM	Associate Director for E&O	0.40				0.40
2.1 Program Management	2.1.1 Administration	UWRF	KE	SEUNARINE, SURUJ	IceCube Summer Bootcamp			0.05		0.05
2.1 Program Management	2.1.1 Administration	DREXEL	KE	NEILSON, NAOKO	ICB member			0.05		0.05
2.1 Program Management	2.1.1 Administration	GTECH	KE	TABOADA, IGNACIO	Member of the IceCube Impact Award committee	0.05				0.05
2.1 Program Management	2.1.1 Administration	MARQUETTE	KE	ANDEEN, KAREN	Program Administration			0.20		0.20
2.1 Program Management	2.1.1 Administration	MIT	GR	ARGUELLES, CARLOS	IceCube Summer Bootcamp			0.05		0.05
2.1 Program Management	2.1.1 Administration	MSU	KE	DEYOUNG, TYCE	ExecCom member			0.05		0.05
2.1 Program Management	2.1.1 Administration	UCLA	KE	WHITEHORN, NATHAN	Systematics Coordinator			0.15		0.15
2.1 Program Management	2.1.1 Administration	UD	KE	GAISSER, TOM	Institutional Lead			0.20		0.20
2.1 Program Management	2.1.1 Administration	UD	KE	SECKEL, DAVID	Pubcom member			0.05		0.05
2.1 Program Management	2.1.1 Administration	UD	KE	EVENSON, PAUL	Managing solar and heliospheric aspects of IceTop			0.05		0.05
2.1 Program Management	2.1.1 Administration	UD	PO	SOLDIN, DENNIS	ICC member			0.05		0.05
2.1 Program Management	2.1.1 Administration	UMD	KE	SULLIVAN, GREG	ExecCom member			0.20		0.20
2.1 Program Management	2.1.1 Administration	UMD	KE	SULLIVAN, GREG	M&O/Upgrade planning			0.30		0.30
2.1 Program Management	2.1.1 Administration	UMD	SC	BLAUFUSS, ERIK	ICC member		0.05			0.05
2.1 Program Management	2.1.1 Administration	UMD	PO	OLIVAS, ALEX	ICC member		0.05			0.05
2.1 Program Management	2.1.1 Administration	UA	KE	WILLIAMS, DAWN	Analysis coordinator, ICC member ex officio	0.30				0.30
2.1 Program Management	2.1.1 Administration	UA	KE	SANTANDER, MARCOS	Realtime Oversight Committee member			0.10		0.10
2.1 Program Management	2.1.1 Administration	ROCHESTER	KE	BENZVI, SEGEV	Supernova Working Group Co-convener			0.05		0.05
2.1 Program Management	2.1.1 Administration	ROCHESTER	KE	BENZVI, SEGEV	ICB member			0.05		0.05
2.1 Program Management	2.1.1 Administration	SBU	KE	KIRYLUK, JOANNA	Member of ICC, ICB member, Speakers committee member			0.10		0.10
2.1 Program Management	2.1.1 Administration	SDSMT	KE	XINHUA, BAI	Institutional Lead			0.10		0.10
2.1 Program Management	2.1.1 Administration	UW	KE	HALZEN, FRANCIS	Principle Investigator	0.38				0.38
2.1 Program Management	2.1.1 Administration	UW	KE	HALZEN, FRANCIS	Principle Investigator			0.12		0.12
2.1 Program Management	2.1.1 Administration	UW	KE	KARLE, ALBRECHT	Associate Director for Science	0.38				0.38
2.1 Program Management	2.1.1 Administration	UW	KE	KARLE, ALBRECHT	ExecCom member			0.20		0.20
2.1 Program Management	2.1.1 Administration	UW	KE	HANSON, KAEL	Director of IceCube Maintenance and Operations	0.47				0.47
2.1 Program Management	2.1.1 Administration	UW	KE	HANSON, KAEL	Director of IceCube Maintenance and Operations			0.08		0.08
2.1 Program Management	2.1.1 Administration	UW	KE	VANDENBROUCKE, JUSTIN	Pubcom member, TFT member			0.10		0.10
2.1 Program Management	2.1.1 Administration	UW	AD	VAKHNINA, CATHERINE	IceCube Resource Coordinator	0.75				0.75
2.1 Program Management	2.1.1 Administration	**US Total**				**2.73**	**0.15**	**2.38**		**5.26**
2.1 Program Management	2.1.1 Administration	ALBERTA	KE	GRANT, DARREN	Collaboration Spokesperson				0.50	0.50
2.1 Program Management	2.1.1 Administration	ALBERTA	KE	GRANT, DARREN	ExecCom member				0.20	0.20
2.1 Program Management	2.1.1 Administration	BOCHUM	KE	TJUS, JULIA	Speakers Comm member				0.10	0.10
2.1 Program Management	2.1.1 Administration	DESY	KE	KOWALSKI, MAREK	ExecCom member				0.10	0.10
2.1 Program Management	2.1.1 Administration	CHIBA	KE	KEIICHI, MASE	Member of ICC				0.10	0.10
2.1 Program Management	2.1.1 Administration	DESY	KE	ACKERMANN, MARKUS	PubCom Chair				0.25	0.25
2.1 Program Management	2.1.1 Administration	DESY	KE	ACKERMANN, MARKUS	ExecCom member				0.10	0.10
2.1 Program Management	2.1.1 Administration	DESY	SC	BLOT, SUMMER	ICC Member				0.10	0.10
2.1 Program Management	2.1.1 Administration	DESY	SC	VAN SANTEN, JAKOB	ICC Member				0.10	0.10
2.1 Program Management	2.1.1 Administration	DPNC	KE	MONTARULI, TERESA	ICB Member, UHECR-neutrino coordinator				0.15	0.15

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2.1 Program Management	2.1.1 Administration	ERLANGEN	KE	ANTON, GISELA	Institutional lead				0.20	0.20
2.1 Program Management	2.1.1 Administration	MÜNSTER	KE	KAPPES, ALEXANDER	Institutional lead				0.20	0.20
2.1 Program Management	2.1.1 Administration	NBI	KE	KOSKINEN, JASON	Pubcom member				0.10	0.10
2.1 Program Management	2.1.1 Administration	SKKU	KE	ROTT, CARSTEN	Speakers Comm member				0.10	0.10
2.1 Program Management	2.1.1 Administration	SU	KE	FINLEY, CHAD	ICB Member				0.05	0.05
2.1 Program Management	2.1.1 Administration	SU	KE	HULTQVIST, KLAS	ICB Member				0.05	0.05
2.1 Program Management	2.1.1 Administration	SU	KE	FINLEY, CHAD	Coordination with LIGO and ANTARES				0.10	0.10
2.1 Program Management	2.1.1 Administration	SU	KE	WALCK, CHRISTIAN	Publications Bookkeeping and author lists				0.10	0.10
2.1 Program Management	2.1.1 Administration	UC	KE	ADAMS, JENNI	ICB Member				0.05	0.05
2.1 Program Management	2.1.1 Administration	UC	KE	ADAMS, JENNI	Pubcom member				0.10	0.10
2.1 Program Management	2.1.1 Administration	UC	KE	AARTSEN, MARK	Analysis Reviewer (PS on Diff, 1+3 sterile)				0.05	0.05
2.1 Program Management	2.1.1 Administration	UOX	KE	SARKAR, SUBIR	Pubcom member				0.10	0.10
2.1 Program Management	2.1.1 Administration	UOX	KE	SARKAR, SUBIR	ICB Member				0.05	0.05
2.1 Program Management	2.1.1 Administration	ULB	KE	AGUILAR SANCHEZ, JUAN ANTONIO	Institutional Lead				0.20	0.20
2.1 Program Management	2.1.1 Administration	ULB	KE	AGUILAR SANCHEZ, JUAN ANTONIO	Member of PubCom				0.20	0.20
2.1 Program Management	2.1.1 Administration	UU	KE	BOTNER, OLGA	ExecCom member				0.20	0.20
2.1 Program Management	2.1.1 Administration	UU	KE	DE LOS HEROS, CARLOS	Pubcom member				0.10	0.10
2.1 Program Management	2.1.1 Administration	VUB	KE	DE CLERCQ, CATHERINE	Institutional Lead				0.20	0.20
2.1 Program Management	2.1.1 Administration	VUB	KE	VAN EIJNDHOVEN, NICK	Institutional Co-Lead				0.10	0.10
2.1 Program Management	2.1.1 Administration	RWTH	KE	WIEBUSCH, CHRISTOPHER	PubCom member				0.10	0.10
2.1 Program Management	2.1.1 Administration	MAINZ	KE	BOSSER, SEBASTIAN	LE/osc WG co-chair				0.25	0.25
2.1 Program Management	2.1.1 Administration	**Non-US Total**							4.30	4.30
2.1 Program Management	**2.1.1 Administration**					2.73	0.15	2.38	4.30	9.56
2.1 Program Management	2.1.2 Engineering and R&D Support	MIT	GR	MOULAI, MARJON	Test beam execution			0.15		0.15
2.1 Program Management	2.1.2 Engineering and R&D Support	PSU	KE	COWEN, DOUG	PINGU Co-Lead, Publication Committee			0.45		0.45
2.1 Program Management	2.1.2 Engineering and R&D Support	UMD	KE	HOFFMAN, KARA	Detector R&D			0.20		0.20
2.1 Program Management	2.1.2 Engineering and R&D Support	UMD	GR	FREIDMAN, LIZ	Detector R&D		0.25			0.25
2.1 Program Management	2.1.2 Engineering and R&D Support	UW	SC	DUVERNOIS, MICHAEL	Specialized calibrations, SPICE core project coordination, extracting specialized information	0.25				0.25
2.1 Program Management	2.1.2 Engineering and R&D Support	UW	SC	DUVERNOIS, MICHAEL	Ongoing EMI studies & mitigation, South Pole & Northern test site instrumentation, Summer South Pole field work	0.25				0.25
2.1 Program Management	2.1.2 Engineering and R&D Support	UW	EN	MEURES, THOMAS	Engineering Support: IceCube Lab Summer operations, cabling, & instrumentation testing	0.25				0.25
2.1 Program Management	2.1.2 Engineering and R&D Support	UW	EN	SANDSTROM, PERRY	Engineering support: IceCube Lab Summer operations, fieldwork management, GPS & timing maintenance	0.20				0.20
2.1 Program Management	2.1.2 Engineering and R&D Support	UW	MA	HAUGEN, JAMES	Engineering Support: logistics, northern hemisphere testing, & vendor management, contractor POC	0.15				0.15
2.1 Program Management	2.1.2 Engineering and R&D Support	**US Total**				1.10	0.25	0.80		2.15
2.1 Program Management	2.1.2 Engineering and R&D Support	DESY	KE	KARG, TIMO	Surface electronics, Optical detector R&D				0.20	0.20
2.1 Program Management	2.1.2 Engineering and R&D Support	DESY	GR	HUBER, THOMAS	Surface detectors				0.50	0.50
2.1 Program Management	2.1.2 Engineering and R&D Support	SKKU	PO	TOENNIS, CHRISTOPH	Reconstruction tools				0.15	0.15
2.1 Program Management	2.1.2 Engineering and R&D Support	GENT	SC	UGENT SC	Acoustic R&D Support				0.05	0.05
2.1 Program Management	2.1.2 Engineering and R&D Support	**Non-US Total**							0.90	0.90
2.1 Program Management	**2.1.2 Engineering and R&D Support**					1.10	0.25	0.80	0.90	3.05
2.1 Program Management	2.1.3 Usap Support & Safety	UW	MA	HAUGEN, JAMES	USAP Support: yearly sip, coordination with contractor (ASC)	0.20				0.20

