SeaPower Model Testing

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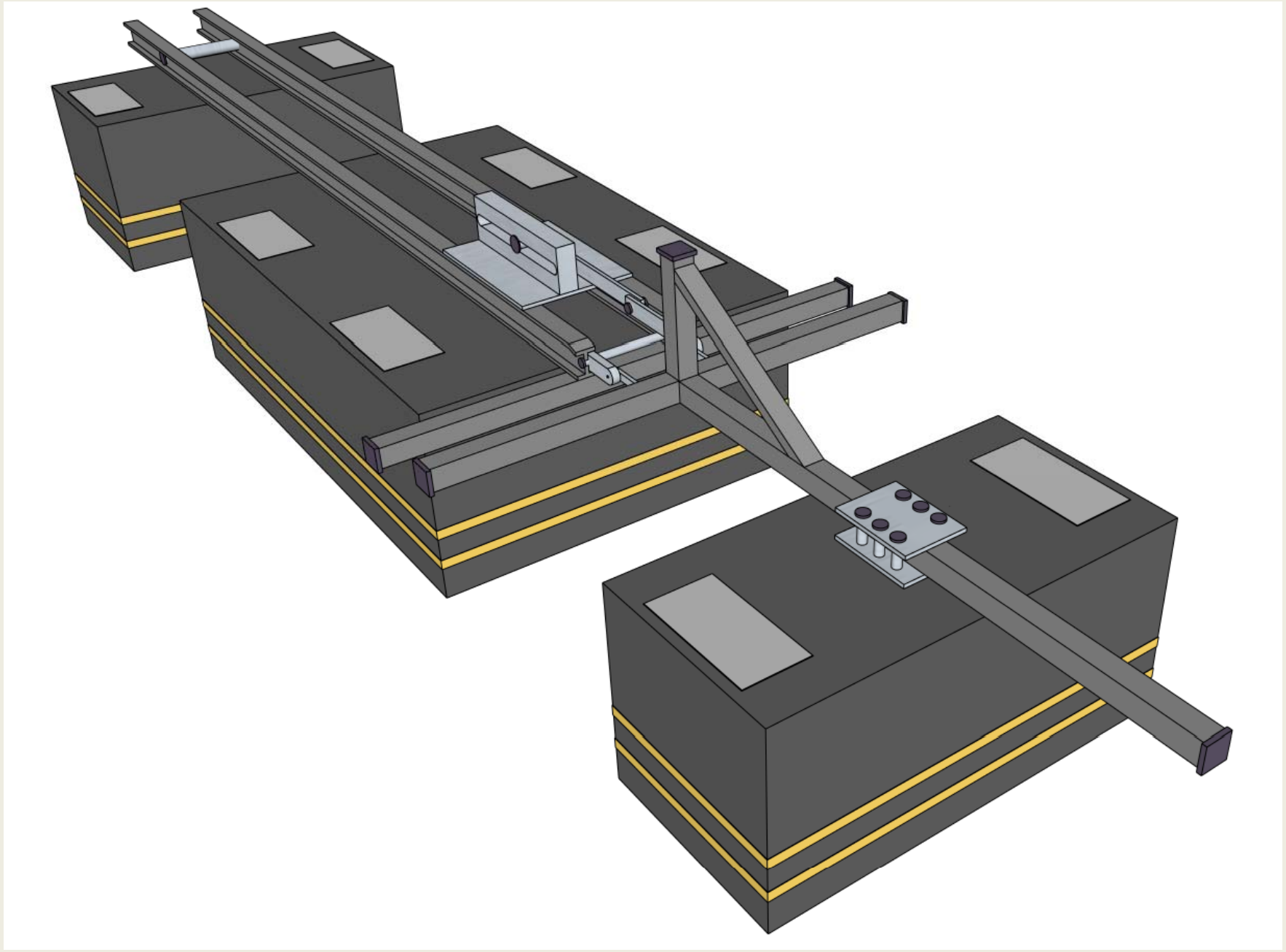
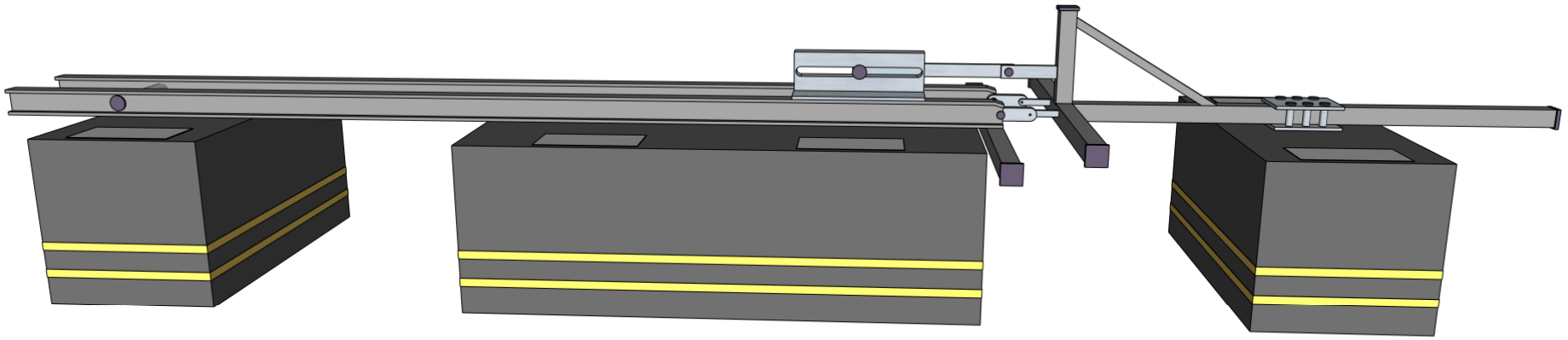
Friday 31st October 2014

