**Budget Justification - Montana State University**

1. **SENIOR PERSONNEL**

All salary costs are calculated based on actual salaries or, for unnamed positions, in accordance with published salary scales of Montana State University. These costs include a 3% Cost of Living Allowance (COLA) for years [list number of years].

**Dr. John Smith**, Professor in the Department of [department] and Director of the [list any other pertinent positions], will serve as the Principal Investigator. He shall assume full administrative responsibility for the project and will direct all activities related to design, implementation, management, and dissemination of project results. For the “[project title]” project, Dr. [PI name] will oversee [one line describing specific, project-related duties]. Dr. Smith will also manage communication with collaborators at field sites, oversee all project staff, and provide mentoring and professional development to students and the postdoctoral associate. Dr. Smith will work with collaborators to prepare and document data files that report results to the broader research community. Dr. Smith will commit [1.0 calendar month] to the project in Year 1, 1.5 calendar months in year 2, and 2.0 calendar months in year 3. Total salary requested for Dr. Smith is [$00,000].

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **YEAR 1** | **YEAR 2** | **YEAR 3** |  |
| Base academic salary | $70,000 | $72,100 | $74,263 |  |
| Academic salary  | $7,777 | $12,016 | $16,502 |  |
| **Total**  | **$7,777**  | **$12,016** | **$16,502** |  |

1. **OTHER PERSONNEL**

**Postdoctoral Associate,** One Postdoctoral Associate will be assigned to the project to assist with [describe what the postdoc is needed for and what they will do]. The postdoc will also work with the PI and collaborators [describe secondary major duty], as well as provide training and mentorship of the graduate and undergraduate students. The Postdoctoral Associate will commit 12 calendar months of effort to the project for all three years at an annual base rate of $51,000. Total salary requested for the postdoc is $157,635.

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| --- | --- | --- | --- | --- |
|  | **YEAR 1** | **YEAR 2** | **YEAR 3** |  |
| Base academic salary | $51,000 | $52,530 | $54,105 |  |
| Calendar year salary  | $51,000 | $52,530 | $54,105 |  |
| **Total**  | **$51,000** | **$52,530** | **$54,105** |  |

**One to-be-named Graduate Student Research Assistant,** (GSRA) will work with the PI and Postdoctoral Associate during the development phase of the ICI-4 system and on data-related efforts. The GSRA will receive training in project-related lab and field research skills as well as collection and analysis of data for dissemination via scholarly journals and conferences. The GSRA will commit 9.0, part-time academic months and 3.0, full-time summer months to the project annually at $18.00 per hour. Total salary requested for the GSRA is $67,997.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **YEAR 1** | **YEAR 2** | **YEAR 3** |
| Base calendar salary | $22,000 | $22,660 | $23,339 |
| Academic salary (9 months) | $16,499 | $16,993 | $17,502 |
| Summer salary (3 months) | $5,501 | $5,666 | $5,835 |
| **Total**  | **$22,000**  | **$22,660**  | **$23,337** |

1. **FRINGE BENEFITS**

Fringe benefits are calculated using current approved institutional fringe rate of 37% for faculty and professional staff, and graduate student benefits are calculated based on university fringe rates established for students when they are employed in session, and when they are employed in the summer months. For the academic months committed, fringe is calculated at 1% of student salary, and for summer months, fringe is calculated at 9% of student salary. The total amount requested for fringe benefits is $86,068.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | % | **YEAR 1** | **YEAR 2** | **YEAR 3** |
| Smith, Joseph (PI) | 37% | $5,508 | $8,511 | $11,688 |
| Postdoctoral Associate | 37% | $18,870 | $19,436 | $20,018 |
| Graduate Student (academic)\* | 1% | $164 | $169 | $175 |
| Graduate Student (summer) | 9% | $495 | $509 | $525 |
|  **Total =** |  | **$25,037**  | **$28,625**  | **$32,406**  |

1. **EQUIPMENT**

The PI requests funds to purchase two slow-frame-rate infrared cameras with wide-angle lenses in year one for cloud detection for a total cost of $20,000.

1. **TRAVEL**

Travel numbers are based on established guidelines for travel expenditures at Montana State University for out-of-state travel and current market rates. The total requested for travel is $9,124 for year one, $9,964 for year two, and $13,536 for year three.

Domestic Travel - Conferences

Dr. Smith requires funds to attend the AGU conference in San Francisco, CA in each year of the project. Costs for conference travel are calculated at $600 for airfare, $200 per night for lodging for three nights, $80 for local transportation, and $46.00 per day for per diem. Total requested for these conferences is $1,464 for year one, $2,968 for year two (two travelers), and $3,460 for year three.