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2.1 Program Management	2.1.3 Usap Support & Safety	US Total				0.20				0.20
2.1 Program Management	**2.1.3 Usap Support & Safety**					**0.20**	**0.00**	**0.00**		**0.20**
2.1 Program Management	2.1.4 Education & Outreach	PSU	KE	COWEN, DOUG	Education & Outreach			0.05		0.05
2.1 Program Management	2.1.4 Education & Outreach	MIT	GR	AXANI, SPENCER	Desktop muon counters			0.20		0.20
2.1 Program Management	2.1.4 Education & Outreach	MSU	KE	DEYOUNG, TYCE	Education & Outreach			0.05		0.05
2.1 Program Management	2.1.4 Education & Outreach	MSU	GR	RYSEWYK, DEVYN	Education & Outreach, IceCube MasterClass			0.10		0.10
2.1 Program Management	2.1.4 Education & Outreach	MSU	GR	NEER, GARRETT	IceCube MasterClass			0.05		0.05
2.1 Program Management	2.1.4 Education & Outreach	MSU	GR	MICALLEF, JESSIE	IceCube MasterClass			0.05		0.05
2.1 Program Management	2.1.4 Education & Outreach	ROCHESTER	KE	BENZVI, SEGEV	IceCube MasterClass			0.05		0.05
2.1 Program Management	2.1.4 Education & Outreach	SDSMT	KE	XINHUA, BAI	Education & Outreach for neutrino astronomy and IceCube			0.08		0.08
2.1 Program Management	2.1.4 Education & Outreach	SBU	KE	KIRYLUK, JOANNA	Masterclasses			0.05		0.05
2.1 Program Management	2.1.4 Education & Outreach	UA	KE	SANTANDER, MARCOS	IceCube Outreach			0.05		0.05
2.1 Program Management	2.1.4 Education & Outreach	UCB	KE	PRICE, BUFORD	Institutional lead			0.10		0.10
2.1 Program Management	2.1.4 Education & Outreach	UMD	KE	UMD KE	Education & Outreach			0.10		0.10
2.1 Program Management	2.1.4 Education & Outreach	UTA	KE	JONES, BENJAMIN	UTA astroparticle physics summer school for high school students			0.05		0.05
2.1 Program Management	2.1.4 Education & Outreach	UW	AD	STEFFES, LINDSEY	E&O events and collaboration meetings mgmt. Website & social networks mgmt	0.75				0.75
2.1 Program Management	2.1.4 Education & Outreach	UWRF	KE	MADSEN, JIM	Undergraduate Research			0.10		0.10
2.1 Program Management	2.1.4 Education & Outreach	UWRF	KE	MADSEN, JIM	Teachers program and UWRF Upward Bound	0.05				0.05
2.1 Program Management	2.1.4 Education & Outreach	US Total				0.80	0.00	1.08		1.88
2.1 Program Management	2.1.4 Education & Outreach	DESY	GR	KINTSCHER, THOMAS	Organization of IceCube master classes at DESY				0.10	0.10
2.1 Program Management	2.1.4 Education & Outreach	DESY	GR	STACHURSKA, JULIANA	Organization of IceCube master classes at DESY				0.10	0.10
2.1 Program Management	2.1.4 Education & Outreach	DPNC	KE	MONTARULI, TERESA	Responsible of Analysis Output of the group, Advising of students, Masterclass				0.10	0.10
2.1 Program Management	2.1.4 Education & Outreach	DPNC	GR	CARVER, TESSA	MasterClass IceCube and Nuit de la Science 2018				0.05	0.05
2.1 Program Management	2.1.4 Education & Outreach	DPNC	GR	BRON, STEPHANIE	Masterclass IceCube et Nuit de La Science 2018				0.05	0.05
2.1 Program Management	2.1.4 Education & Outreach	MAINZ	GR	UM GR	I3 virtual reality				0.25	0.25
2.1 Program Management	2.1.4 Education & Outreach	MÜNSTER	PO	CLASSEN, LEW	Public outreach				0.10	0.10
2.1 Program Management	2.1.4 Education & Outreach	NBI	KE	KOSKINEN, JASON	Speaking engagements (high school classes, open houses, etc.)				0.05	0.05
2.1 Program Management	2.1.4 Education & Outreach	UOX	KE	SARKAR, SUBIR	Education & Outreach				0.05	0.05
2.1 Program Management	2.1.4 Education & Outreach	UU	KE	HALLGREN, ALLAN	Education & Outreach				0.05	0.05
2.1 Program Management	2.1.4 Education & Outreach	UU	KE	BOTNER, OLGA	Education & Outreach				0.05	0.05
2.1 Program Management	2.1.4 Education & Outreach	VUB	GR	CORREA, PABLO	Education & Outreach				0.10	0.10
2.1 Program Management	2.1.4 Education & Outreach	VUB	GR	DE VRIES, KRIJN	Education & Outreach				0.10	0.10
2.1 Program Management	2.1.4 Education & Outreach	SKKU	KE	ROTT, CARSTEN	Education & Outreach				0.05	0.05
2.1 Program Management	2.1.4 Education & Outreach	Non-US Total							1.20	1.20
2.1 Program Management	**2.1.4 Education & Outreach**					**0.80**	**0.00**	**1.08**	**1.20**	**3.08**
2.1 Program Management	2.1.5 Communications	UW	AD	BRAVO GALLART, SILVIA	Communication plan manager, science writer. Masterclass and communication workshop coordinator	0.25				0.25
2.1 Program Management	2.1.5 Communications	US Total				0.25	0.00	0.00		0.25
2.1 Program Management	**2.1.5 Communications**					**0.25**	**0.00**	**0.00**		**0.25**
2.1 Program Management	**WBS L2 Total**					**5.08**	**0.40**	**4.26**	**6.40**	**16.14**
2.2 Detector Operations & Mainte	2.2 Detector Operations & Maintenance	UW	SC	KELLEY, JOHN	Detector Maintenance and Operations Manager	0.65				0.65
2.2 Detector Operations & Mainte	2.2 Detector Operations & Maintenance	UW	SC	DESIATI, PAOLO	IceCube Coordination Committee chair	0.30				0.30
2.2 Detector Operations & Mainte	2.2 Detector Operations & Maintenance	UW	MA	HAUGEN, JAMES	Logistics Manager	0.15				0.15
2.2 Detector Operations & Mainte	2.2 Detector Operations & Maintenance	UMD	PO	OLIVAS, ALEX	SW Coordinator – Detector M&O	0.45				0.45

WBS L2	WBS L3	Institution	Lab or Cat.	Names	Tasks	NSF M&O Core	NSF Base Grants	U.S. Institutional In-Kind	Europe & Asia Pacific In-Kind	Grand Total
2.2 Detector Operations & Mainte	2.2 Detector Operations & Maintenance	**US Total**				**1.55**	**0.00**	**0.00**		**1.55**
2.2 Detector Operations & Mainte	2.2 Detector Operations & Maintenance	UMH	GR	KOHNEN, GEORGES	Database Coordinator				0.10	0.10
2.2 Detector Operations & Mainte	2.2 Detector Operations & Maintenance	**Non-US Total**							**0.10**	**0.10**
2.2 Detector Operations & Mainte	**2.2 Detector Operations & Maintenance**					**1.55**	**0.00**	**0.00**	**0.10**	**1.65**
2.2 Detector Operations & Mainte	2.2.1 Run Coordination	UW	IT	AUER, RALF	Winterovers coordinator, hiring and training of winterovers	0.20				0.20
2.2 Detector Operations & Mainte	2.2.1 Run Coordination	UW	SC	KAUER, MATTHEW	Run Coordinator	0.40				0.40
2.2 Detector Operations & Mainte	2.2.1 Run Coordination	UW	WO	UW WINTER OVERS	Operate Detector (Winter-Overs)	3.00				3.00
2.2 Detector Operations & Mainte	2.2.1 Run Coordination	**US Total**				**3.60**	**0.00**	**0.00**	**0.00**	**3.60**
2.2 Detector Operations & Mainte	**2.2.1 Run Coordination**					**3.60**	**0.00**	**0.00**		**3.60**
2.2 Detector Operations & Mainte	2.2.2 Data Acquisition	LBNL	EN	STEZELBERGER,THORSTEN	Maintain DAQ Hardware (Hubs, DOR, Clocks, GPS,...)	0.15				0.15
2.2 Detector Operations & Mainte	2.2.2 Data Acquisition	PSU	SC	ANDERSON, TYLER	DAQ Firmware Development	0.23				0.23
2.2 Detector Operations & Mainte	2.2.2 Data Acquisition	PSU	PO	ELLER, PHILIPP	DAQ Firmware Development	0.20				0.20
2.2 Detector Operations & Mainte	2.2.2 Data Acquisition	PSU	GR	PANKOVA, DARIA	DAQ electronics hardware and firmware			0.47		0.47
2.2 Detector Operations & Mainte	2.2.2 Data Acquisition	UD	KE	SECKEL, DAVID	DAQ Monitoring			0.05		0.05
2.2 Detector Operations & Mainte	2.2.2 Data Acquisition	UW	EN	MEURES, THOMAS	Data Acquisition HW Maintenance: DOR, DOMHub and DOMCal	0.10				0.10
2.2 Detector Operations & Mainte	2.2.2 Data Acquisition	UW	SC	KELLEY, JOHN	DOM software: DOR device driver, DOMHub scripts, DOMCal	0.15				0.15
2.2 Detector Operations & Mainte	2.2.2 Data Acquisition	UW	SC	KELLEY, JOHN	Track DOM issues, generate detector run configurations	0.10				0.10
2.2 Detector Operations & Mainte	2.2.2 Data Acquisition	UW	CS	GLOWACKI, DAVID	IceCube DAQ: trigger and event builder	0.60				0.60
2.2 Detector Operations & Mainte	2.2.2 Data Acquisition	UW	CS	GLOWACKI, DAVID	IceCube DAQ: command-and-control server, testing infrastructure	0.40				0.40
2.2 Detector Operations & Mainte	2.2.2 Data Acquisition	UW	CS	BENDFELT, TIMOTHY	IceCube DAQ: StringHub and domapp	0.75				0.75
2.2 Detector Operations & Mainte	2.2.2 Data Acquisition	UW	CS	BENDFELT, TIMOTHY	IceCube DAQ: supernova interface, hitspooling	0.25				0.25
2.2 Detector Operations & Mainte	2.2.2 Data Acquisition	UW	GR	TY, BUNHENG	DOR Firmware	0.25				0.25
2.2 Detector Operations & Mainte	2.2.2 Data Acquisition	**US Total**				**3.18**	**0.00**	**0.52**		**3.70**
2.2 Detector Operations & Mainte	**2.2.2 Data Acquisition**					**3.18**	**0.00**	**0.52**		**3.70**
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	UMD	SC	BLAUFUSS, ERIK	Maintain PnF S/W and Online Filters	0.20				0.20
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	UMD	CS	SCHMIDT, TORSTEN	Maintain PnF Software and Online Filters	0.00				0.00
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	UMD	PO	LARSON, MICHAEL	Near Real time alerts/GRB		0.10			0.10
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	UD	KE	SECKEL, DAVID	TFT Board member			0.10		0.10
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	UD	PO	SOLDIN, DENNIS	IceTop Filter			0.10		0.10
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	UD	GR	KOIRALA, RAMESH	Two station trigger			0.10		0.10
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	UW	SC	KAUER, MATTHEW	TFT Board member			0.10		0.10
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	UMD	SC	BLAUFUSS, ERIK	Filter requests, bandwidth, TFT Board Member. IceTray	0.30				0.30
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	UMD	GR	FREIDMAN, LIZ	Real-time & near real time alerts		0.20			0.20
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	UAA	KE	RAWLINS, KATHERINE	Cosmic Ray WG co-convener			0.25		0.25
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	DREXEL	KE	NEILSON, NAOKO	Point Source WG Lead			0.25		0.25
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	DREXEL	KE	NEILSON, NAOKO	Splitting – Q/P frame and coincidence			0.05		0.05
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	GTECH	KE	TABOADA, IGNACIO	GRB WG Chair		0.25			0.25
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	SBU	GR	YIQIAN XU	Cascade filter		0.05			0.05
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	UW	GR	FAHEY, SAM	Trigger simulations, grbllh development and maintenance, fast response shifts		0.20			0.20
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	**US Total**				**0.50**	**0.90**	**0.85**		**2.25**
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	ALBERTA	KE	YANEZ, JUAN PABLO	LE WG co-chair				0.25	0.25
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	DESY	KE	KARG, TIMO	TFT Board member				0.10	0.10