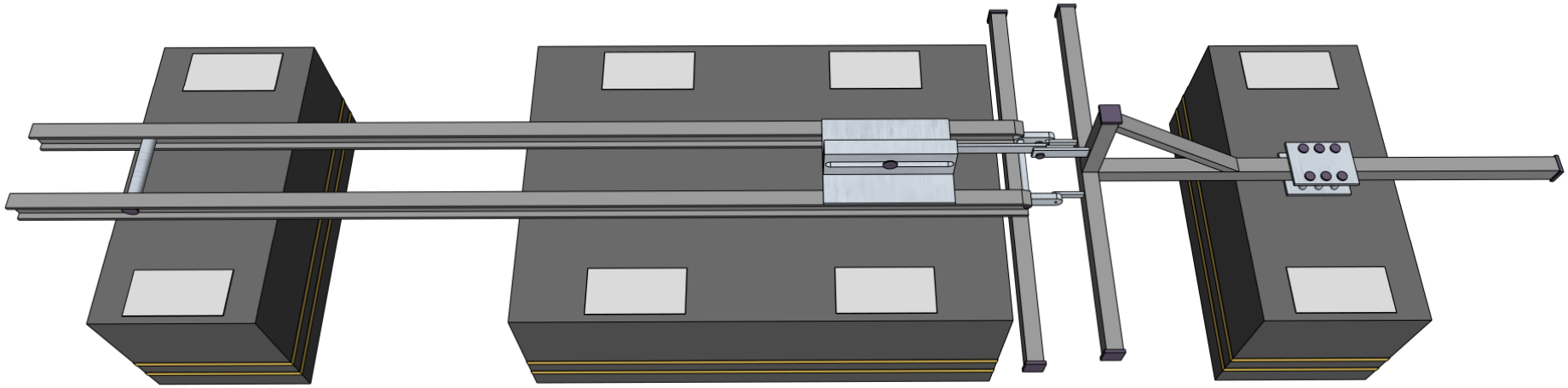
http://www.seapower.ie/

SeaPower Platform

- In development since 2008
- Primary objective – commercially viable wave energy converter in the next *four* years
  - Extract energy from ocean waves efficiently
  - Operate safely with minimum maintenance
  - Provide maximum economic return







Outcomes

- Length of device and configuration of pontoons
- Position of pitching pontoon in relation to wave propagation
- Draft of the device
- Direction of the incident wave
- Power take off system

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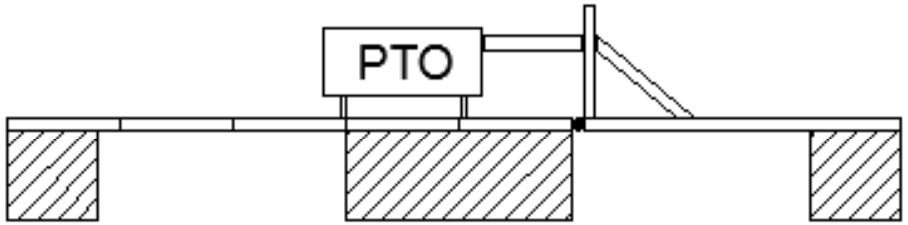
1.



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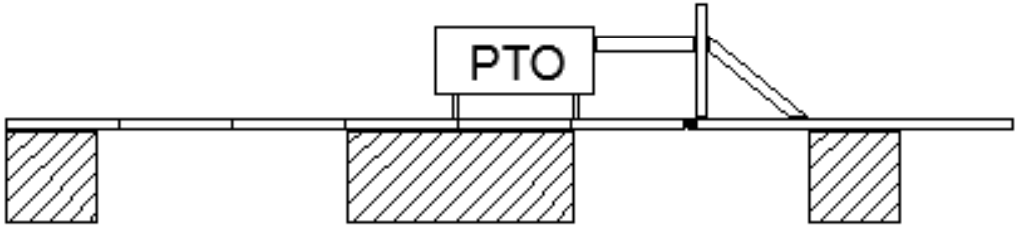

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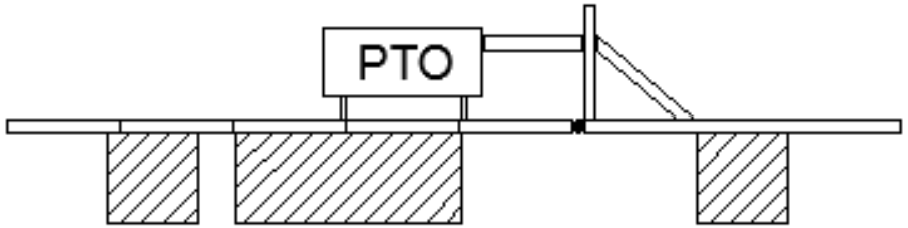

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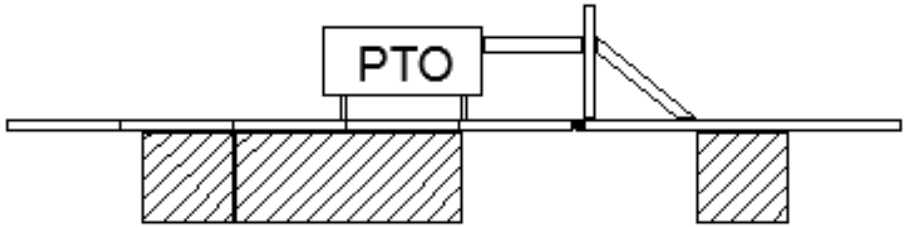

