IceCube M&O Staffing Matrix sort by WBS v18 2015.0422.xls

WBS L2	WBS L3	US / Non-US	Institution	Lab or Cat.	Names	Tasks	Source of Funds (U.S. Only)	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	US	LBNL	KE	KLEIN,SPENCER	Supervise LBNL effort	NSF M&O Core	0.05				0.05
2.1 Program Management	2.1.1 Administration	US	LBNL	KE	KLEIN,SPENCER	Pubcom member	US In-Kind			0.10		0.10
2.1 Program Management	2.1.1 Administration	US	UWRF	KE	MADSEN, JIM	Speakers Comm Chair	US In-Kind			0.25		0.25
2.1 Program Management	2.1.1 Administration	US	UWRF	KE	MADSEN, JIM	Associate Director for E&O	NSF M&O Core	0.25				0.25
2.1 Program Management	2.1.1 Administration	US	MSU	KE	DEYOUNG, TYCE	Deputy Spokesperson	US In-Kind			0.25		0.25
2.1 Program Management	2.1.1 Administration	US	UCB	SC	FILIMONOV, KIRILL	Pubcom member	Base Grants		0.10			0.10
2.1 Program Management	2.1.1 Administration	US	UCB	SC	WOSCHNAGG, KURT	Speakers Comm member	Base Grants		0.10			0.10
2.1 Program Management	2.1.1 Administration	US	UCB	SC	WOSCHNAGG, KURT	Pubcom member	Base Grants		0.10			0.10
2.1 Program Management	2.1.1 Administration	US	UD	KE	GAISSER, TOM	ExecCom member	US In-Kind			0.20		0.20
2.1 Program Management	2.1.1 Administration	US	UD	KE	STANEV, TODOR	Pubcom member	US In-Kind			0.10		0.10
2.1 Program Management	2.1.1 Administration	US	UD	KE	EVENSON, PAUL	Managing solar and heliospheric aspects of IceTop	US In-Kind			0.05		0.05
2.1 Program Management	2.1.1 Administration	US	UMD	KE	SULLIVAN, GREG	ExecCom member	US In-Kind			0.20		0.20
2.1 Program Management	2.1.1 Administration	US	UMD	KE	SULLIVAN, GREG	M&O/Upgrade planning	US In-Kind			0.30		0.30
2.1 Program Management	2.1.1 Administration	US	UMD	SC	BLAUFUSS, ERIK	Analysis Coordinator	Base Grants		0.25			0.25
2.1 Program Management	2.1.1 Administration	US	UMD	SC	BLAUFUSS, ERIK	Analysis Coordinator	NSF M&O Core	0.15				0.15
2.1 Program Management	2.1.1 Administration	US	SBU	KE	KIRYLUK,JOANNA	Simulation Prod. Comm member, ICB member	US In-Kind			0.05		0.05
2.1 Program Management	2.1.1 Administration	US	UW	KE	HALZEN, FRANCIS	Principle Investigator	NSF M&O Core	0.38				0.38
2.1 Program Management	2.1.1 Administration	US	UW	KE	HALZEN, FRANCIS	Principle Investigator	US In-Kind			0.12		0.12
2.1 Program Management	2.1.1 Administration	US	UW	KE	KARLE, ALBRECHT	Associate Director for Science	NSF M&O Core	0.38				0.38
2.1 Program Management	2.1.1 Administration	US	UW	KE	KARLE, ALBRECHT	ExecCom member	US In-Kind			0.20		0.20
2.1 Program Management	2.1.1 Administration	US	UW	KE	HANSON, KAEL	Director of IceCube Maintenance and Operations	NSF M&O Core	0.75				0.75
2.1 Program Management	2.1.1 Administration	US	UW	SC	DESIATI, PAOLO	Coordination Committee chair	NSF M&O Core	0.20				0.20
2.1 Program Management	2.1.1 Administration	US	UW	KE	VANDENBROUCKE, JU	Pubcom member	US In-Kind			0.10		0.10
2.1 Program Management	2.1.1 Administration	US	UW	MA	MERINO, GONZALO	Computing Infrastructure Manager	NSF M&O Core	1.00				1.00
2.1 Program Management	2.1.1 Administration	US	UW	MA	PELES, ADI	Resource Coordinator	NSF M&O Core	0.15				0.15
2.1 Program Management	2.1.1 Administration	US	UW	AD	VAKHNINA, CATHERIN	Resource Coordinator	NSF M&O Core	0.75				0.75
2.1 Program Management	2.1.1 Administration	**US**	**US Total**					**4.06**	**0.55**	**1.92**		**6.53**
2.1 Program Management	2.1.1 Administration	Non-US	ALBERTA	KE	GRANT, DARREN	Pubcom Chair	Non-US In-kind				0.25	0.25
2.1 Program Management	2.1.1 Administration	Non-US	DESY	KE	KOWALSKI, MAREK	ExecCom member	Non-US In-kind				0.20	0.20
2.1 Program Management	2.1.1 Administration	Non-US	DESY	KE	ACKERMANN, MARKU	PubCom member	Non-US In-kind				0.10	0.10
2.1 Program Management	2.1.1 Administration	Non-US	DPNC	KE	MONTARULI, TERESA	ICB Member, UHECR'neutrino coordinator	Non-US In-kind				0.20	0.20
2.1 Program Management	2.1.1 Administration	Non-US	ERLANGEN	KE	KAPPES, ALEXANDER	Pubcom member	Non-US In-kind				0.10	0.10
2.1 Program Management	2.1.1 Administration	Non-US	ERLANGEN	KE	KAPPES, ALEXANDER	ExecCom member	Non-US In-kind				0.20	0.20
2.1 Program Management	2.1.1 Administration	Non-US	NBI	KE	KOSKINEN, JASON	Fall Collaboration Meeting	Non-US In-kind				0.10	0.10
2.1 Program Management	2.1.1 Administration	Non-US	SU	KE	FINLEY, CHAD	ICB Member	Non-US In-kind				0.05	0.05
2.1 Program Management	2.1.1 Administration	Non-US	SU	KE	HULTQVIST, KLAS	ICB Member	Non-US In-kind				0.05	0.05
2.1 Program Management	2.1.1 Administration	Non-US	SU	KE	FINLEY, CHAD	Coordination with LIGO	Non-US In-kind				0.10	0.10
2.1 Program Management	2.1.1 Administration	Non-US	SU	KE	WALCK, CHRISTIAN	Publications Bookkeeping	Non-US In-kind				0.10	0.10
2.1 Program Management	2.1.1 Administration	Non-US	UC	KE	ADAMS, JENNI	ICB Member	Non-US In-kind				0.05	0.05
2.1 Program Management	2.1.1 Administration	Non-US	UOX	KE	SARKAR, SUBIR	Pubcom member	Non-US In-kind				0.10	0.10
2.1 Program Management	2.1.1 Administration	Non-US	UU	KE	BOTNER, OLGA	Spokesperson	Non-US In-kind				0.30	0.30
2.1 Program Management	2.1.1 Administration	Non-US	UU	KE	BOTNER, OLGA	ExecCom member	Non-US In-kind				0.20	0.20
2.1 Program Management	2.1.1 Administration	Non-US	UU	KE	DE LOS HEROS, CARL	Pubcom member	Non-US In-kind				0.10	0.10
2.1 Program Management	2.1.1 Administration	Non-US	UU	KE	HALLGREN, ALLAN	Speakers Comm member	Non-US In-kind				0.10	0.10

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WBS L2	WBS L3	US / Non-US	Institution	Lab or Cat.	Names	Tasks	Source of Funds (U.S. Only)	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	Non-US	VUB	KE	DE CLERCQ, CATHERI	Institutional Lead	Non-US In-kind				0.20	0.20
2.1 Program Management	2.1.1 Administration	Non-US	WUPPERTAL	KE	HELBING, KLAUS	Speakers Comm member	Non-US In-kind				0.10	0.10
2.1 Program Management	2.1.1 Administration	Non-US	RWTH	KE	WIEBUSCH, CHRISTOF	ExecCom member	Non-US In-kind				0.20	0.20
2.1 Program Management	2.1.1 Administration	Non-US	RWTH	KE	WIEBUSCH, CHRISTOF	Pubcom member	Non-US In-kind				0.10	0.10
2.1 Program Management	2.1.1 Administration	Non-US	MAINZ	KE	KOPKE, LUTZ	Supernova group Co-Chair	Non-US In-kind				0.25	0.25
2.1 Program Management	2.1.1 Administration	**Non-US**	**Non-US Total**								**3.15**	**3.15**
2.1 Program Management	**2.1.1 Administration**	**WBS L3**						**4.06**	**0.55**	**1.92**	**3.15**	**9.68**
2.1 Program Management	2.1.2 Engineering And R&D Support	US	PSU	KE	COWEN, DOUG	PINGU Co-Lead	US In-Kind			0.35		0.35
2.1 Program Management	2.1.2 Engineering And R&D Support	US	OSU	KE	BEATTY, JAMES	PINGU Electronics and Calibration Development	US In-Kind			0.10		0.10
2.1 Program Management	2.1.2 Engineering And R&D Support	US	OSU	PO	ANDERSON, TYLER	PINGU Electronics and Calibration Development	US In-Kind			0.25		0.25
2.1 Program Management	2.1.2 Engineering And R&D Support	US	UMD	KE	HOFFMAN, KARA	Detector R&D	US In-Kind			0.20		0.20
2.1 Program Management	2.1.2 Engineering And R&D Support	US	UMD	GR	SONG, MING	Detector R&D	Base Grants		0.50			0.50
2.1 Program Management	2.1.2 Engineering And R&D Support	US	UW	SC	DUVERNOIS, MICHAEL	Specialized simulations, designing new filters, unusual data selections, extracting specialized information	NSF M&O Core	0.25				0.25
2.1 Program Management	2.1.2 Engineering And R&D Support	US	UW	SC	DUVERNOIS, MICHAEL	Ongoing EMI studies & mitigation, South Pole & Northern test site instrumentation, Summer South Pole field work	NSF M&O Core	0.25				0.25
2.1 Program Management	2.1.2 Engineering And R&D Support	US	UW	EN	MEURES, THOMAS	Engineering Support: IceCube Lab Summer operations, cabling, & instrumentation testing	NSF M&O Core	0.80				0.80
2.1 Program Management	2.1.2 Engineering And R&D Support	US	UW	EN	SANDSTROM, PERRY	Ongoing EMI studies & mitigation, South Pole & Northern test site instrumentation, In-field work	NSF M&O Core	0.15				0.15
2.1 Program Management	2.1.2 Engineering And R&D Support	US	UW	EN	SANDSTROM, PERRY	Engineering Support: IceCube Lab Summer operations, fieldwork management, design of the pDOM, GPS maintenance	NSF M&O Core	0.75				0.75
2.1 Program Management	2.1.2 Engineering And R&D Support	US	UW	MA	HAUGEN, JAMES	Engineering Support: logistics, northern hemisphere testing, & vendor management	NSF M&O Core	0.55				0.55
2.1 Program Management	2.1.2 Engineering And R&D Support	US	Yale	KE	MARUYAMA, REINA	Gen2 R&D	US In-Kind			0.05		0.05
2.1 Program Management	2.1.2 Engineering And R&D Support	**US**	**US Total**					**2.75**	**0.50**	**0.95**		**4.20**
2.1 Program Management	2.1.2 Engineering And R&D Support	Non-US	DESY	KE	NAHNHAUER, ROLF	Surface electronics, Optical detector R&D	Non-US In-kind				0.10	0.10
2.1 Program Management	2.1.2 Engineering And R&D Support	Non-US	DESY	KE	KARG, TIMO	Surface electronics, Optical detector R&D	Non-US In-kind				0.10	0.10
2.1 Program Management	2.1.2 Engineering And R&D Support	Non-US	DESY	SC	YANEZ, JUAN-PABLO	Optical detector R&D	Non-US In-kind				0.10	0.10
2.1 Program Management	2.1.2 Engineering And R&D Support	Non-US	ALBERTA	KE	GRANT, DARREN	PINGU Co-Lead	Non-US In-kind				0.35	0.35
2.1 Program Management	2.1.2 Engineering And R&D Support	Non-US	ALBERTA	KE	KOPPER, CLAUDIO	Lead in-ice high-energy extension	Non-US In-kind				0.35	0.35
2.1 Program Management	2.1.2 Engineering And R&D Support	Non-US	ERLANGEN	GR	TSELENGEDOU, MARI	Implementation of mDOM simulation into IceTray	Non-US In-kind				0.20	0.20