WBS L2	WBS L3	Institution	Lab or Cat.	Names	Tasks	NSF M&O Core	NSF Base Grants	U.S. Institutional In-Kind	Europe & Asia Pacific In-Kind	Grand Total
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	DESY	SC	VAN SANTEN, JAKOB	Cascade WG co-chair				0.25	0.25
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	UU	KE	HALLGREN, ALLAN	TFT Board Chair				0.25	0.25
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	UU	KE	DE LOS HEROS, CARLOS	TFT Board member				0.10	0.10
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	BOCHUM	GR	TENHOLT, FREDERIK	Muon filter				0.10	0.10
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	BOCHUM	GR	TENHOLT, FREDERIK	Moon/Sun Filter				0.05	0.05
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	ALBERTA	KE	KOPPER, CLAUDIO	Diffuse WG co-chair				0.25	0.25
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	ALBERTA	KE	MOORE, ROGER	TFT Board Member				0.10	0.10
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	CHIBA	SC	ISHIHARA, AYA	EHE Filters				0.15	0.15
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	MAINZ	GR	SANDROOS, JOAKIM	DeepCore filter /HiveSplitter				0.20	0.20
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	MAINZ	GR	STEUER, ANNA	HESE filter / Hitspooling				0.20	0.20
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	NBI	PO	STUTTARD, TOM	Oscillation WG co-convenor				0.25	0.25
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	UC	GR	AARTSEN, MARK	Cascade filter				0.05	0.05
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	SKKU	KE	ROTT, CARSTEN	BSM WG Co-Chair				0.25	0.25
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	SKKU	GR	IN, SEONGJUN	Online filter development & testing (Low-up filter)				0.20	0.20
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	SKKU	GR	DUJMOVIC, HRVOJE	Online filter development & testing (Full Sky Starting Filter)				0.20	0.20
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	SU	KE	HULTQVIST, KLAS	Diffuse WG Co-chair				0.25	0.25
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	DTMND	SC	RUHE, TIM	Physics filters				0.20	0.20
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	DTMND	GR	HÜNNEFELD, MIRKO	Reconstruction				0.30	0.30
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	DTMND	GR	MEIER, MAXIMILIAN	Physics filters				0.20	0.20
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	WUPPERTAL	KE	HELBING, KLAUS	BSM WG chair				0.25	0.25
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	WUPPERTAL	PO	POLLMANN, ANNA	SLOP filter, Monopole filte				0.25	0.25
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	WUPPERTAL	GR	LAUBER, FREDERIK	Detection of Magnetic Monopoles through radio luminescence				0.20	0.20
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	ULB	KE	AGUILAR SANCHEZ, JUAN ANTONIO	Reconstruction & systematics WG co-Chair				0.25	0.25
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	ULB	GR	RENZI, GIOVANNI	Vertical event filter, WIMP L2				0.20	0.20
2.2 Detector Operations & Mainte	2.2.3 Online Filter (Pnf)	**Non-US Total**							5.05	5.05
2.2 Detector Operations & Mainte	**2.2.3 Online Filter (Pnf)**					0.50	0.90	0.85	5.05	7.30
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	CAU	KE	JAPARIDZE, GEORGE	Detector monitoring shifts			0.02		0.02
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	DREXEL	GR	WILLS, ELIZABETH	Detector monitoring shifts			0.05		0.05
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	DREXEL	GR	SCLAFANI, STEVE	Detector monitoring shifts			0.05		0.05
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	KU	KE	BESSON, DAVE	Detector monitoring shifts			0.02		0.02
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	SBU	GR	YIQIAN XU	Detector Monitoring		0.05			0.05
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	LBNL	PO	ROBERTSON, SALLY	Detector monitoring shifts		0.09			0.09
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	MSU	GR	RYSEWYK, DEVYN	Detector monitoring shifts			0.03		0.03
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	PSU	PO	ELLER, PHILIPP	Detector monitoring shifts		0.03			0.03
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	PSU	GR	LANFRANCHI, JUSTIN	Detector monitoring shifts			0.03		0.03
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	PSU	GR	PANKOVA, DARIA	Detector monitoring shifts			0.03		0.03
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	ROCHESTER	GR	CROSS, ROBERT	Detector monitoring shifts			0.05		0.05
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	ROCHESTER	GR	GRISWOLD, SPENCER	Detector monitoring shifts			0.05		0.05
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	SDSMT	KE	XINHUA, BAI	IceCube operation monitoring			0.02		0.02
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	UA	KE	SANTANDER, MARCOS	Online Moon shadow analysis (monitoring)			0.10		0.10
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	UA	GR	GOSWAMI, SREETAMA	Online Moon shadow analysis (monitoring)			0.10		0.10
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	UA	GR	GOSWAMI, SREETAMA	Monitoring shifts (starting 2019)			0.05		0.05
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	UA	GR	GHADIMI, AVA	Monitoring shifts (starting 2019)			0.05		0.05
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	UCI	KE	BARWICK, STEVE	Detector monitoring shifts			0.01		0.01
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	UCI	GR	HANSON, JORDAN	Detector monitoring shifts			0.01		0.01
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	UD	SC	TILAV, SERAP	Data monitoring			0.15		0.15
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	UMD	GR	UMD GR	Detector monitoring shifts		0.06			0.06
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	UW	SC	KAUER, MATTHEW	Data Monitoring lead: coordinate test and feature development; design underlying analysis algorithms	0.20				0.20
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	UW	SC	KAUER, MATTHEW	Training and coordinating monitoring shifters	0.10				0.10