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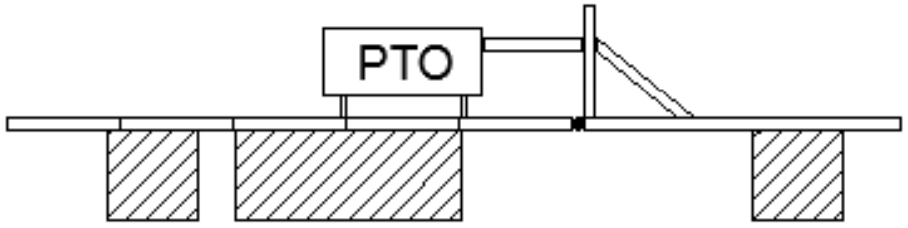
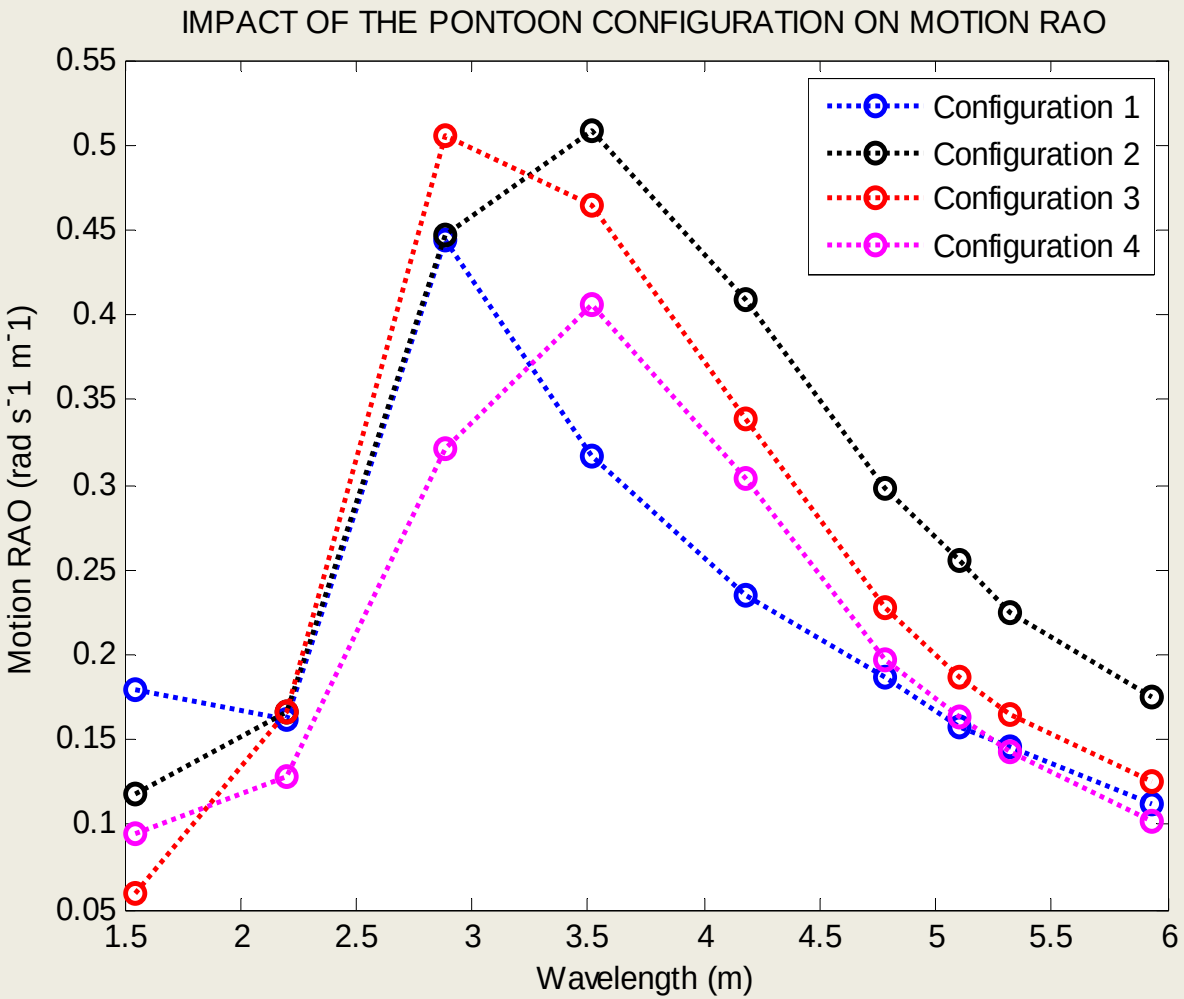
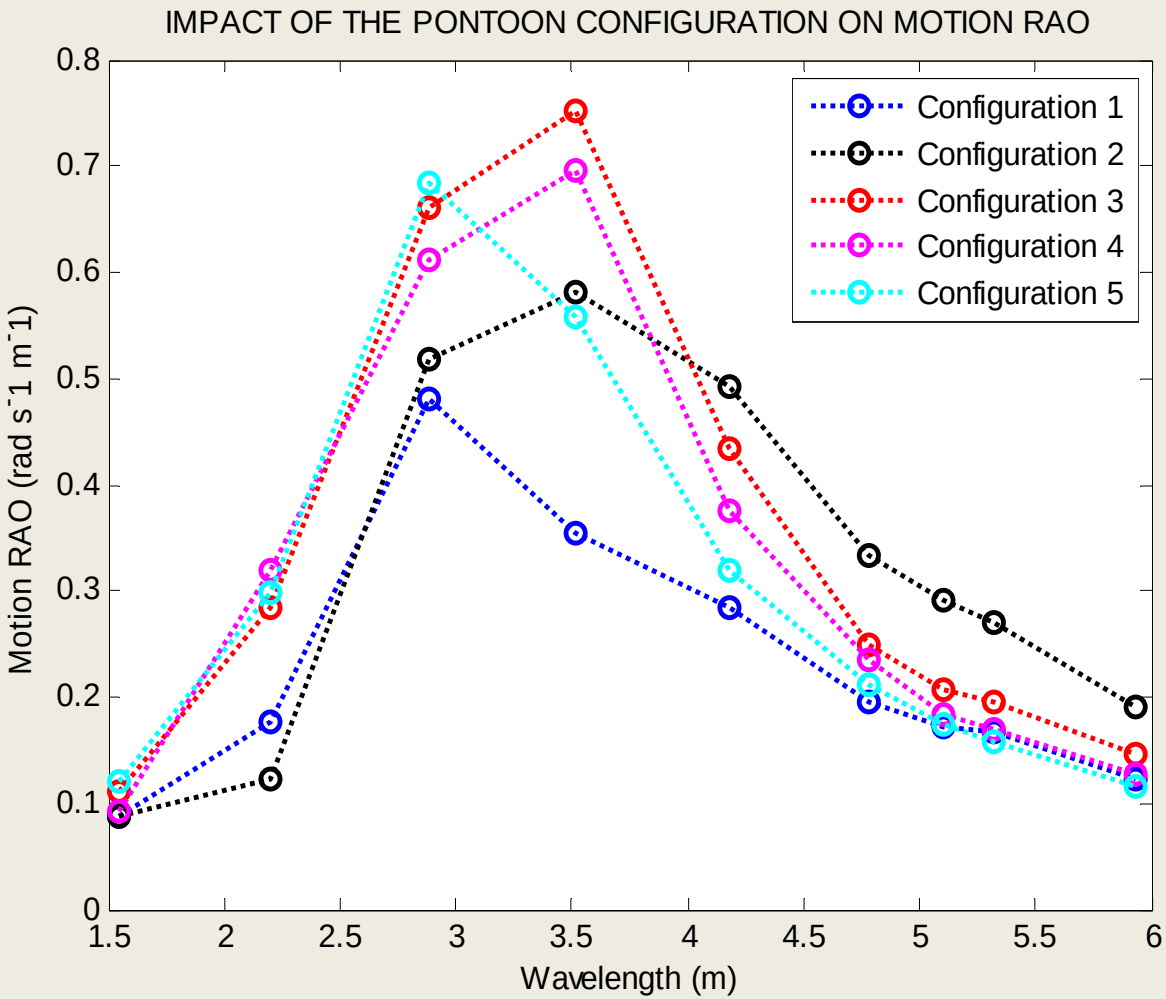