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2.1 Program Management	2.1.2 Engineering And R&D Support	Non-US	HUMBOLDT	GR	HEBECKER, DUSTIN	Optical detector calibration & R&D	Non-US In-kind				0.10	0.10
2.1 Program Management	2.1.2 Engineering And R&D Support	Non-US	MAINZ	PO	BOSSER, SEBASTIAN	PINGU software coordinator	Non-US In-kind				0.25	0.25
2.1 Program Management	2.1.2 Engineering And R&D Support	Non-US	RWTH	PO	AUFFENBERG, JAN	IceVeto R&D and coordination	Non-US In-kind				0.20	0.20
2.1 Program Management	2.1.2 Engineering And R&D Support	Non-US	RWTH	PO	AUFFENBERG, JAN	IceAct R&D	Non-US In-kind				0.20	0.20
2.1 Program Management	2.1.2 Engineering And R&D Support	Non-US	RWTH	PO	AUFFENBERG, JAN	IceVeto Performance & Simulation	Non-US In-kind				0.10	0.10
2.1 Program Management	2.1.2 Engineering And R&D Support	Non-US	RWTH	GR	LEIF, RÄDEL	IceAct commissioning	Non-US In-kind				0.10	0.10
2.1 Program Management	2.1.2 Engineering And R&D Support	Non-US	RWTH	GR	SCHOENEN, SEBASTIA	IceAct comissioning	Non-US In-kind				0.10	0.10
2.1 Program Management	2.1.2 Engineering And R&D Support	Non-US	RWTH	GR	RONGEN, MARTIN	Acoustic R&D Support	Non-US In-kind				0.10	0.10
2.1 Program Management	2.1.2 Engineering And R&D Support	Non-US	SKKU	PO	BOSE, DEBANJAN	Reconstruction tools	Non-US In-kind				0.15	0.15
2.1 Program Management	2.1.2 Engineering And R&D	Non-US	ULB	PO	O'MURCHADHA, AONG	EMI Measurements	Non-US In-kind				0.10	0.10
2.1 Program Management	2.1.2 Engineering And R&D	Non-US	GENT	SC	UGENT SC	Acoustic R&D Support	Non-US In-kind				0.05	0.05
2.1 Program Management	2.1.2 Engineering And R&D	Non-US	GENT	GR	UGENT GR	Acoustic R&D Support	Non-US In-kind				0.05	0.05
2.1 Program Management	2.1.2 Engineering And R&D Support	**Non-US**	**Non-US Total**								**2.70**	**2.70**
2.1 Program Management	**2.1.2 Engineering And R&D**	**WBS L3**						**2.75**	**0.50**	**0.95**	**2.70**	**6.90**
2.1 Program Management	2.1.3 Usap Support	US	UW	MA	HAUGEN, JAMES	USAP Support: yearly sip, coordination with contractor (ASC)	NSF M&O Core	0.25				0.25
2.1 Program Management	2.1.3 Usap Support	**US**	**US Total**					**0.25**				**0.25**
2.1 Program Management	**2.1.3 Usap Support**	**WBS L3**						**0.25**				**0.25**
2.1 Program Management	2.1.4 Education & Outreach	US	PSU	KE	COWEN, DOUG	Education & Outreach	US In-Kind			0.05		0.05
2.1 Program Management	2.1.4 Education & Outreach	US	MSU	KE	DEYOUNG, TYCE	Education & Outreach	US In-Kind			0.05		0.05
2.1 Program Management	2.1.4 Education & Outreach	US	SDSMT	KE	XINHUA, BAI	Education & Outreach	US In-Kind			0.05		0.05
2.1 Program Management	2.1.4 Education & Outreach	US	UCB	KE	PRICE, BUFORD	Education & Outreach	US In-Kind			0.10		0.10
2.1 Program Management	2.1.4 Education & Outreach	US	UD	PO	DEMBINSKI, HANS	MasterClass lead	US In-Kind			0.10		0.10
2.1 Program Management	2.1.4 Education & Outreach	US	UMD	KE	UMD KE	Education & Outreach	US In-Kind			0.10		0.10
2.1 Program Management	2.1.4 Education & Outreach	US	UW	AD	BRAVO GALLART, SILV	Education & Outreach	NSF M&O Core	0.25				0.25
2.1 Program Management	2.1.4 Education & Outreach	US	UW	AD	Madsen, Megan	Education & Outreach Coordination	NSF M&O Core	0.75				0.75
2.1 Program Management	2.1.4 Education & Outreach	US	UWRF	KE	MADSEN, JIM	Teachers program and UWRF Upward Bound	NSF M&O Core	0.10				0.10
2.1 Program Management	2.1.4 Education & Outreach	**US**	**US Total**					**1.10**	**0.00**	**0.45**		**1.55**
2.1 Program Management	2.1.4 Education & Outreach	Non-US	NBI	KE	KOSKINEN, JASON	MasterClass (IceCube and NBI)	Non-US In-kind				0.10	0.10
2.1 Program Management	2.1.4 Education & Outreach	Non-US	NBI	GR	MEDICI, MORTEN	MasterClass (IceCube and NBI)	Non-US In-kind				0.10	0.10
2.1 Program Management	2.1.4 Education & Outreach	Non-US	UU	KE	HALLGREN, ALLAN	Education & Outreach	Non-US In-kind				0.05	0.05
2.1 Program Management	2.1.4 Education & Outreach	Non-US	UU	KE	BOTNER, OLGA	Education & Outreach	Non-US In-kind				0.05	0.05
2.1 Program Management	2.1.4 Education & Outreach	Non-US	SKKU	KE	ROTT, CARSTEN	Education & Outreach	Non-US In-kind				0.05	0.05
2.1 Program Management	2.1.4 Education & Outreach	**Non-US**	**Non-US Total**								**0.35**	**0.35**
2.1 Program Management	**2.1.4 Education & Outreach**	**WBS L3**						**1.10**	**0.00**	**0.45**	**0.35**	**1.90**
2.1 Program Management	**WBS L2 Total**							**8.16**	**1.05**	**3.32**	**6.20**	**18.73**
2.2 Detector Operations & M	2.2 Detector Operations & Maintenance	US	UW	SC	KELLEY, JOHN	Detector Maintenance and Operations Manager	NSF M&O Core	0.70				0.70
2.2 Detector Operations & M	2.2 Detector Operations & Maintenance	US	UMD	SC	OLIVAS, ALEX	SW Coordinator – Detector M&O	NSF M&O Core	0.45				0.45
2.2 Detector Operations & M	2.2 Detector Operations & Maintenance	**US**	**US Total**					**1.15**	**0.00**	**0.00**		**1.15**
2.2 Detector Operations & M	2.2 Detector Operations & Maintenance	Non-US	UMH	GR	KOHNEN, GEORGES	Database Coordinator	Non-US In-kind				0.10	0.10
2.2 Detector Operations & M	2.2 Detector Operations & Maintenance	**Non-US**	**Non-US Total**								**0.10**	**0.10**
2.2 Detector Operations & M	**2.2 Detector Operations & Main**	**WBS L3 Total**						**1.15**	**0.00**	**0.00**	**0.10**	**1.25**
2.2 Detector Operations & M	2.2.1 Run Coordination	US	UW	IT	Auer, Ralf	Winterovers coordinator, hiring and training of winterovers	NSF M&O Core	0.25				0.25
2.2 Detector Operations & M	2.2.1 Run Coordination	US	UW	PO	KAUER, MATTHEW	Run Coordinator	NSF M&O Core	0.40				0.40