WBS L2	WBS L3	Institution	Lab or Cat.	Names	Tasks	NSF M&O Core	NSF Base Grants	U.S. Institutional In-Kind	Europe & Asia Pacific In-Kind	Grand Total
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	UW	CS	FRERE, MICHAEL	IceCube Live monitoring system: data quality and monitoring, back-end databases	0.80				0.80
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	UW	CS	FRERE, MICHAEL	IceCube Live: release management, supporting external developers (OFU, SNDAQ, etc.)	0.20				0.20
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	UW	CS	BURRESON, COLIN	IceCube Live monitoring system: web interface	0.75				0.75
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	UW	PO	KHEIRANDISH, ALI	Detector monitoring shifts, fast Response monitoring shifts		0.20			0.20
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	UW	PO	UW PO	Detector monitoring shifts		0.08			0.08
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	UW	GR	SAFA, IBRAHIM	Detector monitoring shifts			0.10		0.10
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	UW	GR	UW GR	Detector monitoring shifts		0.12			0.12
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	**US Total**				**2.05**	**0.63**	**0.92**		**3.60**
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	DESY	SC	DESY SC	Detector Monitoring				0.05	0.05
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	DESY	GR	DESY GR	Detector Monitoring				0.12	0.12
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	DTMND	GR	DTMD GR	Detector Monitoring				0.03	0.03
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	MAINZ	PO	UM PO	Detector Monitoring				0.05	0.05
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	MAINZ	GR	FRITZ, ALEXANDER	SuperNova Operations				0.40	0.40
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	NBI	GR	BOURBEAU, ETIENNE	Detector monitoring shifts				0.05	0.05
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	TUM	GR	MPI GR	Detector Monitoring				0.05	0.05
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	RWTH	GR	HALVE, LASSE	Detector monitoring shifts contact from Aachen				0.05	0.05
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	RWTH	GR	RWTH GR	Detector monitoring shifts				0.12	0.12
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	SKKU	GR	IN, SEONGJUN	Detector Monitoring				0.03	0.03
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	SKKU	GR	DUJMOVIC, HRVOJE	Detector Monitoring				0.03	0.03
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	SKKU	GR	JEONG, MINJIN	Detector Monitoring				0.03	0.03
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	SKKU	GR	KANG, WOOSIK	Detector Monitoring				0.03	0.03
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	SKKU	PO	TOENNIS, CHRISTOPH	Detector Monitoring				0.03	0.03
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	SU	GR	AHRENS, MARYON	Detector Monitoring				0.06	0.06
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	UC	KE	ADAMS, JENNI	Detector Monitoring				0.05	0.05
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	UC	PO	AARTSEN, MARK	Detector Monitoring				0.02	0.02
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	UC	GR	RAISSI, AMIR	Detector Monitoring				0.03	0.03
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	ULB	GR	ULB GR	Detector Monitoring				0.12	0.12
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	ULB	GR	IOVINE, NADÉGE	IceTop Snow Monitor				0.20	0.20
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	UU	GR	UNGER, LISA	Monitoring Shifts				0.03	0.03
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	UU	GR	BURGMAN, ALEXANDER	Detector monitoring shifts				0.03	0.03
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	VUB	GR	VUB GR	Detector monitoring shifts				0.06	0.06
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	WUPPERTAL	GR	WUPPERTAL GR	Monitoring shifts				0.03	0.03
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	MAINZ	GR	KAPPESSER, DAVID	Detector Monitoring				0.30	0.30
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	MAINZ	GR	UM GR	Detector Monitoring				0.05	0.05
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	GENT	GR	VERPOEST, STEF	Detector Monitoring				0.03	0.03
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	DPNC	GR	CARVER, TESSA	Detector Monitoring				0.05	0.05
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	DPNC	GR	BRON, STEPHANIE	Detector Monitoring				0.05	0.05
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	BOCHUM	GR	GÜNDÜZ, MEHMET	Detector Monitoring				0.03	0.03
2.2 Detector Operations & Mainte	2.2.4 Detector Monitoring	**Non-US Total**							**2.20**	**2.20**
2.2 Detector Operations & Mainte	**2.2.4 Detector Monitoring**					**2.05**	**0.63**	**0.92**	**2.20**	**5.80**
2.2 Detector Operations & Mainte	2.2.5 Experiment Control	UW	CS	BRAUN, JAMES	IceCube LiveControl: experiment control software	0.50				0.50
2.2 Detector Operations & Mainte	2.2.5 Experiment Control	UW	CS	BURRESON, COLIN	IceCube LiveControl: experiment control software	0.25				0.25
2.2 Detector Operations & Mainte	2.2.5 Experiment Control	**US Total**				**0.75**	**0.00**	**0.00**		**0.75**
2.2 Detector Operations & Mainte	**2.2.5 Experiment Control**					**0.75**	**0.00**	**0.00**		**0.75**
2.2 Detector Operations & Mainte	2.2.6 Surface Detector Operations	UD	SC	TILAV, SERAP	Coordinate IceTop Operations	0.70				0.70
2.2 Detector Operations & Mainte	2.2.6 Surface Detector Operations	UD	KE	SCHROEDER, FRANK	Surface detector enhancements			0.20		0.20
2.2 Detector Operations & Mainte	2.2.6 Surface Detector Operations	MARQUETTE	KE	ANDEEN, KAREN	Surface detector R&D			0.05		0.05
2.2 Detector Operations & Mainte	2.2.6 Surface Detector Operations	MARQUETTE	PO	PLUM, MATTHIAS	Surface detector R&D			0.50		0.50
2.2 Detector Operations & Mainte	2.2.6 Surface Detector Operations	UW	EN	SANDSTROM, PERRY	Design, build and test experimental apparatus for restoring IceTop detector efficiency	0.20				0.20

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2.2 Detector Operations & Mainte	2.2.6 Surface Detector Operations	UW	SC	TOSI, DELIA	Test and commission experimental apparatus for restoring IceTop detector efficiency	0.50				0.50
2.2 Detector Operations & Mainte	2.2.6 Surface Detector Operations	UW	SC	KAUER, MATTHEW	Design and build experimental apparatus for restoring IceTop detector efficiency	0.20				0.20
2.2 Detector Operations & Mainte	2.2.6 Surface Detector Operations	US Total				1.60	0.00	0.75		2.35
2.2 Detector Operations & Mainte	2.2.6 Surface Detector Operations	RWTH	PO	AUFFENBERG, JAN	IceAct coordination				0.30	0.30
2.2 Detector Operations & Mainte	2.2.6 Surface Detector Operations	RWTH	PO	AUFFENBERG, JAN	IceAct/Skycam Datataking Maintenance				0.20	0.20
2.2 Detector Operations & Mainte	2.2.6 Surface Detector Operations	RWTH	GR	RONGEN, MARTIN	IceAct calibration / maintenance				0.20	0.20
2.2 Detector Operations & Mainte	2.2.6 Surface Detector Operations	RWTH	GR	SCHAUFEL, MERLIN	IceAct Monitoring				0.20	0.20
2.2 Detector Operations & Mainte	2.2.6 Surface Detector Operations	WUPPERTAL	GR	BINDIG, DANIEL	Laterally separated muons in IceTop				0.20	0.20
2.2 Detector Operations & Mainte	2.2.6 Surface Detector Operations	Non-US Total							1.10	1.10
2.2 Detector Operations & Mainte	**2.2.6 Surface Detector Operations**					1.60	0.00	0.75	1.10	3.45
2.2 Detector Operations & Mainte	2.2.7 Supernova System	ROCHESTER	KE	BENZVI, SEGEV	Supernova DAQ			0.05		0.05
2.2 Detector Operations & Mainte	2.2.7 Supernova System	ROCHESTER	GR	CROSS, ROBERT	Supernova DAQ			0.25		0.25
2.2 Detector Operations & Mainte	2.2.7 Supernova System	ROCHESTER	GR	GRISWOLD, SPENCER	Supernova DAQ			0.10		0.10
2.2 Detector Operations & Mainte	2.2.7 Supernova System	SUBR	KE	TER-ANTONYAN, SAMVEL	Supernova Data Analysis			0.02		0.02
2.2 Detector Operations & Mainte	2.2.7 Supernova System	Yale	KE	MARUYAMA, REINA	Supernova DAQ			0.05		0.05
2.2 Detector Operations & Mainte	2.2.7 Supernova System	US Total				0.00	0.00	0.47		0.47
2.2 Detector Operations & Mainte	2.2.7 Supernova System									0.00
2.2 Detector Operations & Mainte	2.2.7 Supernova System	Non-US Total							0.00	0.00
2.2 Detector Operations & Mainte	**2.2.7 Supernova System**					0.00	0.00	0.47	0.00	0.47
2.2 Detector Operations & Mainte	2.2.8 Real-Time Alerts	DREXEL	GR	WILLS, ELIZABETH	Real-Time shifts			0.10		0.10
2.2 Detector Operations & Mainte	2.2.8 Real-Time Alerts	GTECH	KE	TABOADA, IGNACIO	Member of the Real-time Oversight Committee (ROC)		0.05			0.05
2.2 Detector Operations & Mainte	2.2.8 Real-Time Alerts	GTECH	GR	TUNG, CHRIS	Redesign of HESE track alerts (under auspices of the ROC)		0.10			0.10
2.2 Detector Operations & Mainte	2.2.8 Real-Time Alerts	GTECH	GR	TUNG, CHRIS	Real-time shifter (under auspices of the ROC)		0.10			0.10
2.2 Detector Operations & Mainte	2.2.8 Real-Time Alerts	PSU	PO	KEIVANI, AZADEH	Maintain IceCube integration with AMON; HESE reco			0.05		0.05
2.2 Detector Operations & Mainte	2.2.8 Real-Time Alerts	PSU	PO	AYALA, HUGO	Maintain IceCube integration with AMON			0.10		0.10
2.2 Detector Operations & Mainte	2.2.8 Real-Time Alerts	UW	CS	BRAUN, JAMES	L3 Real-Time Alerts	0.25				0.25
2.2 Detector Operations & Mainte	2.2.8 Real-Time Alerts	UW	GR	MANCINA, SARAH	Filter development (ESTES), DOM sensitivity		0.20			0.20
2.2 Detector Operations & Mainte	2.2.8 Real-Time Alerts	US Total				0.25	0.45	0.25		0.95
2.2 Detector Operations & Mainte	2.2.8 Real-Time Alerts	CHIBA	KE	YOSHIDA, SHIGERU	Realtime Oversight Committee member				0.05	0.05
2.2 Detector Operations & Mainte	2.2.8 Real-Time Alerts	CHIBA	PO	LU, LU	Maintenance of IceCube realtime analysis system				0.20	0.20
2.2 Detector Operations & Mainte	2.2.8 Real-Time Alerts	DESY	KE	FRANCKOWIAK, ANNA	Realtime oversight committee member				0.10	0.10
2.2 Detector Operations & Mainte	2.2.8 Real-Time Alerts	DESY	SC	RAUCH, LUDWIG	Optical follow-up program maintenance				0.10	0.10
2.2 Detector Operations & Mainte	2.2.8 Real-Time Alerts	DESY	GR	KINTSCHER, THOMAS	Online data stream maintenance				0.10	0.10
2.2 Detector Operations & Mainte	2.2.8 Real-Time Alerts	SU	KE	FINLEY, CHAD	Realtime Oversight Committee				0.05	0.05
2.2 Detector Operations & Mainte	2.2.8 Real-Time Alerts	Non-US Total							0.60	0.60
2.2 Detector Operations & Mainte	**2.2.8 Real-Time Alerts**					0.25	0.45	0.25	0.60	1.55
2.2 Detector Operations & Main	**WBS L2 Total**					13.48	1.98	3.75	9.05	28.26
2.3 Computing And Data Manage	2.3.0 Computing And Data Management	UW	MA	RIEDEL, BENEDIKT	Computing Infrastructure Manager	0.90				0.90
2.3 Computing And Data Manage	2.3.0 Computing And Data Management	LBNL	KE	KLEIN,SPENCER	Oversee raw data storage at LBNL			0.08		0.08
2.3 Computing And Data Manage	2.3.0 Computing And Data Management	US Total				0.90	0.00	0.08		0.98
2.3 Computing And Data Manage	**2.3.0 Computing And Data Management**					0.90	0.00	0.08		0.98
2.3 Computing And Data Manage	2.3.1 Data Storage & Transfer	UW	IT	BARNET, STEVE	Maintain and operate storage infrastructure at UW-Madison	0.30				0.30
2.3 Computing And Data Manage	2.3.1 Data Storage & Transfer	UW	IT	BELLINGER, JIM	Operate data handling services	0.20				0.20
2.3 Computing And Data Manage	2.3.1 Data Storage & Transfer	UW	IT	BELLINGER, JIM	Long term preservation and archive services. Data curation.	0.20				0.20