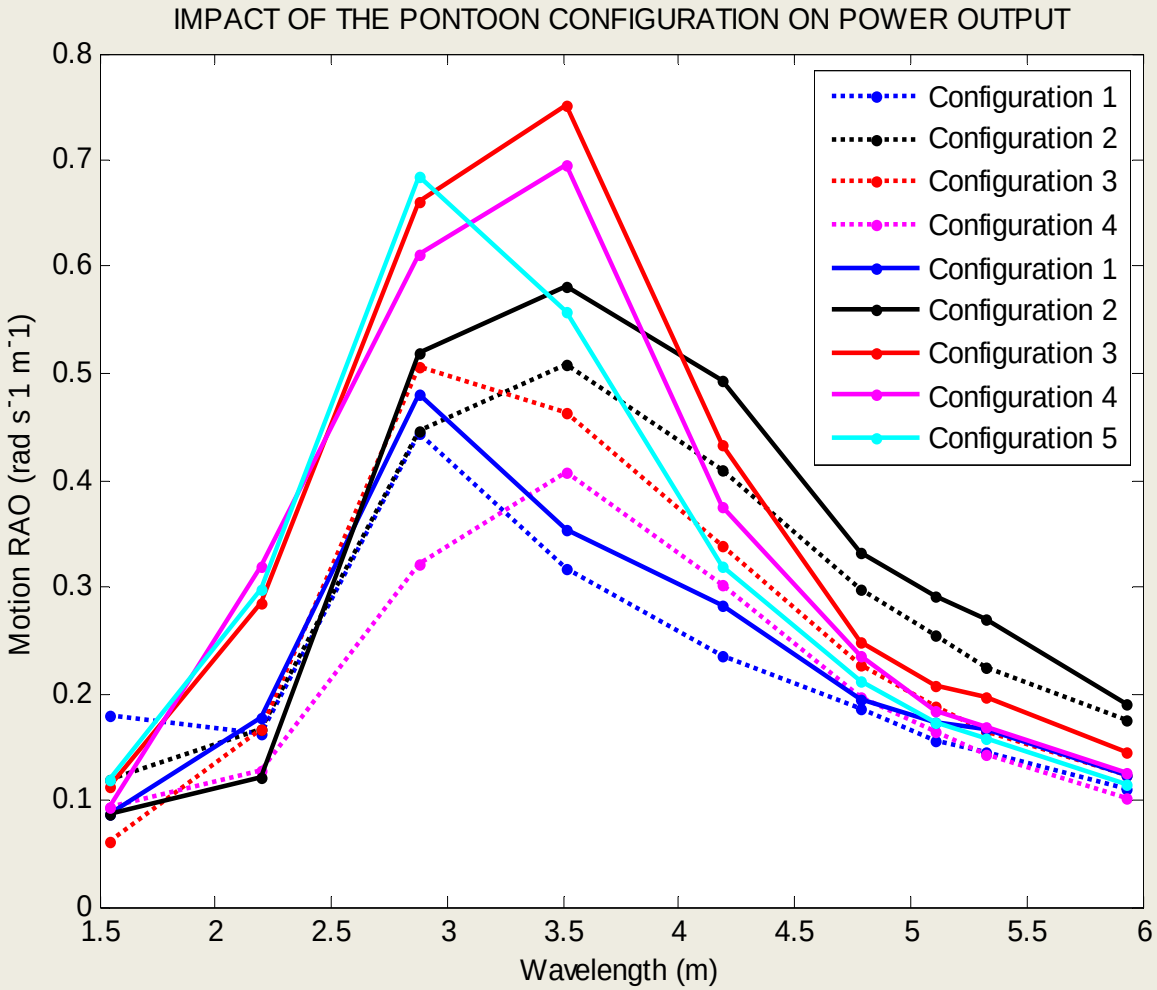
Heaving Pontoon facing Incident Waves

n.b. Motion RAO is measured in angular velocity per metre wave height



Pitching Pontoons facing Incident Waves

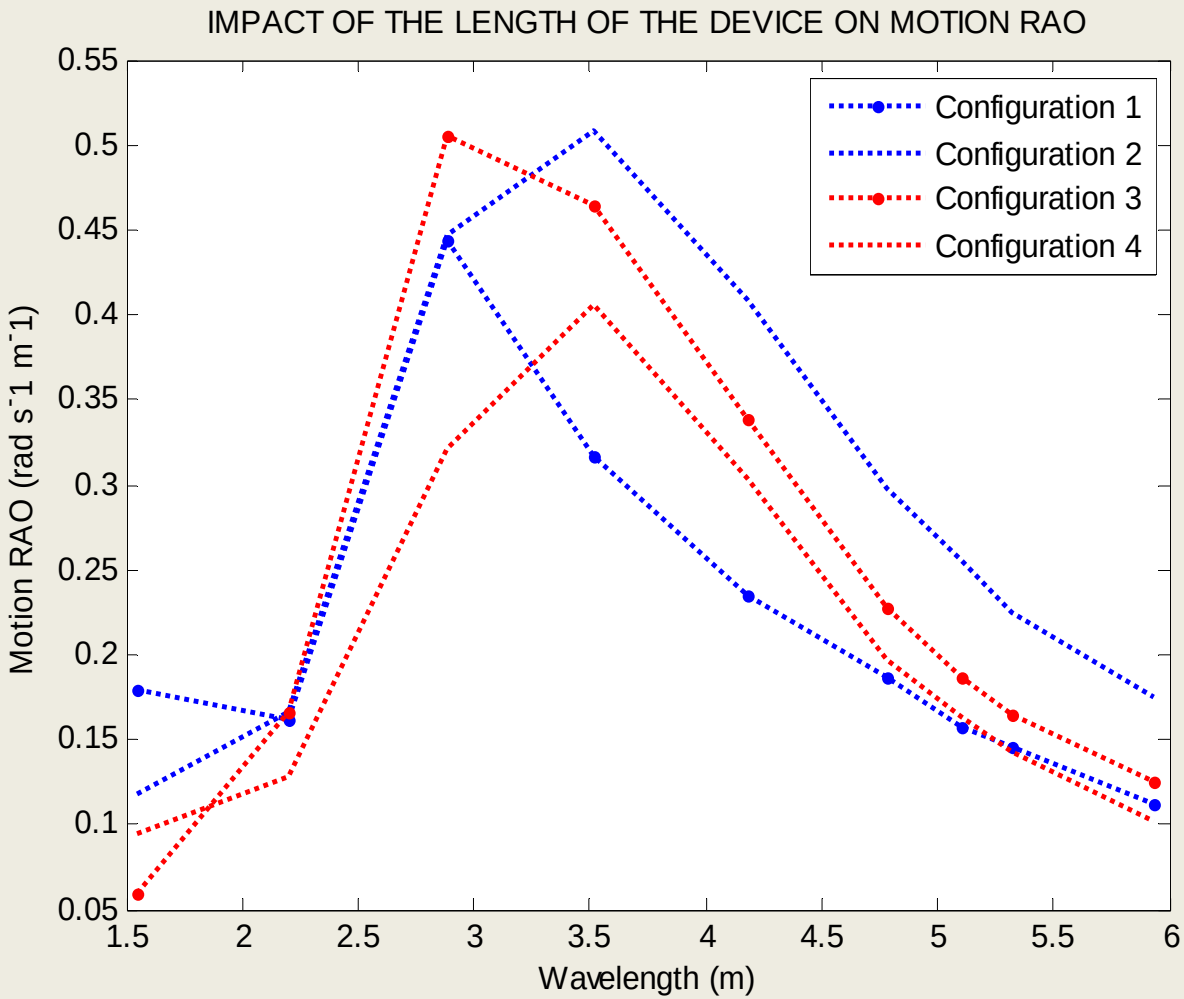
n.b. Motion RAO is measured in angular velocity per metre wave height