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2.2 Detector Operations & M	2.2.1 Run Coordination	US	UW	WO	UW Winter Overs	Operate Detector (Winter-Overs)	NSF M&O Core	3.00				3.00
2.2 Detector Operations & M	2.2.1 Run Coordination	**US**	**US Total**					**3.65**	**0.00**	**0.00**	**0.00**	**3.65**
2.2 Detector Operations & M	2.2.1 Run Coordination	**Non-US**	**Non-US Total**								**0.00**	**0.00**
2.2 Detector Operations & M	**2.2.1 Run Coordination**	**WBS L3**						**3.65**	**0.00**	**0.00**	**0.00**	**3.65**
2.2 Detector Operations & M	2.2.2 Data Acquisition	US	LBNL	EN	STEZELBERGER,THOF	Maintain DAQ Hardware (Hubs, DOR, Clocks, GPS,...)	NSF M&O Core	0.15				0.15
2.2 Detector Operations & M	2.2.2 Data Acquisition	US	PSU	SC	ANDERSON, TYLER	DAQ Firmware Development	NSF M&O Core	0.23				0.23
2.2 Detector Operations & M	2.2.2 Data Acquisition	US	PSU	GR	PANKOVA, DARIA	DAQ electronics hardware and firmware	US In-Kind			0.47		0.47
2.2 Detector Operations & M	2.2.2 Data Acquisition	US	UD	KE	SECKEL, DAVID	DAQ Monitoring	US In-Kind			0.05		0.05
2.2 Detector Operations & M	2.2.2 Data Acquisition	US	UW	SC	KELLEY, JOHN	DOM software: DOR device driver, DOMHub scripts, DOMCal	NSF M&O Core	0.10				0.10
2.2 Detector Operations & M	2.2.2 Data Acquisition	US	UW	SC	KELLEY, JOHN	Track DOM issues, generate detector run configurations	NSF M&O Core	0.10				0.10
2.2 Detector Operations & M	2.2.2 Data Acquisition	US	UW	CS	FRERE, MICHAEL	Maintain DAQ Software Systems (IceCube Live) and track changes with time in the detector	NSF M&O Core	1.00				1.00
2.2 Detector Operations & M	2.2.2 Data Acquisition	US	UW	CS	GLOWACKI, DAVID	Maintain DAQ Software Systems (incl. triggers, up to Event Builder) and track changes with time in the	NSF M&O Core	1.00				1.00
2.2 Detector Operations & M	2.2.2 Data Acquisition	US	UW	CS	BRAUN, JAMES	IceCube LiveControl: experiment control software	NSF M&O Core	0.50				0.50
2.2 Detector Operations & M	2.2.2 Data Acquisition	US	UW	CS	BENDFELT, TIMOTHY	Maintain DAQ Software Systems experiment control and monitoring, DOM and DOMhub software) and track changes with time in the	NSF M&O Core	0.75				0.75
2.2 Detector Operations & M	2.2.2 Data Acquisition	US	UW	CS	BENDFELT, TIMOTHY	IceCube DAQ: supernova interface, hitspooling	NSF M&O Core	0.25				0.25
2.2 Detector Operations & M	2.2.2 Data Acquisition	**US**	**US Total**					**4.08**	**0.00**	**0.52**		**4.60**
2.2 Detector Operations & M	2.2.2 Data Acquisition	Non-US	ULB	GR	HEEREMAN, DAVID	Develop Hit Spooling for Supernova & others	Non-US In-kind				0.50	0.50
2.2 Detector Operations & M	2.2.2 Data Acquisition	Non-US	ULB	GR	PINAT, ELISA	Data Acquisition	Non-US In-kind				0.50	0.50
2.2 Detector Operations & M	2.2.2 Data Acquisition	Non-US	VUB	GR	DeWasseige, Gwen	Detector Noise Studies	Non-US In-kind				0.00	0.00
2.2 Detector Operations & M	2.2.2 Data Acquisition	**Non-US**	**Non-US Total**								**1.00**	**1.00**
2.2 Detector Operations & M	**2.2.2 Data Acquisition**	**WBS L3**						**4.08**	**0.00**	**0.52**	**1.00**	**5.60**
2.2 Detector Operations & M	2.2.3 Online Filter (Pnf)	US	UMD	SC	BLAUFUSS, ERIK	Maintain PnF S/W and Online Filters	NSF M&O Core	0.20				0.20
2.2 Detector Operations & M	2.2.3 Online Filter (Pnf)	US	UMD	CS	Schmidt, Torsten	Maintain PnF Software and Online Filters	NSF M&O Core	0.00				0.00
2.2 Detector Operations & M	2.2.3 Online Filter (Pnf)	US	UMD	GR	MAUNU, RYAN	Online Filter Testing	Base Grants		0.13			0.13
2.2 Detector Operations & M	2.2.3 Online Filter (Pnf)	US	UMD	GR	CHEUNG, ELIM	Online Filter Testing	Base Grants		0.13			0.13
2.2 Detector Operations & M	2.2.3 Online Filter (Pnf)	**US**	**US Total**					**0.20**	**0.25**	**0.00**		**0.45**
2.2 Detector Operations & M	**2.2.3 Online Filter (Pnf)**	**WBS L3**						**0.20**	**0.25**	**0.00**		**0.45**
2.2 Detector Operations & M	2.2.4 Sps Operations	US	UW	IT	Auer, Ralf	Maintain South Pole Computing H/W Infrastructure and operating	NSF M&O Core	0.50				0.50
2.2 Detector Operations & M	2.2.4 Sps Operations	US	UW	IT	WISNIEWSKI, PAUL	Networking and Security Maintenance	NSF M&O Core	0.25				0.25
2.2 Detector Operations & M	2.2.4 Sps Operations	**US**	**US Total**					**0.75**	**0.00**	**0.00**		**0.75**
2.2 Detector Operations & M	**2.2.4 Sps Operations**	**WBS L3**						**0.75**	**0.00**	**0.00**		**0.75**
2.2 Detector Operations & M	2.2.5 Spts Operations	US	UW	IT	Auer, Ralf	Maintain South Pole Computing H/W Infrastructure and operating	NSF M&O Core	0.25				0.25
2.2 Detector Operations & M	2.2.5 Spts Operations	**US**	**US Total**					**0.25**	**0.00**	**0.00**	**0.00**	**0.25**
2.2 Detector Operations & M	**2.2.5 Spts Operations**	**WBS L3**						**0.25**	**0.00**	**0.00**		**0.25**

IceCube M&O Staffing Matrix sort by WBS v18 2015.0422.xls

WBS L2	WBS L3	US / Non-US	Institution	Lab or Cat.	Names	Tasks	Source of Funds (U.S. Only)	NSF M&O Core	NSF Base Grants	U.S. Institutional In-Kind	Europe & Asia Pacific In-Kind	Grand Total
2.2 Detector Operations & M	2.2.6 Experiment Control	US	UW	CS	BURRESON, COLIN	IceCube LiveControl: experiment control software	NSF M&O Core	0.25				0.25
2.2 Detector Operations & M	2.2.6 Experiment Control	**US**	**US Total**					**0.25**	**0.00**	**0.00**		**0.25**
2.2 Detector Operations & M	**2.2.6 Experiment Control**	**WBS L3**						**0.25**	**0.00**	**0.00**		**0.25**
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	CAU	KE	JAPARIDZE, GEORGE	Monitoring shifts	US In-Kind			0.02		0.02
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	GTECH	GR	CASEY, JAMES	Monitoring shifts	Base Grants		0.03			0.03
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	KU	KE	BESSON, DAVE	Monitoring shifts	US In-Kind			0.02		0.02
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	SBU	KE	KIRYLUK,JOANNA	BadDoms	US In-Kind			0.05		0.05
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	SBU	PO	~~LESIAK-BZDAK, MARIOLA~~	Detector Monitoring	Base Grants					0.00
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	SBU	GR	YIQIAN XU	Detector Monitoring	Base Grants		0.05			0.05
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	SBU	GR	NIEDERHAUSEN, HANS	Moni 2.0 software development	Base Grants		0.15			0.15
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	LBNL	PO	TATAR, JOULIEN	Monitoring shifts	Base Grants		0.09			0.09
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	MSU	PO	JOAO PEDRO DE AND	Monitoring shifts	Base Grants		0.03			0.03
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	MSU	GR	NEER, GARRETT	Monitoring shifts	Base Grants		0.03			0.03
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	PSU	PO	ARLEN, TIM	Monitoring shifts	Base Grants		0.03			0.03
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	PSU	GR	HUANG, FEIFEI	Monitoring shifts	Base Grants		0.03			0.03
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	PSU	GR	LANFRANCHI, JUSTIN	Monitoring shifts	US In-Kind			0.03		0.03
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	PSU	GR	PANKOVA, DARIA	Monitoring shifts	US In-Kind			0.03		0.03
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	SDSMT	GR	DVORAK, EMILY	Monitoring shifts	US In-Kind			0.05		0.05
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	SUBR	KE	TER-ANTONYAN, SAM	Detector Monitoring	US In-Kind			0.02		0.02
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	UA	GR	PEPPER, JAMES	Monitoring shifts	Base Grants		0.05			0.05
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	UAA	KE	RAWLINS, KATHERINE	Monitoring shifts	US In-Kind			0.02		0.02
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	UCB	SC	FILIMONOV, KIRILL	Coordinate Monitoring	Base Grants		0.25			0.25
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	UCB	SC	UCB SC	Monitoring shifts	Base Grants		0.02			0.02
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	UCI	KE	BARWICK, STEVE	Monitoring shifts	US In-Kind			0.01		0.01
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	UCI	GR	HANSON, JORDAN	Monitoring shifts	US In-Kind			0.01		0.01
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	UMD	GR	UMD GR	Monitoring shifts	Base Grants		0.06			0.06
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	UW	PO	KAUER, MATTHEW	IceCube Monitoring Lead	NSF M&O Core	0.20				0.20
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	UW	CS	BURRESON, COLIN	~~IceCube Live monitoring system: web interface~~	NSF M&O Core	0.75				0.75
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	UW	PO	UW PO	Monitoring shifts	Base Grants		0.08			0.08
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	UW	GR	UW GR	Monitoring shifts	Base Grants		0.12			0.12
2.2 Detector Operations & M	2.2.7 Detector Monitoring	US	Yale	PO	Matthew Kauer	Monitoring shifts	US In-Kind			0.05		0.05
2.2 Detector Operations & M	2.2.7 Detector Monitoring	**US**	**US Total**					**0.95**	**1.02**	**0.30**		**2.27**
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	CHIBA	GR	CHIBA GR	Detector Monitoring	Non-US In-kind				0.03	0.03
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	DESY	SC	DESY SC	Detector Monitoring	Non-US In-kind				0.05	0.05
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	DESY	GR	DESY GR	Detector Monitoring	Non-US In-kind				0.12	0.12
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	DTMND	GR	DTMD GR	Detector Monitoring	Non-US In-kind				0.03	0.03
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	TUM	GR	MPI GR	Detector Monitoring	Non-US In-kind				0.05	0.05
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	RWTH	GR	RONGEN, MARTIN	Monitoring contact	Non-US In-kind				0.05	0.05
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	RWTH	GR	RWTH GR	Monitoring (4 weeks)	Non-US In-kind				0.12	0.12
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	SKKU	GR	IN, SEONGJUN	Detector Monitoring	Non-US In-kind				0.03	0.03
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	SU	GR	SU GR	Detector Monitoring	Non-US In-kind				0.06	0.06
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	UC	KE	ADAMS, JENNI	Detector Monitoring	Non-US In-kind				0.05	0.05
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	ULB	GR	ULB GR	Detector Monitoring	Non-US In-kind				0.12	0.12
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	UOX	KE	SARKAR, SUBIR	Detector Monitoring	Non-US In-kind				0.02	0.02
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	UU	GR	UNGER, LISA	Tools development	Non-US In-kind				0.10	0.10
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	UU	GR	BURGMAN, ALEXANDE	Monitoring Shifts	Non-US In-kind				0.03	0.03
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	VUB	PO	VUB PO	Monitoring shifts	Non-US In-kind				0.06	0.06
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	VUB	GR	VUB GR	Monitoring shifts	Non-US In-kind				0.06	0.06
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	WUPPERTAL	GR	WUPPERTAL GR	South Pole EMI Monitoring	Non-US In-kind				0.15	0.15
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	WUPPERTAL	GR	WUPPERTAL GR	SPATS	Non-US In-kind				0.35	0.35
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	MAINZ	GR	UM GR	Detector Monitoring	Non-US In-kind				0.05	0.05
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	GENT	GR	UGENT GR	Detector Monitoring	Non-US In-kind				0.03	0.03
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	DPNC	GR	ASEN, CHRISTOV	Detector Monitoring	Non-US In-kind				0.10	0.10
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	DPNC	GR	RAAMEZ MOHAMED	Detector Monitoring	Non-US In-kind				0.10	0.10
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	BOCHUM	GR	KROLL, MIKE	Detector Monitoring	Non-US In-kind				0.03	0.03