IceCube M&O Staffing Matrix sort by WBS v25.1 2018.1218

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2.3 Computing And Data Manage	2.3.1 Data Storage & Transfer	UW	IT	BELLINGER, JIM	Maintain and Operate Data Storage Infrastructure	0.30				0.30
2.3 Computing And Data Manage	2.3.1 Data Storage & Transfer	UW	IT	BRIK, VLADIMIR	Maintain and operate remote data access services at UW-Madison	0.20				0.20
2.3 Computing And Data Manage	2.3.1 Data Storage & Transfer	UW	CS	MEADE, PATRICK	Operate data handling services	0.20				0.20
2.3 Computing And Data Manage	2.3.1 Data Storage & Transfer	UW	CS	MEADE, PATRICK	Maintain data handling software (JADE): Archive at the S. Pole, transfer, ingest to the Data Warehouse and long-term	0.20				0.20
2.3 Computing And Data Manage	2.3.1 Data Storage & Transfer	UW	CS	MEADE, PATRICK	Maintain data catalog. Data discovery and metadata web interface	0.60				0.60
2.3 Computing And Data Manage	2.3.1 Data Storage & Transfer	**US Total**				**2.20**	**0.00**	**0.00**		**2.20**
2.3 Computing And Data Manage	2.3.1 Data Storage & Transfer	**Non-US Total**								**0.00**
2.3 Computing And Data Manage	**2.3.1 Data Storage & Transfer**					**2.20**	**0.00**	**0.00**	**0.00**	**2.20**
2.3 Computing And Data Manage	2.3.2 Core Data Center Infrastructure	UW	IT	BARNET, STEVE	Manage computing facilities at UW-Madison	0.10				0.10
2.3 Computing And Data Manage	2.3.2 Core Data Center Infrastructure	UW	IT	BARNET, STEVE	Cybersecurity	0.20				0.20
2.3 Computing And Data Manage	2.3.2 Core Data Center Infrastructure	UW	IT	BARNET, STEVE	Maintain Core Computing Infrastructure	0.30				0.30
2.3 Computing And Data Manage	2.3.2 Core Data Center Infrastructure	UW	IT	BARNET, STEVE	Manage networking infrastructure at UW-Madison	0.10				0.10
2.3 Computing And Data Manage	2.3.2 Core Data Center Infrastructure	UW	IT	BRIK, VLADIMIR	Maintain Core Computing Infrastructure Systems	0.10				0.10
2.3 Computing And Data Manage	2.3.2 Core Data Center Infrastructure	UW	IT	SHEPERD, ALEC	Maintain Core Computing Infrastructure Systems	0.50				0.50
2.3 Computing And Data Manage	2.3.2 Core Data Center Infrastructure	**US Total**				**1.30**	**0.00**	**0.00**		**1.30**
2.3 Computing And Data Manage	2.3.2 Core Data Center Infrastructure									0.00
2.3 Computing And Data Manage	2.3.2 Core Data Center Infrastructure	**Non-US Total**							**0.00**	**0.00**
2.3 Computing And Data Manage	**2.3.2 Core Data Center Infrastructure**					**1.30**	**0.00**	**0.00**	**0.00**	**1.30**
2.3 Computing And Data Manage	2.3.3 Central Computing Resources	LBNL	IT	LBNL IT	NERSC Data Archiving, Distributed Computing and Labor			1.00		1.00
2.3 Computing And Data Manage	2.3.3 Central Computing Resources	SUBR	KE	TER-ANTONYAN, SAMVEL	Cloud Computing			0.30		0.30
2.3 Computing And Data Manage	2.3.3 Central Computing Resources	UMD	IT	UMD IT	Coordination and Support for Grid and distributed computing	0.00				0.00
2.3 Computing And Data Manage	2.3.3 Central Computing Resources	UW	IT	BRIK, VLADIMIR	Maintain and operate data processing and analysis cluster	0.10				0.10
2.3 Computing And Data Manage	2.3.3 Central Computing Resources	UW	IT	SHEPERD, ALEC	Maintain and operate data processing and analysis cluster	0.50				0.50
2.3 Computing And Data Manage	2.3.3 Central Computing Resources	**US Total**				**0.60**	**0.00**	**1.30**		**1.90**
2.3 Computing And Data Manage	2.3.3 Central Computing Resources	DESY	IT	DESY IT	European Data Center - Distributed Computing and Labor				1.00	1.00
2.3 Computing And Data Manage	2.3.3 Central Computing Resources	DESY	KE	ACKERMANN, MARKUS	DESY TIER-1 coordination				0.10	0.10
2.3 Computing And Data Manage	2.3.3 Central Computing Resources	UMH	GR	KOHNEN, GEORGES	IC database management				0.30	0.30
2.3 Computing And Data Manage	2.3.3 Central Computing Resources	**Non-US Total**							**1.40**	**1.40**
2.3 Computing And Data Manage	**2.3.3 Central Computing Resources**					**0.60**	**0.00**	**1.30**	**1.40**	**3.30**
2.3 Computing And Data Manage	2.3.4 Distributed Computing Resources	UA	PO	KOPPER, SANDRO	Connecting Alabama GPUs to the cluster		0.05			0.05
2.3 Computing And Data Manage	2.3.4 Distributed Computing Resources	UW	DS	SCHULTZ, DAVID	Distributed resources coordination	0.20				0.20
2.3 Computing And Data Manage	2.3.4 Distributed Computing Resources	UW	DS	SCHULTZ, DAVID	Maintain and operate distributed workload management infrastructure	0.80				0.80
2.3 Computing And Data Manage	2.3.4 Distributed Computing Resources	UW	IT	BRIK, VLADIMIR	Maintain and operate distributed workload management infrastructure	0.60				0.60
2.3 Computing And Data Manage	2.3.4 Distributed Computing Resources	**US Total**				**1.60**	**0.05**	**0.00**	**0.00**	**1.65**
2.3 Computing And Data Manage	2.3.4 Distributed Computing Resources	CHIBA	PO	LU, LU	Grid Operations Team				0.20	0.20
2.3 Computing And Data Manage	2.3.4 Distributed Computing Resources	ALBERTA	GR	SARKAR, SOURAV	Grid Operations Team				0.20	0.20
2.3 Computing And Data Manage	2.3.4 Distributed Computing Resources	RWTH	GR	REIMAN, RENE	Grid Operations Team				0.20	0.20
2.3 Computing And Data Manage	2.3.4 Distributed Computing Resources	**Non-US Total**							**0.60**	**0.60**
2.3 Computing And Data Manage	**2.3.4 Distributed Computing**					**1.60**	**0.05**	**0.00**	**0.60**	**2.25**
2.3 Computing And Data Manage	2.3.5 Sps Operations	UW	IT	AUER, RALF	Maintain SPS computing infrastructure	0.40				0.40

WBS L2	WBS L3	Institution	Lab or Cat.	Names	Tasks	NSF M&O Core	NSF Base Grants	U.S. Institutional In-Kind	Europe & Asia Pacific In-Kind	Grand Total
2.3 Computing And Data Manage	2.3.5 Sps Operations	UW	IT	AUER, RALF	SPS networking and security	0.10				0.10
2.3 Computing And Data Manage	2.3.5 Sps Operations	UW	EN	SANDSTROM, PERRY	Maintain South Pole System H/W Infrastructure	0.20				0.20
2.3 Computing And Data Manage	2.3.5 Sps Operations	**US Total**				**0.70**	**0.00**	**0.00**		**0.70**
2.3 Computing And Data Manage	**2.3.5 Sps Operations**					**0.70**	**0.00**	**0.00**		**0.70**
2.3 Computing And Data Manage	2.3.6 Spts Operations	UW	IT	AUER, RALF	Maintain SPTS computing infrastructure	0.20				0.20
2.3 Computing And Data Manage	2.3.6 Spts Operations	UW	IT	AUER, RALF	SPTS networking and security	0.10				0.10
2.3 Computing And Data Manage	2.3.6 Spts Operations	UW	EN	MEURES, THOMAS	Maintain South Pole Test System H/W Infrastructure	0.25				0.25
2.3 Computing And Data Manage	2.3.6 Spts Operations	**US Total**				**0.55**	**0.00**	**0.00**		**0.55**
2.3 Computing And Data Manage	**2.3.6 Spts Operations**					**0.55**	**0.00**	**0.00**		**0.55**
2.3 Computing And Data Manag	**WBS L2 Total**					**7.85**	**0.05**	**1.38**	**2.00**	**11.28**
2.4 Data Processing & Simulation	2.4.1 Offline Data Production	OSU	PO	MEDINA ANDRES	Pass2 Verification			0.05		0.05
2.4 Data Processing & Simulation	2.4.1 Offline Data Production	SBU	GR	YIQIAN XU	Cascade L3 scripts			0.10		0.10
2.4 Data Processing & Simulation	2.4.1 Offline Data Production	SBU	GR	YIQIAN XU	Pass2 verification			0.10		0.10
2.4 Data Processing & Simulation	2.4.1 Offline Data Production	UMD	GR	FREIDMAN, LIZ	Neutrino Sources Data Curator		0.20			0.20
2.4 Data Processing & Simulation	2.4.1 Offline Data Production	UW	DS	SNIHUR, ROBERT	Transformation of Data for Long-Term Persistence and Archival. Run Common Reconstructions (Level2)	0.20				0.20
2.4 Data Processing & Simulation	2.4.1 Offline Data Production	UW	GR	LEONARD, KAYLA	Developing for MuonGun for low energies			0.50		0.50
2.4 Data Processing & Simulation	2.4.1 Offline Data Production	**US Total**				**0.20**	**0.45**	**0.50**		**1.15**
2.4 Data Processing & Simulation	2.4.1 Offline Data Production	ALBERTA	PO	HIGNIGHT, JOSHUA	Level-3 processing maintainer the low-energy working group				0.05	0.05
2.4 Data Processing & Simulation	2.4.1 Offline Data Production	NBI	PO	STUTTARD, TOM	OscNext Event Selection				0.10	0.10
2.4 Data Processing & Simulation	2.4.1 Offline Data Production	RWTH	GR	HAACK, CHRISTIAN	Pass2 verification Muon L3 and diffuse WG				0.05	0.05
2.4 Data Processing & Simulation	2.4.1 Offline Data Production	RWTH	GR	HAACK, CHRISTIAN	Diffuse sample production				0.10	0.10
2.4 Data Processing & Simulation	2.4.1 Offline Data Production	RWTH	GR	REIMAN, RENE	Diffuse-sample for PS analyses				0.10	0.10
2.4 Data Processing & Simulation	2.4.1 Offline Data Production	RWTH	GR	SCHUMACHER, LISA	Providing HE muon events from diffuse analysis for the IC/Auger/TA coincident analyses				0.05	0.05
2.4 Data Processing & Simulation	2.4.1 Offline Data Production	RWTH	GR	STETTNER, JÖRAN	Diffuse sample production				0.05	0.05
2.4 Data Processing & Simulation	2.4.1 Offline Data Production	ALBERTA	KE	KOPPER, CLAUDIO	Offline Processing Support / pass2				0.10	0.10
2.4 Data Processing & Simulation	2.4.1 Offline Data Production	GENT	GR	VERPOEST, STEF	Cosmic Ray L3 scripts				0.50	0.50
2.4 Data Processing & Simulation	2.4.1 Offline Data Production	GENT	GR	VERPOEST, STEF	Pass2 verification				0.05	0.05
2.4 Data Processing & Simulation	2.4.1 Offline Data Production	TUM	GR	TURCATI, ANDREA	Muon L3 Scripts				0.50	0.50
2.4 Data Processing & Simulation	2.4.1 Offline Data Production	**Non-US Total**							**1.65**	**1.65**
2.4 Data Processing & Simulation	**2.4.1 Offline Data Production**					**0.20**	**0.45**	**0.50**	**1.65**	**2.80**
2.4 Data Processing & Simulation	2.4.2 Simulation Production	SDSMT	GR	DVORAK, EMILY	Filter/pre-processing MC and real data for the IceTop-InIce combined reconstruction tools development			0.15		0.15
2.4 Data Processing & Simulation	2.4.2 Simulation Production	UD	PO	SOLDIN, DENNIS	IceCube/IceTop simulation production	0.50				0.50
2.4 Data Processing & Simulation	2.4.2 Simulation Production	UMD	SC	BLAUFUSS, ERIK	Simulation production site manager		0.10			0.10
2.4 Data Processing & Simulation	2.4.2 Simulation Production	UW	SC	DESIATI, PAOLO	Simulation Production streamlining programs for the cloud, GPU	0.30				0.30
2.4 Data Processing & Simulation	2.4.2 Simulation Production	UW	SC	DESIATI, PAOLO	Simulation Production Manager	0.30				0.30
2.4 Data Processing & Simulation	2.4.2 Simulation Production	UW	SC	DESIATI, PAOLO	Simulation Production panel chair			0.10		0.10
2.4 Data Processing & Simulation	2.4.2 Simulation Production	UW	GR	GRIFFITH, ZACHARY	Gamma simulation production		0.30			0.30
2.4 Data Processing & Simulation	2.4.2 Simulation Production	UW	GR	BOURBEAU, JAMES	Gamma showers		0.10			0.10