Dashed Lines represent Heaving Pontoon facing Incident Wave

Solid Lines represent Pitching Pontoon facing Incident Wave

n.b. Motion RAO is measured in angular velocity per metre wave height



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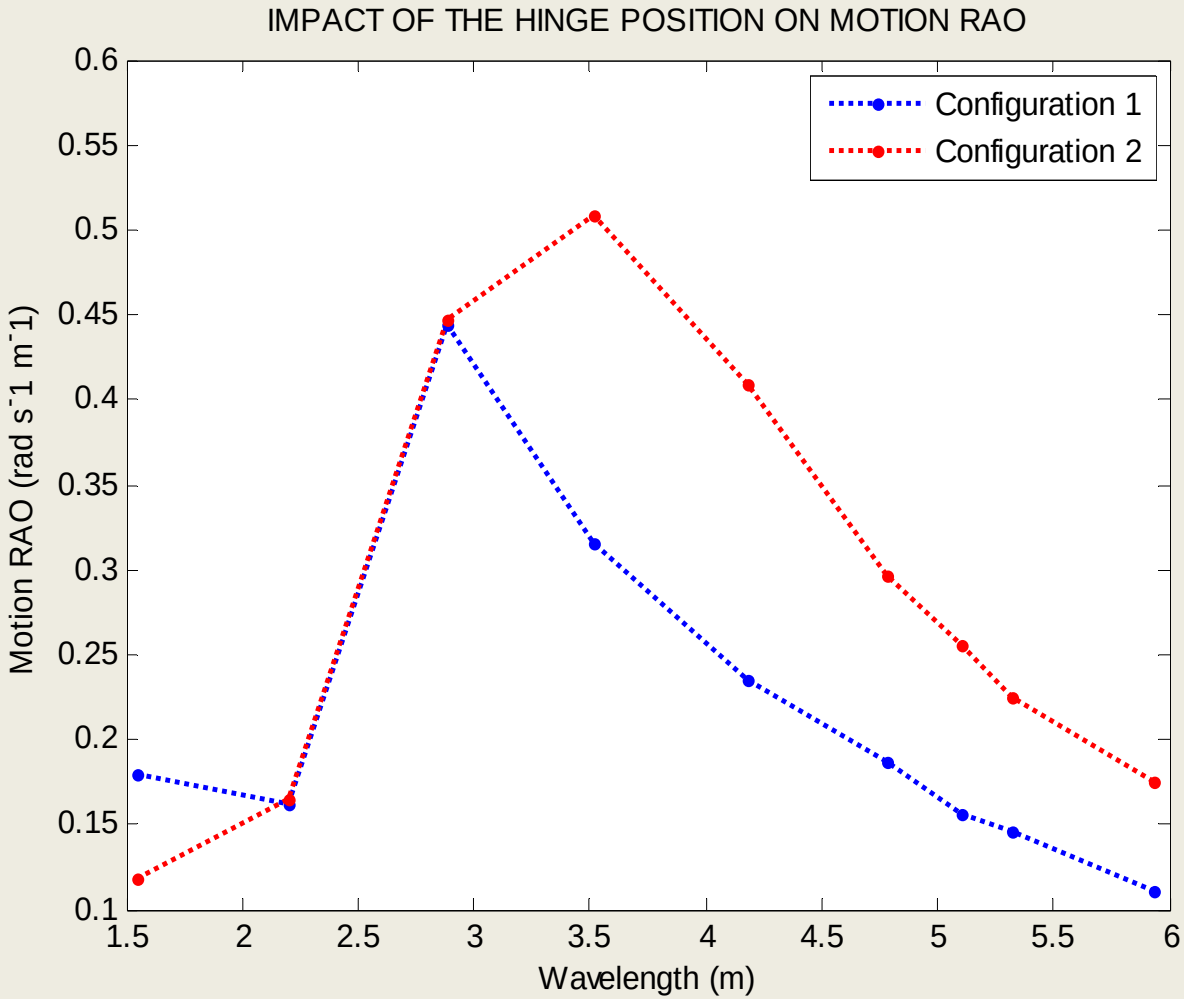