WBS L2	WBS L3	US / Non-US	Institution	Lab or Cat.	Names	Tasks	Source of Funds (U.S. Only)	NSF M&O Core	NSF Base Grants	U.S. Institutional In-Kind	Europe & Asia Pacific In-Kind	Grand Total
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	NBI	GR	LARSON, MICHAEL	Monitoring shifts	Non-US In-kind				0.03	0.03
2.2 Detector Operations & M	2.2.7 Detector Monitoring	Non-US	NBI	GR	MEDICI, MORTEN	Monitoring shifts	Non-US In-kind				0.03	0.03
2.2 Detector Operations & M	2.2.7 Detector Monitoring	**Non-US**	**Non-US Total**								**1.85**	**1.85**
2.2 Detector Operations & M	**2.2.7 Detector Monitoring**	**WBS L3**						**0.95**	**1.02**	**0.30**	**1.85**	**4.12**
2.2 Detector Operations & M	2.2.8 Detector Calibration	US	GTECH	GR	CASEY, JAMES	Cable shadowing	Base Grants		0.20			0.20
2.2 Detector Operations & M	2.2.8 Detector Calibration	US	UA	KE	WILLIAMS, DAWN	Managing flasher runs coordinating low level calibration effort	NSF M&O Core	0.20				0.20
2.2 Detector Operations & M	2.2.8 Detector Calibration	US	UA	PO	PALCZEWSKI, TOMASZ	SPE recalibration	Base Grants		0.10			0.10
2.2 Detector Operations & M	2.2.8 Detector Calibration	US	UA	PO	PALCZEWSKI, TOMASZ	Domcal monthly vetting	Base Grants		0.05			0.05
2.2 Detector Operations & M	2.2.8 Detector Calibration	US	UA	GR	PEPPER, JAMES	IceCube Live C&V	Base Grants		0.05			0.05
2.2 Detector Operations & M	2.2.8 Detector Calibration	US	UW	SC	WENDT, CHRISTOPHE	Flasher output, flasher calibration	NSF M&O Core	0.20				0.20
2.2 Detector Operations & M	2.2.8 Detector Calibration	US	UW	SC	WENDT, CHRISTOPHE	Absolute DOM sensitivity calibration (laboratory measurements)	NSF M&O Core	0.40				0.40
2.2 Detector Operations & M	2.2.8 Detector Calibration	US	UW	SC	WENDT, CHRISTOPHE	DOM charge response, linearity, DOM calibration support	NSF M&O Core	0.20				0.20
2.2 Detector Operations & M	2.2.8 Detector Calibration	US	UW	SC	TOSI, DELIA	Absolute DOM sensitivity calibration (laboratory measurements)	NSF M&O Core	0.30				0.30
2.2 Detector Operations & M	2.2.8 Detector Calibration	**US**	**US Total**					**1.30**	**0.40**	**0.00**		**1.70**
2.2 Detector Operations & M	2.2.8 Detector Calibration	Non-US	RWTH	GR	RONGEN, MARTIN	Gen2 DOM Calibration and R&D	Non-US In-kind				0.20	0.20
2.2 Detector Operations & M	2.2.8 Detector Calibration	**Non-US**	**Non-US Total**								**0.20**	**0.20**
2.2 Detector Operations & M	**2.2.8 Detector Calibration**	**WBS L3**						**1.30**	**0.40**	**0.00**	**0.20**	**1.90**
2.2 Detector Operations & M	2.2.9 Icetop Operations	US	UD	SC	TILAV, SERAP	Coordinate IceTop Operations	NSF M&O Core	1.00				1.00
2.2 Detector Operations & M	2.2.9 Icetop Operations	US	UW	SC	TOSI, DELIA	IceTop maintenance	NSF M&O Core	0.20				0.20
2.2 Detector Operations & M	2.2.9 Icetop Operations	US	UW	SC	KAUER, MATTHEW	Cosmic Ray Surface Array Development	NSF M&O Core	0.20				0.20
2.2 Detector Operations & M	2.2.9 Icetop Operations	**US**	**US Total**					**1.40**	**0.00**	**0.00**		**1.40**
2.2 Detector Operations & M	**2.2.9 Icetop Operations**	**WBS L3**						**1.40**	**0.00**	**0.00**	**0.00**	**1.40**
2.2 Detector Operations & M	2.2.10 Supernova Operations	US	Yale	KE	MARUYAMA, REINA	Supernova DAQ	US In-Kind			0.05		0.05
2.2 Detector Operations & M	2.2.10 Supernova Operations	**US**	**US Total**					**0.00**	**0.00**	**0.05**	**0.00**	**0.05**
2.2 Detector Operations & M	2.2.10 Supernova Operations	Non-US	MAINZ	GR	EBERHARD, BENJAMIN	SuperNova Operations	Non-US In-kind				0.20	0.20
2.2 Detector Operations & M	2.2.10 Supernova Operations	Non-US	MAINZ	GR	BAUM, VOLKER	SuperNova Operations	Non-US In-kind				0.25	0.25
2.2 Detector Operations & M	2.2.10 Supernova Operations	**Non-US**	**Non-US Total**								**0.45**	**0.45**
2.2 Detector Operations & M	**2.2.10 Supernova Operations**	**WBS L3**						**0.00**	**0.00**	**0.05**	**0.45**	**0.50**
2.2 Detector Operations &	**WBS L2 Total**							**13.98**	**1.67**	**0.87**	**3.60**	**20.12**
2.3 Computing And Data Ma	2.3.1 Core Software	US	UA	PO	PALCZEWSKI, TOMASZ	Software strike team, lead on domcal-related software	Base Grants		0.25			0.25
2.3 Computing And Data Ma	2.3.1 Core Software	US	UMD	GR	HELLAUER, ROBERT	Core Software	Base Grants		0.13			0.13
2.3 Computing And Data Ma	2.3.1 Core Software	US	UMD	CS	Schmidt, Torsten	Maintain Core Analysis Framework (IceTray)	NSF M&O Core	0.50				0.50
2.3 Computing And Data Ma	2.3.1 Core Software	US	UMD	CS	Ladieu, Don	Maintain Core Analysis Framework (IceTray)	NSF M&O Core	0.75				0.75
2.3 Computing And Data Ma	2.3.1 Core Software	US	UMD	SC	OLIVAS, ALEX	SW Coordinator – Core Software	NSF M&O Core	0.20				0.20
2.3 Computing And Data Ma	2.3.1 Core Software	US	UMD	SC	OLIVAS, ALEX	Support Core Software				0.10		0.10
2.3 Computing And Data Ma	2.3.1 Core Software	US	UMD	CS	UMD CS	Maintain Core Software Repository	NSF M&O Core	0.00				0.00
2.3 Computing And Data Ma	2.3.1 Core Software	US	UW	DH	DIAZ-VELEZ, JUAN CARLOS	Simulation production & data processing software framework (IceProd), and simulation programs (detector response)	NSF M&O Core	0.80				0.80