WBS L2	WBS L3	Institution	Lab or Cat.	Names	Tasks	NSF M&O Core	NSF Base Grants	U.S. Institutional In-Kind	Europe & Asia Pacific In-Kind	Grand Total
2.4 Data Processing & Simulation	2.4.2 Simulation Production	UW	GR	WILLE, LOGAN	Simulation production for muon decay Glashow resonance events			0.30		0.30
2.4 Data Processing & Simulation	2.4.2 Simulation Production	UW	DS	DIAZ-VELEZ, JUAN CARLOS	Maintain Simulation Production Software, maintain, test and update physics aspects of the atmospheric muon and neutrino simulation	0.40				0.40
2.4 Data Processing & Simulation	2.4.2 Simulation Production	UW	DS	SNIHUR, ROBERT	Simulation Production Coordination; production configurations, test production and web portal.	0.50				0.50
2.4 Data Processing & Simulation	2.4.2 Simulation Production	UW	DS	MEAGHER, KEVIN	Simulation Production software development	1.00				1.00
2.4 Data Processing & Simulation	2.4.2 Simulation Production	US Total				3.00	0.50	0.55		4.05
2.4 Data Processing & Simulation	2.4.2 Simulation Production	ALBERTA	PO	HIGNIGHT, JOSHUA	Simulation production site manager at Compute Canada Resource Allocation				0.25	0.25
2.4 Data Processing & Simulation	2.4.2 Simulation Production	ALBERTA	GR	SARKAR, SOURAV	PYTHIA event generator implementation and maintenance				0.15	0.15
2.4 Data Processing & Simulation	2.4.2 Simulation Production	CHIBA	PO	LU, LU	special background simulation production (Corsika)				0.20	0.20
2.4 Data Processing & Simulation	2.4.2 Simulation Production	CHIBA	PO	MAKINO, YUYA	High energy Corsika simulation production with Sibyll 3.2 and EPOS				0.20	0.20
2.4 Data Processing & Simulation	2.4.2 Simulation Production	DTMND	GR	HOINKA, TOBIAS	Simulation production site manager at Dortmund				0.30	0.30
2.4 Data Processing & Simulation	2.4.2 Simulation Production	ALBERTA	KE	KOPPER, CLAUDIO	GPU computing resourses				0.10	0.10
2.4 Data Processing & Simulation	2.4.2 Simulation Production	RWTH	GR	STETTNER, JÖRAN	Simulation production for consistent MC spanning IC-59-IC-86-5				0.05	0.05
2.4 Data Processing & Simulation	2.4.2 Simulation Production	RWTH	GR	SCHAUFEL, MERLIN	IceAct/IceCube/IceTop MonteCarlo				0.10	0.10
2.4 Data Processing & Simulation	2.4.2 Simulation Production	UMH	GR	KOHNEN, GEORGES	Simulation Production				0.25	0.25
2.4 Data Processing & Simulation	2.4.2 Simulation Production	Non-US Total							1.60	1.60
2.4 Data Processing & Simulation	2.4.2 Simulation Production					3.00	0.50	0.55	1.60	5.65
2.4 Data Processing & Simulation	2.4.3 Public Date Products	UW	IT	BELLINGER, JIM	IceCube Open Data services and tools	0.30				0.30
2.4 Data Processing & Simulation	2.4.3 Public Date Products	US Total				0.30	0.00	0.00		0.30
2.4 Data Processing & Simulation	2.4.3 Public Date Products									0.00
2.4 Data Processing & Simulation	2.4.3 Public Date Products	Non-US Total							0.00	0.00
2.4 Data Processing & Simulation	2.4.3 Public Date Products					0.30	0.00	0.00	0.00	0.30
2.4 Data Processing & Simulation	WBS L2 Total					3.50	0.95	1.05	3.25	8.75
2.5 Software	2.5.1 Core Software	DREXEL	PO	RICHMAN, MIKE	Software strike team			0.25		0.25
2.5 Software	2.5.1 Core Software	MIT	GR	ARGUELLES, CARLOS	Atmospheric neutrino parametrizations			0.20		0.20
2.5 Software	2.5.1 Core Software	MSU	GR	MICALLEF, JESSIE	Software strike team / CLSim development and maintenance			0.35		0.35
2.5 Software	2.5.1 Core Software	OSU	GR	MEDINA, ANDRES	Software strike team			0.25		0.25
2.5 Software	2.5.1 Core Software	UMD	SC	BLAUFUSS, ERIK	Support Core Software	0.25				0.25
2.5 Software	2.5.1 Core Software	UMD	CS	SCHMIDT, TORSTEN	Maintain Core Analysis Framework (IceTray)	0.50				0.50
2.5 Software	2.5.1 Core Software	UMD	PO	OLIVAS, ALEX	SW Coordinator – Core Software	0.20				0.20
2.5 Software	2.5.1 Core Software	UMD	PO	OLIVAS, ALEX	Support Core Software			0.05		0.05
2.5 Software	2.5.1 Core Software	UMD	CS	UMD CS	Maintain Core Software Repository	0.00				0.00
2.5 Software	2.5.1 Core Software	UW	DS	DIAZ-VELEZ, JUAN CARLOS	Data processing software framework (IceProd)	0.25				0.25
2.5 Software	2.5.1 Core Software	UW	CS	BRAUN, JAMES	Analysis Software support	0.25				0.25
2.5 Software	2.5.1 Core Software	UW	DS	SNIHUR, ROBERT	Maintain Data Processing Software	0.20				0.20
2.5 Software	2.5.1 Core Software	US Total				1.65	0.00	1.10		2.75
2.5 Software	2.5.1 Core Software	MAINZ	GR	EHRHARD, THOMAS	PISA				0.25	0.25
2.5 Software	2.5.1 Core Software	NBI	PO	STUTTARD, TOM	PISA				0.10	0.10
2.5 Software	2.5.1 Core Software	TUM	GR	KRINGS, KAI	Software strike team				0.25	0.25
2.5 Software	2.5.1 Core Software	ULB	GR	RAAB, CHRISTOPH	Software strike team				0.25	0.25