Heaving Pontoon facing Incident Waves

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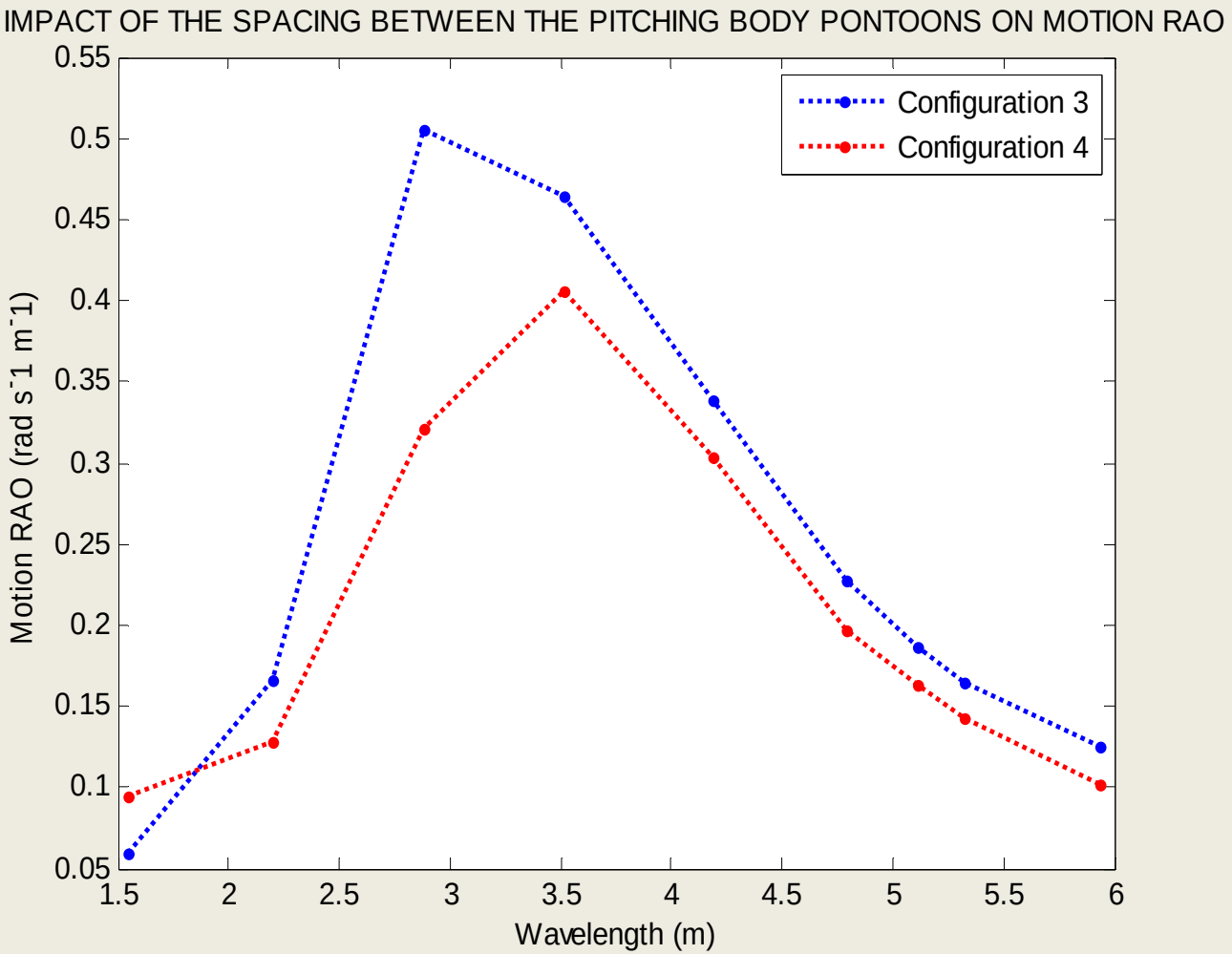
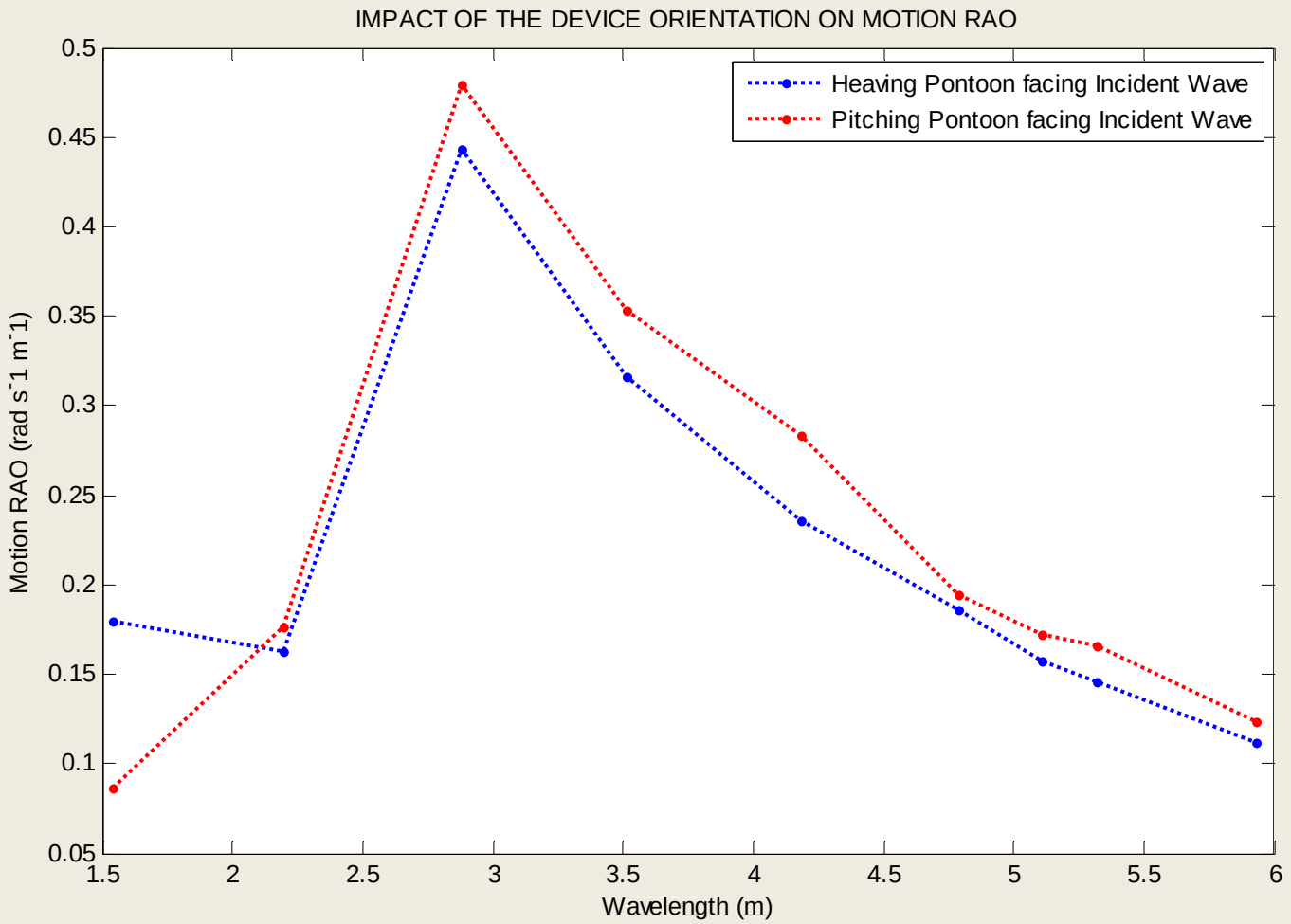