WBS L2	WBS L3	US / Non-US	Institution	Labor Cat.	Names	Tasks	Source of Funds (U.S. Only)	NSF M&O Core	NSF Base Grants	U.S. Institutional In-Kind	Europe & Asia Pacific In-Kind	Grand Total
2.3 Computing And Data Ma	2.3.1 Core Software	US	UW	CS	BRAUN, JAMES	Analysis Software support	NSF M&O Core	0.50				0.50
2.3 Computing And Data Ma	2.3.1 Core Software	US	UW	DH	FADIRAN, OLADIPO	Maintain Data Processing Software	NSF M&O Core	0.20				0.20
2.3 Computing And Data Ma	2.3.1 Core Software	**US**	**US Total**					**2.95**	**0.38**	**0.10**		**3.43**
2.3 Computing And Data Ma	2.3.1 Core Software	**Non-US**	**Non-US Total**									**0.00**
2.3 Computing And Data Ma	**2.3.1 Core Software**	**WBS L3**						**2.95**	**0.38**	**0.10**	**0.00**	**3.43**
2.3 Computing And Data Ma	2.3.2 Data Storage & Transfer	US	UW	DH	FADIRAN, OLADIPO	Transformation of Data for Long-Term Persistence and Archival. Maintain Data Warehouse Standards, Software (Ingest), Data Access (FTP), and Web Interface	NSF M&O Core	0.20				0.20
2.3 Computing And Data Ma	2.3.2 Data Storage & Transfer	US	UW	IT	RICHARDS, JOHN	Maintain and Operate Data Storage Infrastructure	NSF M&O Core	1.00				1.00
2.3 Computing And Data Ma	2.3.2 Data Storage & Transfer	US	UW	IT	BELLINGER, JIM	Maintain and Operate Data Storage Infrastructure	NSF M&O Core	0.75				0.75
2.3 Computing And Data Ma	2.3.2 Data Storage & Transfer	US	UW	PO	WANDKOWSKY, NANC	Analysis disk Data storage review, data filters	Base Grants		0.15			0.15
2.3 Computing And Data Ma	2.3.2 Data Storage & Transfer	US	UW	CS	MEADE, PATRICK	Transfer Data from S. Pole to UW Data Warehouse and Archive at S. Pole. Maintain Data Transfer SW (SPADE). Maintain Data Warehouse Standards, Software (Ingest), Data Access (FTP), and Web Interface	NSF M&O Core	0.50				0.50
2.3 Computing And Data Ma	2.3.2 Data Storage & Transfer	**US**	**US Total**					**2.45**	**0.15**	**0.00**		**2.60**
2.3 Computing And Data Ma	2.3.2 Data Storage & Transfer	Non-US	DESY	GR	STOESSL, ACHIM	Data Storage & Transfer	Non-US In-kind				0.10	0.10
2.3 Computing And Data Ma	2.3.2 Data Storage & Transfer	**Non-US**	**Non-US Total**								**0.10**	**0.10**
2.3 Computing And Data Ma	**2.3.2 Data Storage & Transfer**	**WBS L3**						**2.45**	**0.15**	**0.00**	**0.10**	**2.70**
2.3 Computing And Data Ma	2.3.3 Computing Resources	US	PSU	PO	ARLEN, TIM	Coordination and Support Grid distributed computing	NSF M&O Core	0.25				0.25
2.3 Computing And Data Ma	2.3.3 Computing Resources	US	MSU	PO	HIGNIGHT, JOSHUA	Simulation production site manager at MSU	NSF M&O Core	0.25				0.25
2.3 Computing And Data Ma	2.3.3 Computing Resources	US	SUBR	KE	TER-ANTONYAN, SAM	LONI Grid computing	US In-Kind			0.30		0.30
2.3 Computing And Data Ma	2.3.3 Computing Resources	US	UMD	IT	UMD IT	Coordination and Support for Grid and distributed computing	NSF M&O Core	0.00				0.00
2.3 Computing And Data Ma	2.3.3 Computing Resources	US	UW	IT	STOCK, BEN	Maintain Data Center Infrastructure	NSF M&O Core	1.00				1.00
2.3 Computing And Data Ma	2.3.3 Computing Resources	US	UW	IT	Barnet, Steve	Maintain Core Computing Systems, Coordination Grid & distributed computing	NSF M&O Core	1.00				1.00
2.3 Computing And Data Ma	2.3.3 Computing Resources	US	UW	IT	BELLINGER, JIM	Maintain Core High Performance Computing Systems	NSF M&O Core	0.25				0.25
2.3 Computing And Data Ma	2.3.3 Computing Resources	US	UW	IT	BRIK, VLADIMIR	Maintain Core High Performance Computing Systems	NSF M&O Core	0.50				0.50
2.3 Computing And Data Ma	2.3.3 Computing Resources	US	UW	IT	WISNIEWSKI, PAUL	Maintain Data Center Networking and Security	NSF M&O Core	0.75				0.75
2.3 Computing And Data Ma	2.3.3 Computing Resources	US	UW	IT	BRIK, VLADIMIR	Maintain Data Center Infrastructure	NSF M&O Core	0.50				0.50
2.3 Computing And Data Ma	2.3.3 Computing Resources	US	UW	IT	SEBRANEK, CHAD	Web Development	NSF M&O Core	0.25				0.25

WBS L2	WBS L3	US / Non-US	Institution	Lab or Cat.	Names	Tasks	Source of Funds (U.S. Only)	NSF M&O Core	NSF Base Grants	U.S. Institutional In-Kind	Europe & Asia Pacific In-Kind	Grand Total
2.3 Computing And Data Ma	2.3.3 Computing Resources	**US**	**US Total**					**4.75**	**0.00**	**0.30**		**5.05**
2.3 Computing And Data Ma	2.3.3 Computing Resources	Non-US	DESY	IT	DESY IT	European Data Center -Distributed Computing and Labor	Non-US In-kind				1.00	1.00
2.3 Computing And Data Ma	2.3.3 Computing Resources	Non-US	DESY	KE	ACKERMANN, MARKUS	DESY TIER-1 coordination	Non-US In-kind				0.20	0.20
2.3 Computing And Data Ma	2.3.3 Computing Resources	Non-US	DTMND	SC	PIELOTH, DAMIAN	Coordinate GRID computing in Germany	Non-US In-kind				0.25	0.25
2.3 Computing And Data Ma	2.3.3 Computing Resources	Non-US	UU	PO	EULER, SEBASTIAN	Computing Resources	Non-US In-kind				0.20	0.20
2.3 Computing And Data Ma	2.3.3 Computing Resources	Non-US	UMH	GR	KOHNEN, GEORGES	IC database management	Non-US In-kind				0.30	0.30
2.3 Computing And Data Ma	2.3.3 Computing Resources	**Non-US**	**Non-US Total**								**1.95**	**1.95**
2.3 Computing And Data Ma	**2.3.3 Computing Resources**	**WBS L3**						**4.75**	**0.00**	**0.30**	**1.95**	**7.00**
2.3 Computing And Data Ma	2.3.4 Data Production Processing	US	UMD	PO	FELDE, JOHN	Implement near real time GRB analysis	Base Grants		0.30			0.30
2.3 Computing And Data Ma	2.3.4 Data Production Processing	US	UW	CS	MEADE, PATRICK	Unpacking, Decoding & Calibration of Raw Data (Level1); Run Common Reconstructions on UW IceCube Compute Cluster (Level2)	NSF M&O Core	0.50				0.50
2.3 Computing And Data Ma	2.3.4 Data Production Processing	**US**	**US Total**					**0.50**	**0.30**	**0.00**		**0.80**
2.3 Computing And Data Ma	2.3.4 Data Production Processing	**Non-US**	**Non-US Total**								**0.00**	**0.00**
2.3 Computing And Data Ma	**2.3.4 Data Production**	**WBS L3**						**0.50**	**0.30**	**0.00**	**0.00**	**0.80**
2.3 Computing And Data Ma	2.3.5 Simulation Production	US	LBNL	PO	TATAR, JOULIEN	Simulation production site manager	Base Grants		0.20			0.20
2.3 Computing And Data Ma	2.3.5 Simulation Production	US	MSU	PO	HIGNIGHT, JOSHUA	Simulation Production	US In-Kind			0.08		0.08
2.3 Computing And Data Ma	2.3.5 Simulation Production	US	MSU	PO	JOAO PEDRO DE ANDRÉ	Simulation Production, IceSim vetting for LowEn	Base Grants		0.08			0.08
2.3 Computing And Data Ma	2.3.5 Simulation Production	US	PSU	PO	ARLEN, TIM	Simulation Production	Base Grants		0.08			0.08
2.3 Computing And Data Ma	2.3.5 Simulation Production	US	OSU	PO	SUTHERLAND, MICHAEL	Simulation Production	US In-Kind			0.10		0.10
2.3 Computing And Data Ma	2.3.5 Simulation Production	US	UMD	GR	MAUNU, RYAN	Simulation production site manager	Base Grants		0.20			0.20
2.3 Computing And Data Ma	2.3.5 Simulation Production	US	UW	SC	DESIATI, PAOLO	Coordination of Simulation Production, identifying resources, streamlining programs for the cloud, GPU	NSF M&O Core	0.35				0.35
2.3 Computing And Data Ma	2.3.5 Simulation Production	US	UW	SC	DESIATI, PAOLO	Simulation Production panel chair	US In-Kind			0.20		0.20
2.3 Computing And Data Ma	2.3.5 Simulation Production	US	UW	PO	DAY, MELANIE	Low energy simulation production	Base Grants		0.25			0.25
2.3 Computing And Data Ma	2.3.5 Simulation Production	US	UW	GR	MCNALLY, FRANK	IceTop Simulation ProductionProduction / Data Processing	Base Grants		0.30			0.30
2.3 Computing And Data Ma	2.3.5 Simulation Production	US	UW	DH	SCHULTZ, DAVID	Simulation Production	NSF M&O Core	1.00				1.00
2.3 Computing And Data Ma	2.3.5 Simulation Production	US	UW	DH	DELVENTHAL, DAVID	Simulation Production	NSF M&O Core	1.00				1.00
2.3 Computing And Data Ma	2.3.5 Simulation Production	**US**	**US Total**					**2.35**	**1.11**	**0.38**		**3.84**
2.3 Computing And Data Ma	2.3.5 Simulation Production	Non-US	DESY	GR	DESY GR	Simulation Production Cluster	Non-US In-kind				0.15	0.15
2.3 Computing And Data Ma	2.3.5 Simulation Production	Non-US	DESY	SC	Santen, Jakob	Simulation production site manager in DESY	Non-US In-kind				0.20	0.20
2.3 Computing And Data Ma	2.3.5 Simulation Production	Non-US	DTMND	GR	BÖRNER, MATHIS	Simulation production site manager at Dortmund	Non-US In-kind				0.30	0.30
2.3 Computing And Data Ma	2.3.5 Simulation Production	Non-US	MAINZ	GR	EHRHARD, THOMAS	SimProd maintenance	Non-US In-kind				0.30	0.30
2.3 Computing And Data Ma	2.3.5 Simulation Production	Non-US	RWTH	GR	REIMAN, RENE	AC-RZ GPU/CPU cluster maint. iceprod and mass production	Non-US In-kind				0.30	0.30
2.3 Computing And Data Ma	2.3.5 Simulation Production	Non-US	RWTH	GR	Christian Haack	Next Generation Simulation Tools	Non-US In-kind				0.10	0.10
2.3 Computing And Data Ma	2.3.5 Simulation Production	Non-US	RWTH	GR	Christian Haack	Next Generation Simulation	Non-US In-kind				0.30	0.30