Domestic Travel – Field Travel (Barrow, AK)

The PI and Postdoctoral Associate will travel to the project site in Barrow, Alaska all three years of the project for deployment of the instrument, to conduct the experiments and make any adjustments. Lodging, per diem, and ground transportation is provided by ARM or Polar Field Services (see letter of support). Total requested for field travel to Barrow, AK is $3,752 for year one, $5,512 for year two, and $5,558 for year three.

* Trip #1 shall occur in the summer of year one with costs assessed at $1,600 for airfare, and $46 dollars per day for per diem x 6 days. The total cost for this trip is $3,752.
* Trip #2 shall occur in the winter of year two with costs assessed at $1,300 for airfare and $46 dollars per day for per diem x 12 days. The total cost for this trip is $1,852.
* Trip #3 shall occur in the summer of year two with costs assessed at $1,600 for airfare (per person x 2) and $46 per day for per diem x 5 days x 2 people. The total cost for this trip is $3,660.
* Trip #4 shall occur in the winter of year three with costs assessed at $1,300 for airfare and $46 per day for per diem x 11 days. The total cost for this trip is $1,806.
* Trip #5 shall occur in the summer of year three with costs assessed at $1,600 (per person x 2) and $46 per day x 6 days x 2 people. The total cost for this trip is $3,752.

International Travel – (Greenland and Yokohama, Japan)

Funding is required for Dr. Smith and the Postdoctoral Associate to travel to Greenland via New York to deploy the instrument and to make any needed adjustments. A $200 (potential) change fee has been added to the cost of airfare in the likely event of inclement weather. Total requested international travel to Greenland is $3,908 for year one, $1,484 for year two, and for Greenland and Yokohama, $6,510 for year three.

* Trip #1 shall occur at the end of year one with costs assessed at $1,100 for airfare, $130 per night for lodging, $150 for local transportation, and $46 per day x 13 days x 2 travelers. The total cost for this trip is $3,908.
* Trip #2 shall occur in the summer of year two with costs assessed at $1,100 for airfare, $200 for local transportation, and $46 per day x 13 x 1 person. The total cost for this trip is $1,484.
* Trip #3 shall occur during the summer of year three with costs assessed at $1,100 for airfare (per person x 2), $200 for local transportation, and $46 per day x 13 days x 2 people. The total cost for this trip is $2,968.
* Trip #4 the PI will travel to the International Geoscience and Remote Sensing (IGARSS) Conference in Yokohama, Japan in year three with costs assessed at $1,800 for airfare, $170 per night for lodging, $400 for local ground transportation, and $46 per day x 6 days of per diem. The total cost for this trip is $3,542.
1. **PARTICIPANT SUPPORT – NONE**
2. **OTHER DIRECT COSTS**
	1. **Materials and Supplies**

The PI requests funds to purchase supplies to include computer parts, software, electronics, mounts and housing modifications, shipping boxes (10 Lepton kits in year 2), cold weather gear, medivac insurance (140 per person) and other supplies as needed. The total cost for supplies is estimated at $11,240 for year one, $12,120 for year two, and $10,240 for year three.

* 1. **Publication Costs**

$2,000 per year for years two and three are required for publication costs.

* 1. **Computer Services**

$1,500 per year for all three years of the project is required for computer services.

* 1. **Other (grad student tuition)**

Allowances for tuition remission and university health insurance are requested for the GSRA. Fees are calculated for years 1-3 (9 credits).The current university health insurance rate for students is approximately $1,400.00 per semester. The total amount requested is $11,733 for year one, $12,320 for year three, and $12,936 for year three.

* 1. **Other (shipping fees)**

Shipping fees for instruments are required for year one and three. The total amount requested is $4,500 for year one and $4,500 for year three.

1. **TOTAL DIRECT COSTS**

Year 1: $171,041

Year 2: $164,723

Year 3: $188,144

1. **INDIRECT COSTS**

Indirect costs are calculated on Modified Total Direct Cost (MTDC). MSU has a federally negotiated rate of 44% for federal research. The following costs are excluded from the budgeted Total Direct Cost in order to calculate indirect costs:

* Graduate Student Researcher tuition and fee remission
* Equipment over $5,000

Year 1: $61,296

Year 2: $67,057

Year 3: $77,092

**TOTAL PROJECT COSTS (Y1-Y3): $729,353.00**