WBS L2	WBS L3	Institution	Lab or Cat.	Names	Tasks	NSF M&O Core	NSF Base Grants	U.S. Institutional In-Kind	Europe & Asia Pacific In-Kind	Grand Total
2.5 Software	2.5.1 Core Software	UU	GR	BURGMAN, ALEXANDER	Software strike team				0.25	0.25
2.5 Software	2.5.1 Core Software	**Non-US Total**							1.10	1.10
2.5 Software	**2.5.1 Core Software**					**1.65**	**0.00**	**1.10**	**1.10**	**3.85**
2.5 Software	2.5.2 Simulation Software	UA	PO	KOPPER, SANDRO	Simulation Software: low energy double pulse		0.15			0.15
2.5 Software	2.5.2 Simulation Software	MIT	GR	AXANI, SPENCER	Pass 2 and calibration work			0.10		0.10
2.5 Software	2.5.2 Simulation Software	MIT	PO	ARGUELLES, CARLOS	nuSQuIDS, LeptonInjector/LeptonWeighter, and MC reweighting development. Fitter tools: GolemFit.			0.30		0.30
2.5 Software	2.5.2 Simulation Software	MSU	KE	MAHN, KENDALL	Integration/development of GENIE for low energy systematics			0.05		0.05
2.5 Software	2.5.2 Simulation Software	ROCHESTER	KE	BENZVI, SEGEV	Supernova and transient simulations			0.05		0.05
2.5 Software	2.5.2 Simulation Software	ROCHESTER	GR	CROSS, ROBERT	Supernova and transient simulations			0.05		0.05
2.5 Software	2.5.2 Simulation Software	SUBR	KE	FAZELY, ALI	GEANT Simulation			0.15		0.15
2.5 Software	2.5.2 Simulation Software	SUBR	SC	XIANWU, XU	Simulation Programs			0.15		0.15
2.5 Software	2.5.2 Simulation Software	UD	GR	PANDYA, HERSHAL	sim-services		0.10			0.10
2.5 Software	2.5.2 Simulation Software	UMD	PO	LARSON, MICHAEL	Low Energy tools		0.20			0.20
2.5 Software	2.5.2 Simulation Software	UTA	KE	JONES, BENJAMIN	Sterilizer high dimensional fit code for high energy oscillation analyses			0.20		0.20
2.5 Software	2.5.2 Simulation Software	UTA	GR	WATSON, BLAKE	Extension of fit codes to new parameter spaces and systematics			0.05		0.05
2.5 Software	2.5.2 Simulation Software	UW	SC	CHIRKIN, DMITRY	Maintain and Verify Simulation of Photon Propagation and update Ice Properties	0.30				0.30
2.5 Software	2.5.2 Simulation Software	UW	SC	HOSHINA, KOTOYO	nugen maintenance	0.25				0.25
2.5 Software	2.5.2 Simulation Software	UW	GR	SILVA, MANUEL	Muongun maintenance, upgrade	0.25				0.25
2.5 Software	2.5.2 Simulation Software	UW	DS	DIAZ-VELEZ, JUAN CARLOS	Simulation programs (detector response)	0.25				0.25
2.5 Software	2.5.2 Simulation Software	**US Total**				**1.05**	**0.45**	**1.10**		**2.60**
2.5 Software	2.5.2 Simulation Software	DESY	SC	VAN SANTEN, JAKOB	Software package maintenance				0.20	0.20
2.5 Software	2.5.2 Simulation Software	DTMND	GR	WERTHEBACH, JOHANNES	PROPOSAL-IceProd integration and maintenance/support				0.50	0.50
2.5 Software	2.5.2 Simulation Software	DTMND	GR	SOEDINGREKSO, JAN	PROPOSAL-IceProd Integration and optimization				0.50	0.50
2.5 Software	2.5.2 Simulation Software	BOCHUM	KE	TJUS, JULIA	Development PROPOSAL simulation software				0.10	0.10
2.5 Software	2.5.2 Simulation Software	GENT	GR	VERPOEST, STEF	Investigations of thinning in simulation				0.05	0.05
2.5 Software	2.5.2 Simulation Software	ERLANGEN	GR	GLÜSENKAMP, THORSTEN	Track/Cascade reconstruction and simulation				0.20	0.20
2.5 Software	2.5.2 Simulation Software	ERLANGEN	GR	KITTLER, THOMAS	Simulation verification, reconstruction development				0.20	0.20
2.5 Software	2.5.2 Simulation Software	ERLANGEN	GR	WREDE, GERRIT	Novel reconstruction algorithms				0.20	0.20
2.5 Software	2.5.2 Simulation Software	RWTH	GR	HAACK, CHRISTIAN	Seasonal Weights for NeutrinoFlux module Flux				0.05	0.05
2.5 Software	2.5.2 Simulation Software	RWTH	GR	SCHUMACHER, LISA	Skylab maintenance				0.10	0.10
2.5 Software	2.5.2 Simulation Software	RWTH	GR	STETTNER, JÖRAN	NNM-Fit tool for diffuse profile likelihood fits				0.10	0.10
2.5 Software	2.5.2 Simulation Software	RWTH	GR	STETTNER, JÖRAN	Diffuse Model Repository				0.10	0.10
2.5 Software	2.5.2 Simulation Software	QUEEN'S	KE	CLARK, KENNETH	Low Energy Simulation Software updates				0.10	0.10
2.5 Software	2.5.2 Simulation Software	**Non-US Total**							2.40	2.40
2.5 Software	**2.5.2 Simulation Software**					**1.05**	**0.45**	**1.10**	**2.40**	**5.00**
2.5 Software	2.5.3 Reconstruction	UA	PO	KOPPER, SANDRO	Reconstruction of tau neutrino events and BSM double pulse events		0.15			0.15
2.5 Software	2.5.3 Reconstruction	UA	KE	SANTANDER, MARCOS	Reconstruction validation - PSF studies			0.05		0.05
2.5 Software	2.5.3 Reconstruction	UA	GR	PEDEK, SAMANTHA	Tau double pulse FFT algorithm		0.25			0.25
2.5 Software	2.5.3 Reconstruction	UAA	KE	RAWLINS, KATHERINE	Snow correction for IceTop			0.20		0.20

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2.5 Software	2.5.3 Reconstruction	MIT	GR	COLLIN, GABRIEL	NonPoissonian Template Fitting code			0.25		0.25
2.5 Software	2.5.3 Reconstruction	PSU	PO	ELLER, PHILIPP	PISA Maintenance		0.05			0.05
2.5 Software	2.5.3 Reconstruction	ROCHESTER	KE	BENZVI, SEGEV	Supernova light curve and transient monitoring tools			0.05		0.05
2.5 Software	2.5.3 Reconstruction	SUBR	KE	FAZELY, ALI	Reconstruction/ Analysis tools, data analysis, Cloud Computation; High Energy Neutrino Nucleon Cross Section			0.15		0.15
2.5 Software	2.5.3 Reconstruction	SUBR	SC	XIANWU, XU	Reconstruction/ Analysis tools			0.15		0.15
2.5 Software	2.5.3 Reconstruction	UCLA	KE	WHITEHORN, NATHAN	Reconstruction Software			0.10		0.10
2.5 Software	2.5.3 Reconstruction	UD	PO	SOLDIN, DENNIS	Software maintenance: Event reco and corsika reader			0.20		0.20
2.5 Software	2.5.3 Reconstruction	UD	PO	GONZALEZ, JAVIER	Event reconstruction and simulations	0.20				0.20
2.5 Software	2.5.3 Reconstruction	UMD	PO	OLIVAS, ALEX	SW Coordinator – Data Quality, Reconstruction and Sim. Programs	0.25				0.25
2.5 Software	2.5.3 Reconstruction	UMD	PO	LARSON, MICHAEL	Develop & test reconstruction	0.05				0.05
2.5 Software	2.5.3 Reconstruction	PSU	GR	LANFRANCHI, JUSTIN	Low energy event reconstruction quality; PISA maintenance			0.15		0.15
2.5 Software	2.5.3 Reconstruction	PSU	GR	DELAUNAY, JIMMY	Low energy neutrino pointing resolution			0.33		0.33
2.5 Software	2.5.3 Reconstruction	SDSMT	KE	XINHUA, BAI	High energy cosmic rays, prompt muon, and muon bundle reconstruction basis and new methods			0.60		0.60
2.5 Software	2.5.3 Reconstruction	SDSMT	GR	DVORAK, EMILY	IceTop-InIce combined reconstruction development and apply it to data analysis			0.85		0.85
2.5 Software	2.5.3 Reconstruction	UW	SC	CHIRKIN, DMITRY	Reconstruction software	0.15				0.15
2.5 Software	2.5.3 Reconstruction	UW	GR	GRIFFITH, ZACHARY	Photon/hadron separation		0.20			0.20
2.5 Software	2.5.3 Reconstruction	UW	GR	SCHNEIDER, AUSTIN	Event reconstruction, software development		0.15			0.15
2.5 Software	2.5.3 Reconstruction	UW	GR	PIZZUTO, ALEX	Fast response analysis maintenance, SkyLab transients			0.20		0.20
2.5 Software	2.5.3 Reconstruction	UW	PO	YUAN, TIANLU	Impact of DOM response on reconstruction, cascade reconstruction at high energies		0.40			0.40
2.5 Software	2.5.3 Reconstruction	UW	PO	WOOD, JOSH	Skylab maintenance		0.20			0.20
2.5 Software	2.5.3 Reconstruction	UWRF	KE	SEUNARINE, SURUJ	Low-Energy Extensions of IceTop			0.10		0.10
2.5 Software	2.5.3 Reconstruction	Yale	KE	MARUYAMA, REINA	Coincident events between IceCube and DM-Ice, low energy reconstruction			0.05		0.05
2.5 Software	2.5.3 Reconstruction	**US Total**				**0.60**	**1.45**	**3.43**		**5.48**
2.5 Software	2.5.3 Reconstruction	ALBERTA	GR	NOWICKI, SARAH	Direct Reconstruction Tool Development				0.75	0.75
2.5 Software	2.5.3 Reconstruction	ALBERTA	PO	HIGNIGHT, JOSHUA	Genie-icetray maintainer				0.05	0.05
2.5 Software	2.5.3 Reconstruction	ALBERTA	GR	WOOD, TANIA	Atmospheric Flux Systematics				0.10	0.10
2.6 Calibration	2.5.3 Reconstruction	ALBERTA	GR	SANCHEZ HERRERA, SEBASTIAN	Software / data processing (tools development)				0.35	0.35
2.5 Software	2.5.3 Reconstruction	ADELAIDE	GR	AARTSEN, MARK	Event energy and direction reconstruction, millipede				0.50	0.50
2.5 Software	2.5.3 Reconstruction	CHIBA	KE	YOSHIDA, SHIGERU	Maintain Romeo, EHE Simulations, Calibration using Standard Candles				0.20	0.20
2.5 Software	2.5.3 Reconstruction	CHIBA	KE	YOSHIDA, SHIGERU	EHE online pipeline for follow-up observations				0.15	0.15