WBS L2	WBS L3	US / Non-US	Institution	Lab or Cat.	Names	Tasks	Source of Funds (U.S. Only)	NSF M&O Core	NSF Base Grants	U.S. Institutional In-Kind	Europe & Asia Pacific In-Kind	Grand Total
2.3 Computing And Data Ma	2.3.5 Simulation Production	Non-US	RWTH	GR	Christian Haack	Simulation Production on cluster/GRID	Non-US In-kind				0.10	0.10
2.3 Computing And Data Ma	2.3.5 Simulation Production	Non-US	RWTH	GR	SCHOENEN, SEBASTIA	Gentwo benchmark diffuse analysis	Non-US In-kind				0.10	0.10
2.3 Computing And Data Ma	2.3.5 Simulation Production	Non-US	RWTH	GR	VEHRING, MARKUS	Low energy Simulation Production	Non-US In-kind				0.10	0.10
2.3 Computing And Data Ma	2.3.5 Simulation Production	Non-US	ULB	KE	AGUILAR SANCHEZ JUAN ANTONIO	Simulation coordination board member	Non-US In-kind				0.10	0.10
2.3 Computing And Data Ma	2.3.5 Simulation Production	Non-US	ULB	CS	AMARY, SAMIR	Simulation Production Site Manager at ULB	Non-US In-kind				0.10	0.10
2.3 Computing And Data Ma	2.3.5 Simulation Production	Non-US	ALBERTA	KE	KOPPER, CLAUDIO	Simulation coordination board member	Non-US In-kind				0.10	0.10
2.3 Computing And Data Ma	2.3.5 Simulation Production	Non-US	ALBERTA	KE	KOPPER, CLAUDIO	GPU computing resourses	Non-US In-kind				0.10	0.10
2.3 Computing And Data Ma	2.3.5 Simulation Production	Non-US	ALBERTA	PO	RIEDEL, BENEDIKT	Simulation production site manager at Compute Canada Resource Allocation	Non-US In-kind				0.40	0.40
2.3 Computing And Data Ma	2.3.5 Simulation Production	Non-US	ALBERTA	GR	NOWICKI, SARAH	Clsim photon table production	Non-US In-kind				0.35	0.35
2.3 Computing And Data Ma	2.3.5 Simulation Production	Non-US	WUPPERTAL	GR	WUPPERTAL GR	Simulation Production	Non-US In-kind				0.20	0.20
2.3 Computing And Data Ma	2.3.5 Simulation Production	Non-US	CHIBA	KE	KEIICHI MASE	Generating background event simulation by Corsika	Non-US In-kind				0.20	0.20
2.3 Computing And Data Ma	2.3.5 Simulation Production	Non-US	NBI	KE	KOSKINEN, JASON	Low-energy/PINGU Simulation	Non-US In-kind				0.10	0.10
2.3 Computing And Data Ma	2.3.5 Simulation Production	Non-US	NBI	GR	LARSON, MICHAEL	IC86 MuonGun	Non-US In-kind				0.10	0.10
2.3 Computing And Data Ma	2.3.5 Simulation Production	Non-US	Toronto	KE	CLARK, KENNETH	SciNet computing	Non-US In-kind				0.25	0.25
2.3 Computing And Data Ma	2.3.5 Simulation Production	Non-US	Toronto	KE	CLARK, KENNETH	GENIE maintenance	Non-US In-kind				0.10	0.10
2.3 Computing And Data Ma	2.3.5 Simulation Production	Non-US	UMH	GR	KOHNEN, GEORGES	Simulation Production	Non-US In-kind				0.25	0.25
2.3 Computing And Data Ma	2.3.5 Simulation Production	**Non-US**	**Non-US Total**								**4.30**	**4.30**
2.3 Computing And Data Ma	**2.3.5 Simulation Production**	**WBS L3**						**2.35**	**1.11**	**0.38**	**4.30**	**8.14**
2.3 Computing And Data M	**WBS L2 Total**							**13.00**	**1.94**	**0.78**	**6.35**	**22.07**
2.4 Triggering And Filtering	2.4.1 TFT Coordination	US	UA	KE	WILLIAMS, DAWN	TFT Board member	US In-Kind			0.10		0.10
2.4 Triggering And Filtering	2.4.1 TFT Coordination	US	UD	KE	SECKEL, DAVID	TFT Board member	US In-Kind			0.10		0.10
2.4 Triggering And Filtering	2.4.1 TFT Coordination	US	UW	PO	KAUER, MATTHEW	TFT Board member	US In-Kind			0.10		0.10
2.4 Triggering And Filtering	2.4.1 TFT Coordination	US	UW	PO	KAUER, MATTHEW	Training and coordinating monitoring shifters	NSF M&O Core	0.10				0.10
2.4 Triggering And Filtering	2.4.1 TFT Coordination	US	UMD	SC	BLAUFUSS, ERIK	Filter requests, bandwidth, TFT Board Member	NSF M&O Core	0.30				0.30
2.4 Triggering And Filtering	2.4.1 TFT Coordination	US	PSU	GR	HUANG, FEIFEI	Study PINGU/HEX hardware requirements using IceCube data & simulation	US In-Kind			0.47		0.47
2.4 Triggering And Filtering	2.4.1 TFT Coordination	US	UMD	GR	HELLAUER, ROBERT	Prepare datasets for filter testing and common MC datasets for testing	Base Grants		0.10			0.10
2.4 Triggering And Filtering	2.4.1 TFT Coordination	**US**	**US Total**					**0.40**	**0.10**	**0.77**		**1.27**
2.4 Triggering And Filtering	2.4.1 TFT Coordination	Non-US	ALBERTA	KE	GRANT, DARREN	TFT Board member	Non-US In-kind				0.10	0.10
2.4 Triggering And Filtering	2.4.1 TFT Coordination	Non-US	ALBERTA	KE	KOPPER, CLAUDIO	L2 manager	Non-US In-kind				0.10	0.10
2.4 Triggering And Filtering	2.4.1 TFT Coordination	Non-US	DESY	KE	KARG, TIMO	TFT Board member	Non-US In-kind				0.10	0.10
2.4 Triggering And Filtering	2.4.1 TFT Coordination	Non-US	UU	KE	HALLGREN, ALLAN	TFT Board Chair	Non-US In-kind				0.25	0.25
2.4 Triggering And Filtering	2.4.1 TFT Coordination	Non-US	UU	KE	DE LOS HEROS, CARL	TFT Board member	Non-US In-kind				0.10	0.10
2.4 Triggering And Filtering	2.4.1 TFT Coordination	**Non-US**	**Non-US Total**								**0.65**	**0.65**
2.4 Triggering And Filtering	**2.4.1 TFT Coordination**	**WBS L3**						**0.40**	**0.10**	**0.77**	**0.65**	**1.92**
2.4 Triggering And Filtering	2.4.2 Physics Filters	US	UA	KE	WILLIAMS, DAWN	Tau WG Chair	US In-Kind			0.25		0.25
2.4 Triggering And Filtering	2.4.2 Physics Filters	US	UAA	KE	RAWLINS, KATHERINE	Cosmic Ray WG co-convener	US In-Kind			0.20		0.20
2.4 Triggering And Filtering	2.4.2 Physics Filters	US	UD	PO	GONZALEZ, JAVIER	Physics filters	Base Grants		0.10			0.10
2.4 Triggering And Filtering	2.4.2 Physics Filters	US	SBU	KE	KIRYLUK,JOANNA	Cascade WG Co-Chair	US In-Kind			0.25		0.25

WBS L2	WBS L3	US / Non-US	Institution	Lab or Cat.	Names	Tasks	Source of Funds (U.S. Only)	NSF M&O Core	NSF Base Grants	U.S. Institutional In-Kind	Europe & Asia Pacific In-Kind	Grand Total
2.4 Triggering And Filtering	2.4.2 Physics Filters	US	LBNL	PO	TATAR, JOULIEN	L2 processing for IC86, studying cascade energy resolution	Base Grants		0.25			0.25
2.4 Triggering And Filtering	2.4.2 Physics Filters	US	UCB	SC	WOSCHNAGG, KURT	Low-energy / Oscillation WG Co-Chair	Base Grants		0.25			0.25
2.4 Triggering And Filtering	2.4.2 Physics Filters	US	GTECH	KE	TABOADA, IGNACIO	GRB WG Chair	Base Grants		0.25			0.25
2.4 Triggering And Filtering	2.4.2 Physics Filters	US	UMD	PO	FELDE, JOHN	GRB filters	Base Grants		0.20			0.20
2.4 Triggering And Filtering	2.4.2 Physics Filters	US	SBU	PO	LESIAK-BZDAK, MARIOLA	Cascade filters	Base Grants					0.00
2.4 Triggering And Filtering	2.4.2 Physics Filters	US	SBU	GR	NIEDERHAUSEN, HANS	Low Energy	Base Grants		0.10			0.10
2.4 Triggering And Filtering	2.4.2 Physics Filters	US	SBU	GR	YIQIAN XU	Cascade filters	Base Grants		0.15			0.15
2.4 Triggering And Filtering	2.4.2 Physics Filters	US	UW	GR	FAHEY, SAM	Trigger simulations	Base Grants		0.20			0.20
2.4 Triggering And Filtering	2.4.2 Physics Filters	US	UWRF	KE	SEUNARINE, SURUJ	Calibration-Flasher Studies	US In-Kind			0.20		0.20
2.4 Triggering And Filtering	2.4.2 Physics Filters	**US**	**US Total**					**0.00**	**1.50**	**0.90**	**0.00**	**2.40**
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	BOCHUM	GR	BOS, FABIAN	Moon filter	Non-US In-kind				0.10	0.10
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	CHIBA	SC	ISHIHARA, AYA	Diffuse WG co-chair	Non-US In-kind				0.25	0.25
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	CHIBA	SC	ISHIHARA, AYA	EHE Filters	Non-US In-kind				0.15	0.15
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	DESY	KE	KARG, TIMO	CR WG co-chair	Non-US In-kind				0.25	0.25
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	HUMBOLDT	GR	VOGE, MARKUS	Online L2 Filter, single event stream	Non-US In-kind				0.20	0.20
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	MAINZ	GR	SANDROOS, JOAKIM	Low-Energy filter /HiveSplitter	Non-US In-kind				0.20	0.20
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	MAINZ	GR	STEUER, ANNA	Filter verification	Non-US In-kind				0.20	0.20
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	UC	GR	MUNAWARA, KIRAN	Cascade filters	Non-US In-kind				0.20	0.20
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	UC	GR	BAGHERPOUR, HADIS	Cascade filters	Non-US In-kind				0.20	0.20
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	SKKU	KE	ROTT, CARSTEN	BSM WG Co-Chair	Non-US In-kind				0.25	0.25
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	SKKU	GR	IN, SEONGJUN	Online filter development & testing	Non-US In-kind				0.20	0.20
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	SU	KE	FINLEY, CHAD	Point Source WG Chair	Non-US In-kind				0.25	0.25
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	SU	KE	HULTQVIST, KLAS	Diffuse WG Co-chair	Non-US In-kind				0.25	0.25
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	SU	PO	DUMM, JONATHAN	Online filter	Non-US In-kind				0.15	0.15
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	SU	PO	DUMM, JONATHAN	WG Lead - Muon channel	Non-US In-kind				0.25	0.25
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	SU	GR	ZOLL, MARCEL	Filters and Simulations	Non-US In-kind				0.25	0.25
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	SU	GR	AHRENS, MARYON	PhD-related work	Non-US In-kind				0.10	0.10
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	UU	KE	DE LOS HEROS, CARL	WIMP WG Chair	Non-US In-kind				0.25	0.25
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	VUB	GR	KUNNEN, JAN	Filter for low energy muons	Non-US In-kind				0.25	0.25
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	DTMND	SC	RUHE, TIM	Physics filters	Non-US In-kind				0.20	0.20
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	DTMND	GR	MENNE, THORBEN	Physics filters	Non-US In-kind				0.20	0.20
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	WUPPERTAL	GR	WUPPERTAL GR	New SUSY Filter	Non-US In-kind				0.20	0.20
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	RWTH	GR	LEIF RADEL	L3 IC86-x muon data stream, Skripts & Monitoring	Non-US In-kind				0.30	0.30
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	ULB	KE	AGUILAR SANCHEZ JUAN ANTONIO	Muon working group co-Chair	Non-US In-kind				0.25	0.25
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	ULB	GR	Ansseau, Isabelle	Vertical event filter	Non-US In-kind				0.20	0.20
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	DPNC	PO	HELLER, MATTHIEU	Online filtering data/MC comparisons	Non-US In-kind				0.10	0.10
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	DPNC	GR	ASEN, CHRISTOV	Online/Muon Filter	Non-US In-kind				0.20	0.20
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	DPNC	GR	RAAMEZ MOHAMED	Responsible WIMPs/Low Up Filter	Non-US In-kind				0.20	0.20
2.4 Triggering And Filtering	2.4.2 Physics Filters	Non-US	NBI	KE	KOSKINEN, JASON	Low-energy / Oscillation WG Co-Chair	Non-US In-kind				0.25	0.25
2.4 Triggering And Filtering	2.4.2 Physics Filters	**Non-US**	**Non-US Total**								**6.05**	**6.05**
2.4 Triggering And Filtering	**2.4.2 Physics Filters**	**WBS L3**						**0.00**	**1.50**	**0.90**	**6.05**	**8.45**
2.4 Triggering And Filterin	**WBS L2 Total**							**0.40**	**1.60**	**1.67**	**6.70**	**10.37**
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	US	LBNL	PO	TATAR, JOULIEN	DOM simulator & calibrator	Base Grants		0.10			0.10

