On the Need for Software Engineering Support for Sustainable Scientific Software

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WSSSPE3 Workshop
September 28, 2015
Background
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• Primary Organizer of Software Engineering for Science workshop series
  • http://www.SE4Science.org
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• Case Studies of Scientific Software teams
  • Peer code review
  • Test-driven development (TDD)
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  - Peer code review
  - Test-driven development (TDD)

- Surveys of Scientific Software community
Basic Assumption
Use of appropriate SE practices
Leads to more sustainable software
Observations
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• Software Engineering and Science
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  • Culture clash
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  • Culture clash
  • Scientific software developers often don’t know what they don’t know
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• Software Engineering and Science
  • Culture clash
  • Scientific software developers often don’t know what they don’t know

• Appropriate SE practices are useful for Sustainable Scientific Software
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• Appropriate SE practices are useful for Sustainable Scientific Software
  • Lightweight processes preferred
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• **Appropriate** SE practices are useful for Sustainable Scientific Software
  • Lightweight processes preferred
  • TDD (properly tailored)
Observations

• Software Engineering and Science
  • Culture clash
  • Scientific software developers often don’t know what they don’t know

• Appropriate SE practices are useful for Sustainable Scientific Software
  • Lightweight processes preferred
  • TDD (properly tailored)
  • Peer code review – identifies problems missed by testing
Path Forward
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• Need for documented SE success stories in Science
Path Forward

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• Socialize success stories (and failures)
Path Forward

• Need for documented SE success stories in Science

• Socialize success stores (and failures)

• Venues
  • SE4Science workshops (http://www.SE4Science.org)
  • New SE Track in CiSE
On the Need for Software Engineering Support for Sustainable Scientific Software

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