WBS L2	WBS L3	Institution	Lab or Cat.	Names	Tasks	NSF M&O Core	NSF Base Grants	U.S. Institutional In-Kind	Europe & Asia Pacific In-Kind	Grand Total
2.5 Software	2.5.3 Reconstruction	CHIBA	KE	KEIICHI, MASE	Maintain Romeo, EHE Simulations, Maintain reconstruction projects (Portia), MC/Data comparison for EHE-filtered and IceTop events, Standard Candle Analysis				0.20	0.20
2.5 Software	2.5.3 Reconstruction	CHIBA	SC	ISHIHARA, AYA	Maintain Portia and the SC data filtering				0.15	0.15
2.5 Software	2.5.3 Reconstruction	DESY	GR	BRADASCIO, FEDERICA	Spline MPE improvements				0.20	0.20
2.5 Software	2.5.3 Reconstruction	DESY	GR	STEIN, ROBERT	Collaboration toolkit for stacking analysis				0.20	0.20
2.5 Software	2.5.3 Reconstruction	DESY	SC	MA, WING YAN	Low-energy reconstruction (incl. new sensor designs)				0.10	0.10
2.5 Software	2.5.3 Reconstruction	DPNC	PO	BARBANO, ANASTASIA	UHECR – neutrino analysis Time dependent flare search online filter quality and monthly data analysis				0.50	0.50
2.5 Software	2.5.3 Reconstruction	DPNC	GR	BRON, STEPHANIE	L3Muon filter and reconstruction for muon diffuse searches. Monthly time dependent search				0.90	0.90
2.5 Software	2.5.3 Reconstruction	DPNC	GR	CARVER, TESSA	Final filter for point sources (L3&L4), Pointsource Analysis				0.90	0.90
2.5 Software	2.5.3 Reconstruction	MAINZ	GR	LOHFINK, ELISA	Low energy reconstruction				0.20	0.20
2.5 Software	2.5.3 Reconstruction	NBI	PO	RAMEEZ, MOHAMED	Low energy reconstruction				0.15	0.15
2.5 Software	2.5.3 Reconstruction	UC	PO	AARTSEN, MARK	Code maintenance (CLast)				0.05	0.05
2.5 Software	2.5.3 Reconstruction	UC	PO	AARTSEN, MARK	Cascade Spline Table tests (ongoing)				0.10	0.10
2.5 Software	2.5.3 Reconstruction	SU	PO	O'SULLIVAN, ERIN	Online event reco & ang. unc. Estimation				0.20	0.20
2.5 Software	2.5.3 Reconstruction	SU	GR	DEOSKAR, KUNAL	Event reconstruction, angular resolution				0.20	0.20
2.5 Software	2.5.3 Reconstruction	RWTH	GR	HAACK, CHRISTIAN	Energy reco with machine learning				0.10	0.10
2.5 Software	2.5.3 Reconstruction	RWTH	GR	HAACK, CHRISTIAN	NNMFIT tool for diffuse profile likelihood fits				0.10	0.10
2.5 Software	2.5.3 Reconstruction	RWTH	GR	LEUERMANN, MARTIN	Development and Maintenance of PegLeg				0.10	0.10
2.5 Software	2.5.3 Reconstruction	RWTH	GR	LEUERMANN, MARTIN	Co maintenance of OscFit and implementation of extensions (e.g. KDE, systematic fits, baseline correction)				0.10	0.10
2.5 Software	2.5.3 Reconstruction	RWTH	GR	LEUERMANN, MARTIN	KDE Tools to produce adaptive weighted KDEs, used in OscFit and NuMuFit				0.10	0.10
2.5 Software	2.5.3 Reconstruction	RWTH	GR	STETTNER, JÖRAN	Energy reco with machine learning				0.10	0.10
2.5 Software	2.5.3 Reconstruction	SKKU	PO	RAMEEZ, MOHAMED	Low energy reconstruction				0.15	0.15
2.5 Software	2.5.3 Reconstruction	TUM	GR	KRINGS, KAI	Maintenance Gulliver tool				0.25	0.25
2.5 Software	2.5.3 Reconstruction	VUB	KE	VAN EIJNDHOVEN, NICK	IcePack analysis software tools				0.25	0.25
2.5 Software	2.5.3 Reconstruction	VUB	GR	COPPIN, PAUL	Maintenance of GRBWEB				0.10	0.10
2.5 Software	2.5.3 Reconstruction	ALBERTA	KE	KOPPER, CLAUDIO	Icetray framework maintenance				0.05	0.05
2.5 Software	2.5.3 Reconstruction	ALBERTA	KE	KOPPER, CLAUDIO	Maintenance of clsim direct photon propagation tool				0.10	0.10
2.5 Software	2.5.3 Reconstruction	**Non-US Total**							7.65	7.65
2.5 Software	**2.5.3 Reconstruction**					0.60	1.45	3.43	7.65	13.13
2.5 Software	2.5.4 Science Support Tools	DREXEL	PO	RICHMAN, MIKE	HistLite, pyBDT, and other software tools			0.30		0.30
2.5 Software	2.5.4 Science Support Tools	**US Total**				0.00	0.00	0.30		0.30
2.5 Software	2.5.4 Science Support Tools									0.00
2.5 Software	2.5.4 Science Support Tools	**Non-US Total**							0.00	0.00
2.5 Software	**2.5.4 Science Support Tools**					0.00	0.00	0.30	0.00	0.30

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2.5 Software	2.5.5 Software Development Infrastructure	UMD	CS	LADIEU, DON	Maintain Core Analysis Framework (IceTray)	0.75				0.75
2.5 Software	2.5.5 Software Development Infrastructure	**US Total**				**0.75**	**0.00**	**0.00**		**0.75**
2.5 Software	2.5.5 Software Development Infrastructure									0.00
2.5 Software	2.5.5 Software Development Infrastructure	**Non-US Total**							**0.00**	**0.00**
2.5 Software	**2.5.5 Software Development Infrastructure**					**0.75**	**0.00**	**0.00**	**0.00**	**0.75**
2.5 Software	**WBS L2 Total**					**4.05**	**1.90**	**5.93**	**11.15**	**23.03**
2.6 Calibration	2.6.1 Detector Calibration	UA	KE	WILLIAMS, DAWN	Baseline and charge harvesting			0.10		0.10
2.6 Calibration	2.6.1 Detector Calibration	UA	GR	PEDEK, SAMANTHA	Domcal run vetting		0.25			0.25
2.6 Calibration	2.6.1 Detector Calibration	MIT	GR	MOULAI, MARJON	Lab measurements of absolute DOM calibration			0.15		0.15
2.6 Calibration	2.6.1 Detector Calibration	MSU	GR	NEER, GARRETT	In-situ DOM sensitivity calibration/angular response from muon neutrinos			0.25		0.25
2.6 Calibration	2.6.1 Detector Calibration	UW	SC	WENDT, CHRISTOPHER	Flasher output, flasher calibration	0.40				0.40
2.6 Calibration	2.6.1 Detector Calibration	UW	SC	WENDT, CHRISTOPHER	DOM charge response, linearity, DOM calibration support	0.40				0.40
2.6 Calibration	2.6.1 Detector Calibration	UW	SC	TOSI, DELIA	Absolute DOM sensitivity calibration (laboratory measurements)	0.15				0.15
2.6 Calibration	2.6.1 Detector Calibration	UW	DS	SNIHUR, ROBERT	Detector geometry, calibration, and status database maintenance and support	0.10				0.10
2.6 Calibration	2.6.1 Detector Calibration	UW	GR	TY, BUNHENG	PMT negative HV studies			0.05		0.05
2.6 Calibration	2.6.1 Detector Calibration	UW	GR	LUSZCZAK, WILLIAM	Calibration, 2D-DOM response, anisotropy with muons		0.30			0.30
2.6 Calibration	2.6.1 Detector Calibration	UW	GR	SAFA, IBRAHIM	IceTop maintenance, Scintillator project			0.20		0.20
2.6 Calibration	2.6.1 Detector Calibration	UWRF	KE	SEUNARINE, SURUJ	Calibration-Flasher Studies			0.10		0.10
2.6 Calibration	2.6.1 Detector Calibration	**US Total**				**1.05**	**0.55**	**0.85**		**2.45**
2.6 Calibration	2.6.1 Detector Calibration	ALBERTA	KE	MOORE, ROGER	DOM efficiency with cosmic muons				0.10	0.10
2.6 Calibration	2.6.1 Detector Calibration	ALBERTA	KE	KULACZ, NICHOLAS	DOM efficiency with cosmic muons				0.35	0.35
2.6 Calibration	2.6.1 Detector Calibration	UC	GR	RAISSI, AMIR	Flasher Data Testing (learning)				0.15	0.15
2.6 Calibration	2.6.1 Detector Calibration	CHIBA	KE	KEIICHI, MASE	Calibration WG co-chair				0.15	0.15
2.6 Calibration	2.6.1 Detector Calibration	DESY	SC	BLOT, SUMMER	Calibration co-chair				0.30	0.30
2.6 Calibration	2.6.1 Detector Calibration	HUMBOLDT	GR	HEBECKER, DUSTIN	Optical detector calibration				0.20	0.20
2.6 Calibration	2.6.1 Detector Calibration	MÜNSTER	GR	UNLAND, MARTIN	Background from radioactive decays in DOM pressure vessel				0.20	0.20
2.6 Calibration	2.6.1 Detector Calibration	NBI	GR	BOURBEAU, ETIENNE	Dedicated measurements of coincident				0.30	0.30
2.6 Calibration	2.6.1 Detector Calibration	NBI	GR	BOURBEAU, ETIENNE	Individual DOM efficiency				0.10	0.10
2.6 Calibration	2.6.1 Detector Calibration	SKKU	GR	JEONG, MINJIN	DOM Sensitivity in Ice				0.35	0.35
2.6 Calibration	2.6.1 Detector Calibration	RWTH	GR	RONGEN, MARTIN	DOM Calibration and R&D				0.20	0.20
2.6 Calibration	2.6.1 Detector Calibration	RWTH	GR	SCHAUFEL, MERLIN	IceAct Hardware R&D				0.10	0.10
2.6 Calibration	2.6.1 Detector Calibration	RWTH	GR	GANSTER, ERIK	IceAct IceCube coincidences				0.20	0.20
2.6 Calibration	2.6.1 Detector Calibration	RWTH	GR	HALVE, LASSE	PMT tests for Mdom				0.20	0.20
2.6 Calibration	2.6.1 Detector Calibration	**Non-US Total**							**2.90**	**2.90**
2.6 Calibration	**2.6.1 Detector Calibration**					**1.05**	**0.55**	**0.85**	**2.90**	**5.35**
2.6 Calibration	2.6.2 Ice Properties	UA	KE	WILLIAMS, DAWN	Supporting flasher runs and flasher analysis			0.10		0.10
2.6 Calibration	2.6.2 Ice Properties	UTA	KE	JONES, BENJAMIN	Ice model uncertainty estimation using multisim MC method			0.20		0.20
2.6 Calibration	2.6.2 Ice Properties	UTA	GR	WATSON, BLAKE	Ice model work with undergradutes			0.50		0.50
2.6 Calibration	2.6.2 Ice Properties	UW	SC	CHIRKIN, DMITRY	Direct photon tracking / ice- properties calibration , Individual DOM hole ice calibration	0.55				0.55

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2.6 Calibration	2.6.2 Ice Properties	UW	GR	GHORBANI, KEVIN	Muon time residuals/hole ice		0.20			0.20
2.6 Calibration	2.6.2 Ice Properties	UWRF	KE	SEUNARINE, SURUJ	Calibration-Flasher Studies			0.10		0.10
2.6 Calibration	2.6.2 Ice Properties	US Total				0.00	0.75	0.90		1.65
2.6 Calibration	2.6.2 Ice Properties	CHIBA	KE	KEIICHI, MASE	Calibration WG co-chair				0.10	0.10
2.6 Calibration	2.6.2 Ice Properties	RWTH	GR	RONGEN, MARTIN	Hole Ice & bulk ice calibration				0.30	0.30
2.5 Software	2.6.2 Ice Properties	SKKU	PO	TOENNIS, CHRISTOPH	Photon tracking / ice-properties calibration				0.20	0.20
2.5 Software	2.6.2 Ice Properties	SKKU	GR	KANG, WOOSIK	Photon tracking / ice-properties calibration				0.20	0.20
2.5 Software	2.6.2 Ice Properties	WUPPERTAL	GR	HOFFMANN, RUTH	Acoustic and radio ice properties				0.20	0.20
2.6 Calibration	2.6.2 Ice Properties	Non-US Total							1.00	1.00
2.6 Calibration	**2.6.2 Ice Properties**					0.00	0.75	0.90	1.00	2.65
2.6 Calibration	**WBS L2 Total**					**1.05**	**1.30**	**1.75**	**3.90**	**8.00**
Grand Total						**35.01**	**6.58**	**18.12**	**35.75**	**95.46**

Changes since last official version are colored red