WBS L2	WBS L3	US / Non-US	Institution	Lab or Cat.	Names	Tasks	Source of Funds (U.S. Only)	NSF M&O Core	NSF Base Grants	U.S. Institutional In-Kind	Europe & Asia Pacific In-Kind	Grand Total
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	US	LBNL	PO	TATAR, JOULIEN	Simulation Programs: cmc	Base Grants		0.10			0.10
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	US	MSU	KE	MAHN, KENDALL	Integration of GENIE for low energy systematics	US In-Kind			0.10		0.10
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	US	MSU	PO	HIGNIGHT, JOSHUA	Integration of GENIE for low energy systematics	US In-Kind			0.20		0.20
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	US	SDSMT	KE	XINHUA, BAI	Muon yield in EeV showers & comparison w/ theoretical calculations	US In-Kind			0.15		0.15
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	US	SDSMT	GR	DVORAK, EMILY	Atmospheric muon & neutrino simulation for cosmic ray & neutrino studies	US In-Kind			0.40		0.40
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	US	SUBR	KE	FAZELY, ALI	GEANT Simulation	US In-Kind			0.15		0.15
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	US	SUBR	SC	XIANWU, XU	Simulation Programs	US In-Kind			0.15		0.15
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	US	OSU	PO	STAMATIKOS, MICHAEL	GRB Analysis Tools	US In-Kind			0.05		0.05
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	US	UA	GR	PEPPER, JAMES	Dark Matter signal simulation	Base Grants		0.15			0.15
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	US	UCB	SC	WOSCHNAGG, KURT	Maintain and Verify Simulation of Photon Propagation and update Ice Properties	NSF M&O Core	0.375				0.38
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	US	UD	PO	GONZALEZ, JAVIER	Simulation Production Site Manager for UD	Base Grants		0.20			0.20
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	US	UD	GR	PANDYA, HERSHAL	sim-services	Base Grants		0.10			0.10
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	US	UD	GR	KOIRALA, RAMESH	IT parameters for new moni system	Base Grants		0.10			0.10
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	US	UW	SC	CHIRKIN, DMITRY	Maintain and Verify Simulation of Photon Propagation and update Ice Properties	NSF M&O Core	0.35				0.35
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	US	UW	SC	HOSHINA, KOTOYO	nugen maintenance	NSF M&O Core	0.25				0.25
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	US	UW	GR	JERO, KYLE	Veto simulation	Base Grants		0.20			0.20
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	US	UW	DH	DIAZ-VELEZ, JUAN CARLOS	Maintain Simulation Production Software, maintain, test and update physics aspects of the atmospheric muon and neutrino simulation	NSF M&O Core	0.20				0.20
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	**US**	**US Total**					**1.18**	**0.95**	**1.20**		**3.33**
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	Non-US	DTMND	GR	FACHS, THOMAS	PROPOSAL-IceProd integration and maintenance/support	Non-US In-kind				0.50	0.50
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	Non-US	SU	GR	FLIS, SAMUEL	DOM simulation	Non-US In-kind				0.15	0.15
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	Non-US	GENT	GR	UGENT GR	Support IceTop Simulations, IceTop Calibrations, IceTop Reconstruction	Non-US In-kind				0.40	0.40
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	Non-US	BOCHUM	KE	TJUS, JULIA	Development PROPOSAL simulation software	Non-US In-kind				0.10	0.10
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	Non-US	BOCHUM	GR	SCHöNEBERG, SEBAS	Developing / maintaining ANFlux	Non-US In-kind				0.10	0.10
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	Non-US	NBI	GR	LARSON, MICHAEL	Correlated noise and long-frame CORSIKA	Non-US In-kind				0.15	0.15
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	Non-US	NBI	GR	LARSON, MICHAEL	PINGU CORSIKA	Non-US In-kind				0.10	0.10
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	Non-US	NBI	GR	MEDICI, MORTEN	DOM noise and quantum efficiency	Non-US In-kind				0.15	0.15

WBS L2	WBS L3	US / Non-US	Institution	Lab or Cat.	Names	Tasks	Source of Funds (U.S. Only)	NSF M&O Core	NSF Base Grants	U.S. Institutional In-Kind	Europe & Asia Pacific In-Kind	Grand Total
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	Non-US	ERLANGEN	GR	CLASSEN, LEW	multi-PMT DOM development and simulations	Non-US In-kind				0.40	0.40
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	Non-US	HUMBOLDT	KE	KOWALSKI, MAREK	Simulation tools	Non-US In-kind				0.05	0.05
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	Non-US	RWTH	GR	SCHÖNEN, SEBASTIAN	KDE Tools KDE and multi-llh	Non-US In-kind				0.10	0.10
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	Non-US	RWTH	GR	Christian Haack	Maintenance / Addition of seasons weights to nuflux module	Non-US In-kind				0.10	0.10
2.5 Data Quality, Reconstru	2.5.1 Simulation Programs	**Non-US**	**Non-US Total**								**2.30**	**2.30**
2.5 Data Quality, Reconstru	**2.5.1 Simulation Programs**	**WBS L3**						**1.18**	**0.95**	**1.20**	**2.30**	**5.63**
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	LBNL	GR	MIARECKI, SANDRA	Algorithm for measuring muon energy	Base Grants		0.25			0.25
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	LBNL	GR	BINDER, GARY	PMT saturation corrections for analysis	Base Grants		0.50			0.50
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	MSU	PO	JOAO PEDRO DE AND	Low energy reconstruction techniques for DeepCore	Base Grants		0.15			0.15
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	MSU	GR	NEER, GARRETT	Evaluate Pegleg for standard oscillation processing in DeepCore. Development of noise cleaning for vuvuzela noise	Base Grants		0.20			0.20
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	PSU	PO	ARLEN, TIM	Develop analysis tools for systematics study	Base Grants		0.20			0.20
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	PSU	GR	KEIVANI, AZADEH	Integrate IceCube into AMON	US In-Kind			0.25		0.25
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	SUBR	KE	FAZELY, ALI	Reconstruction/ Analysis tools	US In-Kind			0.15		0.15
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	SUBR	SC	XIANWU, XU	Reconstruction/ Analysis tools	US In-Kind			0.15		0.15
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	UA	KE	TOALE, PATRICK	Tau reconstruction tools	US In-Kind			0.05		0.05
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	UD	PO	GONZALEZ, JAVIER	Software maintenance : Event reco and corsika reader	Base Grants		0.20			0.20
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	UD	PO	DEMBINSKI, HANS	Code review strike team; IceTop simulations	Base Grants		0.30			0.30
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	UAA	KE	RAWLINS, KATHERINE	Snow correction for IceTop	US In-Kind			0.20		0.20
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	UMD	PO	FELDE, JOHN	Develop & test reconstruction	Base Grants		0.10			0.10
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	UMD	GR	MAUNU, RYAN	Reconstruction/ Analysis tools	Base Grants		0.13			0.13
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	UMD	SC	OLIVAS, ALEX	SW Coordinator – Data Quality, Reconstruction and Sim. Programs	NSF M&O Core	0.25				0.25
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	UMD	GR	CHEUNG, ELIM	Low energy Reco./Analysis tools	Base Grants		0.25			0.25
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	PSU	GR	LANFRANCHI, JUSTIN	Low energy event reconstruction quality	US In-Kind			0.47		0.47
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	SBU	GR	NIEDERHAUSEN, HANS	Cascade reconstruction	Base Grants		0.05			0.05
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	SBU	GR	YIQIAN XU	Flashers/Standard Candle	Base Grants		0.10			0.10
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	SDSMT	GR	DVORAK, EMILY	Conventional and prompt muon analysis tool	US In-Kind			0.55		0.55
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	UW	SC	CHIRKIN, DMITRY	Reconstruction software	NSF M&O Core	0.15				0.15
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	UW	SC	CHIRKIN, DMITRY	Direct photon tracking / iceproperties calibration; FE/pulse extractor; reco S/W	Base Grants		0.15			0.15
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	UW	GR	JERO, KYLE	Event reconstruction, angular resolution	Base Grants		0.20			0.20

WBS L2	WBS L3	US / Non-US	Institution	Lab or Cat.	Names	Tasks	Source of Funds (U.S. Only)	NSF M&O Core	NSF Base Grants	U.S. Institutional In-Kind	Europe & Asia Pacific In-Kind	Grand Total
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	UW	GR	SABBATINI, LUCA	Shower reconstruction, flasher data	US In-Kind			0.30		0.30
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	UW	GR	TOBIN, MORIAH	Low energy event reconstruction (BiPed), spline service	Base Grants		0.30			0.30
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	UW	GR	MIDDLEMAS, ERIN	Cascade event reconstruction	Base Grants		0.30			0.30
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	UW	GR	GHORBANI, KEVIN	Muon time residuals/hole ice	Base Grants		0.25			0.25
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	UW	GR	ARGUELLES, CARLOS	Neutrino generation and systematics			0.20			0.20
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	UWRF	KE	MADSEN, JIM	Low-energy IceTop Extensions	NSF M&O Core	0.10				0.10
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	UWRF	KE	SEUNARINE, SURUJ	Low-Energy Extensions of IceTop	US In-Kind			0.10		0.10
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	Yale	KE	MARUYAMA, REINA	Coincident events between IceCube and DM-Ice, low energy reconstruction	US In-Kind			0.05		0.05
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	Yale	PO	Matthew Kauer	low-energy reconstruction using DM-Ice	US In-Kind			0.05		0.05
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	US	Yale	GR	HUBBARD, ANTONIA	Coincident events between IceCube and DM-Ice, characterization of untriggered IceCube events, low energy reconstruction	US In-Kind			0.50		0.50
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	**US**	**US Total**					**0.50**	**3.83**	**2.82**		**7.15**
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	ADELAIDE	KE	HILL, GARY	Event energy and direction reconstruction, millipede	Non-US In-kind				0.40	0.40
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	ADELAIDE	PO	WHELAN, BEN	Event energy and direction reconstruction, millipede	Non-US In-kind				1.00	1.00
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	ADELAIDE	GR	AARTSEN, MARK	Event energy and direction reconstruction, millipede	Non-US In-kind				0.50	0.50
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	ALBERTA	GR	WOOD, TANIA	Calibrations with LED and minimum ionizing muons	Non-US In-kind				0.35	0.35
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	MAINZ	GR	BAUM, VOLKER	Low energy systematics	Non-US In-kind				0.10	0.10
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	UC	GR	MUNAWARA, KIRAN	Flasher	Non-US In-kind				0.10	0.10
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	CHIBA	KE	YOSHIDA, SHIGERU	Maintain Romeo, EHE Simulations, Calibration using Standard Candles	Non-US In-kind				0.20	0.20
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	CHIBA	KE	KEIICHI MASE	Maintain Romeo, EHE Simulations, Maintain reconstruction projects (Portia), MC/Data comparison for EHE-filtered and IceTop events, Standard Candle Analysis	Non-US In-kind				0.20	0.20
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	CHIBA	SC	ISHIHARA, AYA	Maintain Portia and the SC data filtering	Non-US In-kind				0.15	0.15
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	CHIBA	PO	RELICH, MATTHEW	Standard Candle data analysis for calibrating DOM and ice	Non-US In-kind				0.15	0.15

WBS L2	WBS L3	US / Non-US	Institution	Lab or Cat.	Names	Tasks	Source of Funds (U.S. Only)	NSF M&O Core	NSF Base Grants	U.S. Institutional In-Kind	Europe & Asia Pacific In-Kind	Grand Total
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	CHIBA	PO	GAIOR, ROMAIN	EHE online pipeline for gamma-ray follow-up	Non-US In-kind				0.15	0.15
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	CHIBA	GR	CHIBA GR	Improve the Ice Model, Afterpulse Simulator, Standard Candle Analysis, Maintain reconstruction projects (Ophelia, ehe-star)	Non-US In-kind				0.20	0.20
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	DESY	SC	YANEZ, JUAN-PABLO	Low-energy reconstruction	Non-US In-kind				0.10	0.10
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	DESY	SC	Santen, Jakob	Spline fits	Non-US In-kind				0.15	0.15
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	DESY	GR	MOHRMANN, LARS	Likelihood fit package	Non-US In-kind				0.10	0.10
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	DESY	GR	KINTSCHER, THOMAS	Gamma-ray follow up program maintenance	Non-US In-kind				0.10	0.10
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	DESY	GR	TERLIUK, ANDRII	Reconstruction Release Manager, Maintain Reconstruction Framework, DeepCore reconstruction	Non-US In-kind				0.30	0.30
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	DESY	GR	USNER, MARCEL	Spline fits with anisotropy	Non-US In-kind				0.30	0.30
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	DESY	GR	STASIK, ALEXANDER	Online singlet stream	Non-US In-kind				0.20	0.20
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	ULB	KE	AGUILAR SANCHEZ JUAN ANTONIO	GRB, point-sources	Non-US In-kind				0.10	0.10
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	RWTH	GR	VEHRING, MARKUS	CLSIM Hyrid maintenance	Non-US In-kind				0.10	0.10
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	RWTH	GR	WALLRAFF, MARIUS	nuCraft	Non-US In-kind				0.20	0.20
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	RWTH	GR	LEUERMANN, MARTIN	Finite track reconstruction, PegLeg Reconstruction	Non-US In-kind				0.30	0.30
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	SKKU	PO	BOSE, DEBANJAN	Photon tracking / ice-properties calibration	Non-US In-kind				0.20	0.20
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	SU	GR	WOLF, MARTIN	STTools, EventViewer	Non-US In-kind				0.20	0.20
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	VUB	KE	VAN EIJNDHOVEN, NIC	development of reconstruction tools (IcePack framework)	Non-US In-kind				0.25	0.25
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	VUB	PO	DE VRIES, KRIJN	muon track reconstruction in IceCube and DeepCore	Non-US In-kind				0.25	0.25
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	VUB	PO	Lünemann, Jan	Low energy muon reconstruction	Non-US In-kind				0.25	0.25
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	VUB	GR	MAGGI, GIULIANO	muon track reconstruction in IceCube and DeepCore	Non-US In-kind				0.25	0.25
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	VUB	GR	CASIER MARTIN	muon track reconstruction in IceCube and DeepCore	Non-US In-kind				0.50	0.50
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	VUB	GR	BRAYEUR LIONEL	muon track reconstruction in IceCube and DeepCore	Non-US In-kind				0.50	0.50
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	ALBERTA	KE	GRANT, DARREN	Maintenance of IceCube-Photonics interface	Non-US In-kind				0.10	0.10

WBS L2	WBS L3	US / Non-US	Institution	Labor Cat.	Names	Tasks	Source of Funds (U.S. Only)	NSF M&O Core	NSF Base Grants	U.S. Institutional In-Kind	Europe & Asia Pacific In-Kind	Grand Total
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	ALBERTA	KE	KOPPER, CLAUDIO	Icetray framework maintenance	Non-US In-kind				0.05	0.05
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	ALBERTA	KE	KOPPER, CLAUDIO	Maintenance of clsim direct photon propagation tool	Non-US In-kind				0.10	0.10
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	WUPPERTAL	GR	WUPPERTAL GR	New SUSY Reconstruction, Simulation, Propagation, Monopole, Photonics, muon detection with IceTop	Non-US In-kind				0.60	0.60
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	MAINZ	GR	WIEBE, KLAUS	Angular res. Cascades	Non-US In-kind				0.20	0.20
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	ERLANGEN	GR	ALTMANN, DAVID	Track reconstruction	Non-US In-kind				0.10	0.10
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	Non-US	Toronto	KE	CLARK, KENNETH	Development of low-energy reconstruction techniques	Non-US In-kind				0.10	0.10
2.5 Data Quality, Reconstru	2.5.2 Reconstruction/ Analysis Tools	**Non-US**	**Non-US Total**								**9.10**	**9.10**
2.5 Data Quality, Reconstru	**2.5.2 Reconstruction/ Analysis Tools**	**WBS L3**						**0.50**	**3.83**	**2.82**	**9.10**	**16.25**
2.5 Data Quality, Reconstru	2.5.3 Data Quality	**US**	**US Total**					**0.00**	**0.00**	**0.00**		**0.00**
2.5 Data Quality, Reconstru	2.5.3 Data Quality	Non-US	TUM	PO	MPI PO	Data Quality & DeepCore	Non-US In-kind				0.60	0.60
2.5 Data Quality, Reconstru	2.5.3 Data Quality	Non-US	DPNC	KE	MONTARULI, TERESA	Data and Simulation Quality	Non-US In-kind				0.10	0.10
2.5 Data Quality, Reconstru	2.5.3 Data Quality	Non-US	DPNC	GR	ASEN, CHRISTOV	Data and Simulation Quality	Non-US In-kind				0.30	0.30
2.5 Data Quality, Reconstru	2.5.3 Data Quality	Non-US	DPNC	GR	RAAMEZ MOHAMED	Data and Simulation Quality	Non-US In-kind				0.30	0.30
2.5 Data Quality, Reconstru	2.5.3 Data Quality	Non-US	DPNC	PO	HELLER, MATTHIEU	Data and Simulation Quality	Non-US In-kind				0.15	0.15
2.5 Data Quality, Reconstru	2.5.3 Data Quality	Non-US	MAINZ	GR	STEUER, ANNA	Veto systematics at low energy	Non-US In-kind				0.20	0.20
2.5 Data Quality, Reconstru	2.5.3 Data Quality	Non-US	ULB	KE	AGUILAR SANCHEZ JUAN ANTONIO	Data and Simulation Quality	Non-US In-kind				0.15	0.15
2.5 Data Quality, Reconstru	2.5.3 Data Quality	Non-US	VUB	KE	VAN EIJNDHOVEN, NICK	data quality verification	Non-US In-kind				0.25	0.25
2.5 Data Quality, Reconstru	2.5.3 Data Quality	Non-US	VUB	GR	MAGGI, GIULIANO	AGN analysis	Non-US In-kind				0.25	0.25
2.5 Data Quality, Reconstru	2.5.3 Data Quality	Non-US	VUB	GR	DeWasseige, Gwenhael	Sub-trigger event reconstruction	Non-US In-kind				0.25	0.25
2.5 Data Quality, Reconstru	2.5.3 Data Quality	Non-US	VUB	PO	DE VRIES, KRIJN	GRB/AGN analysis	Non-US In-kind				0.25	0.25
2.5 Data Quality, Reconstru	2.5.3 Data Quality	**Non-US**	**Non-US Total**								**2.80**	**2.80**
2.5 Data Quality, Reconstru	**2.5.3 Data Quality**	**WBS L3**						**0.00**	**0.00**	**0.00**	**2.80**	**2.80**
2.5 Data Quality, Reconstru	2.5.4 Offline Data Processing	US	UW	DH	FADIRAN, OLADIPO	Simulation Production Coordination; production configurations, test production and web portal.	NSF M&O Core	0.60				0.60
2.5 Data Quality, Reconstru	2.5.4 Offline Data Processing	**US**	**US Total**					**0.60**	**0.00**	**0.00**		**0.60**
2.5 Data Quality, Reconstru	2.5.4 Offline Data Processing	**Non-US**	**Non-US Total**								**0.00**	**0.00**
2.5 Data Quality, Reconstru	**2.5.4 Offline Data Processing**	**WBS L3**						**0.60**	**0.00**	**0.00**	**0.00**	**0.60**
2.5 Data Quality, Reconstr	**WBS L2 Total**							**2.28**	**4.78**	**4.02**	**14.20**	**25.27**
Grand Total								**37.82**	**11.03**	**10.66**	**37.05**	**96.55**