Heaving Pontoon facing Incident Waves

n.b. Motion RAO is measured in angular velocity per metre wave height

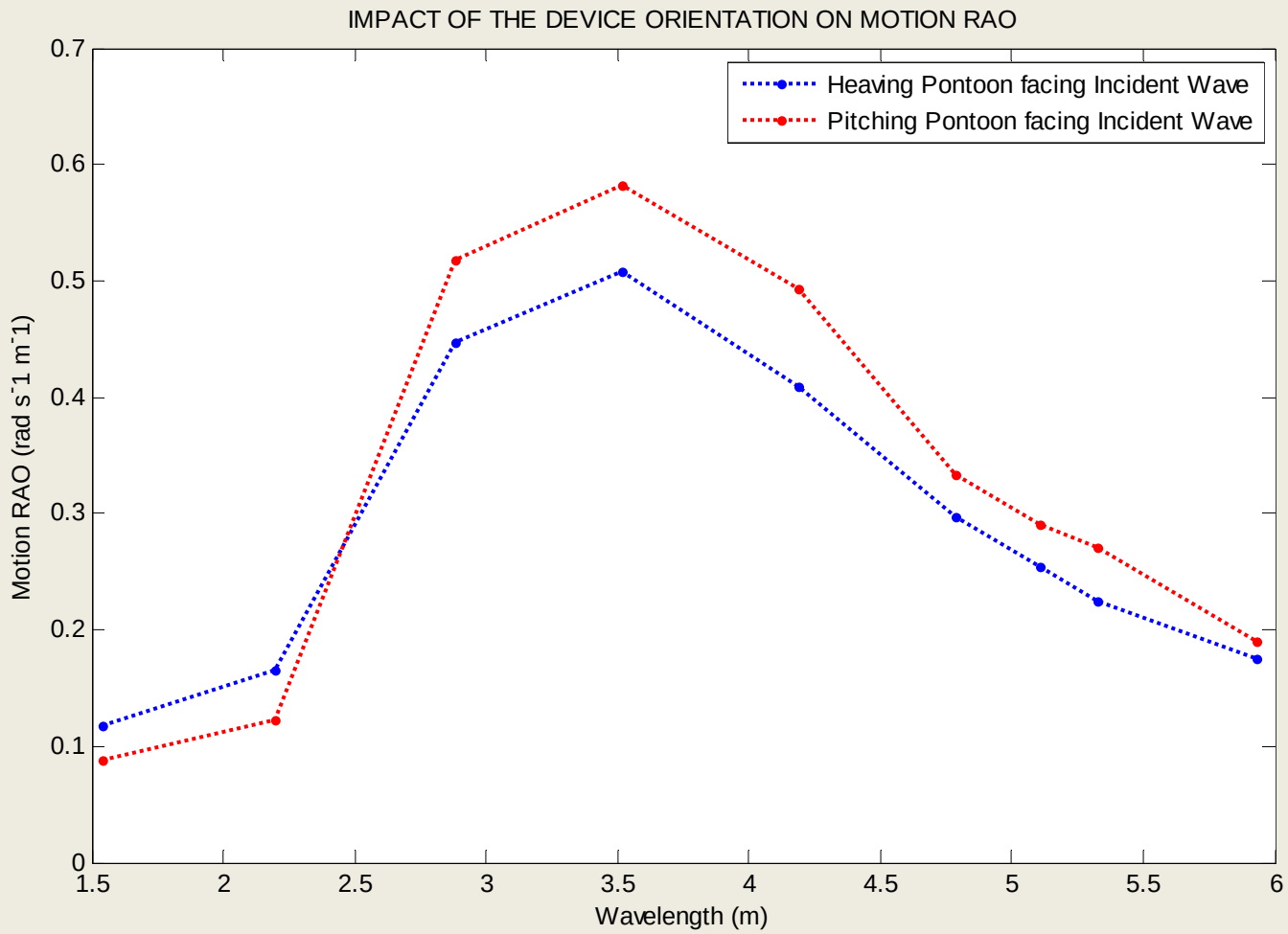
Outcomes

- Length of device and configuration of pontoons
- **Position of heaving pontoon in relation to wave propagation**
- Draft of the device
- Direction of the incident wave
- Power take off system



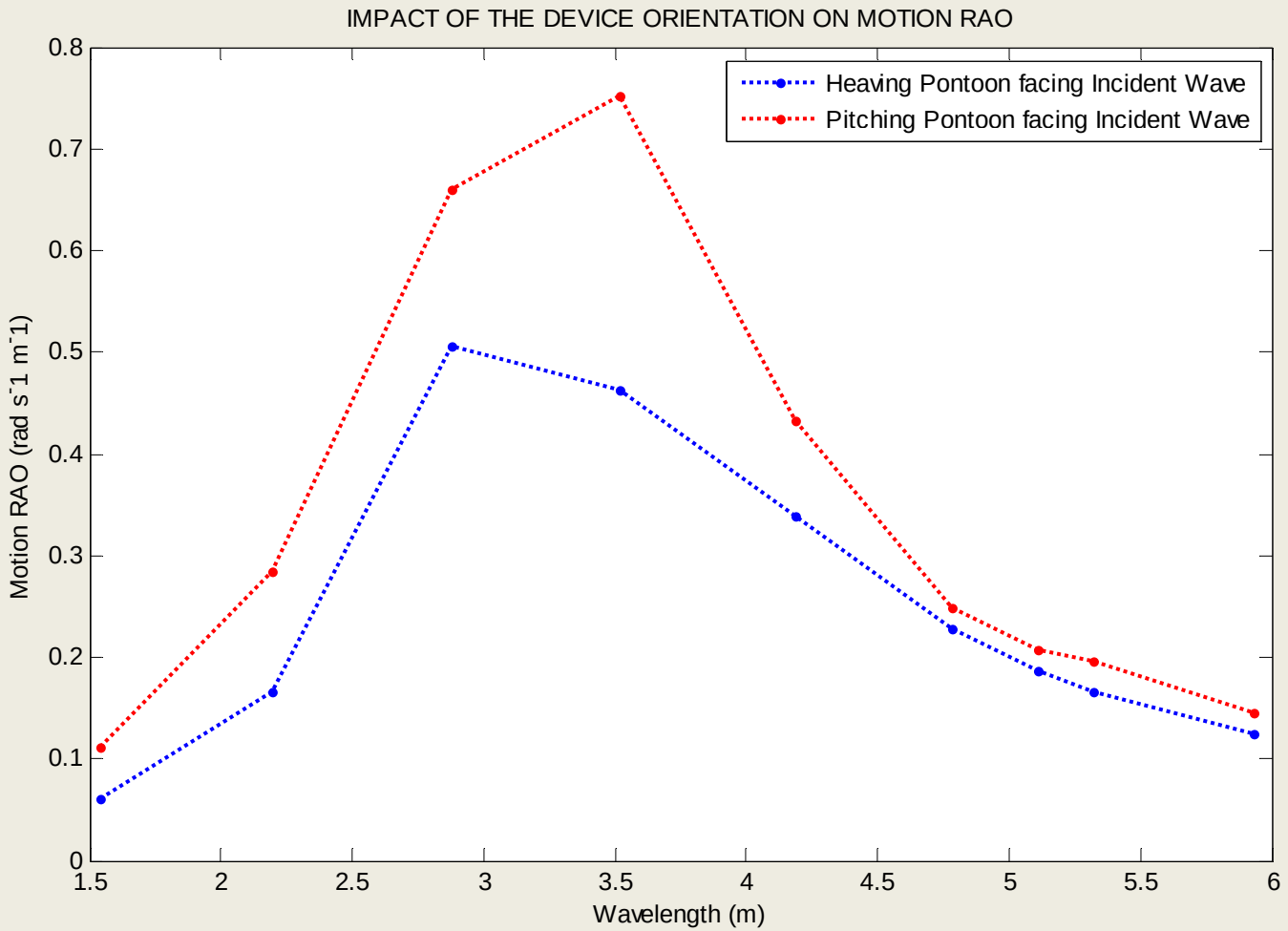
Configuration 1

n.b. Motion RAO is measured in angular velocity per metre wave height



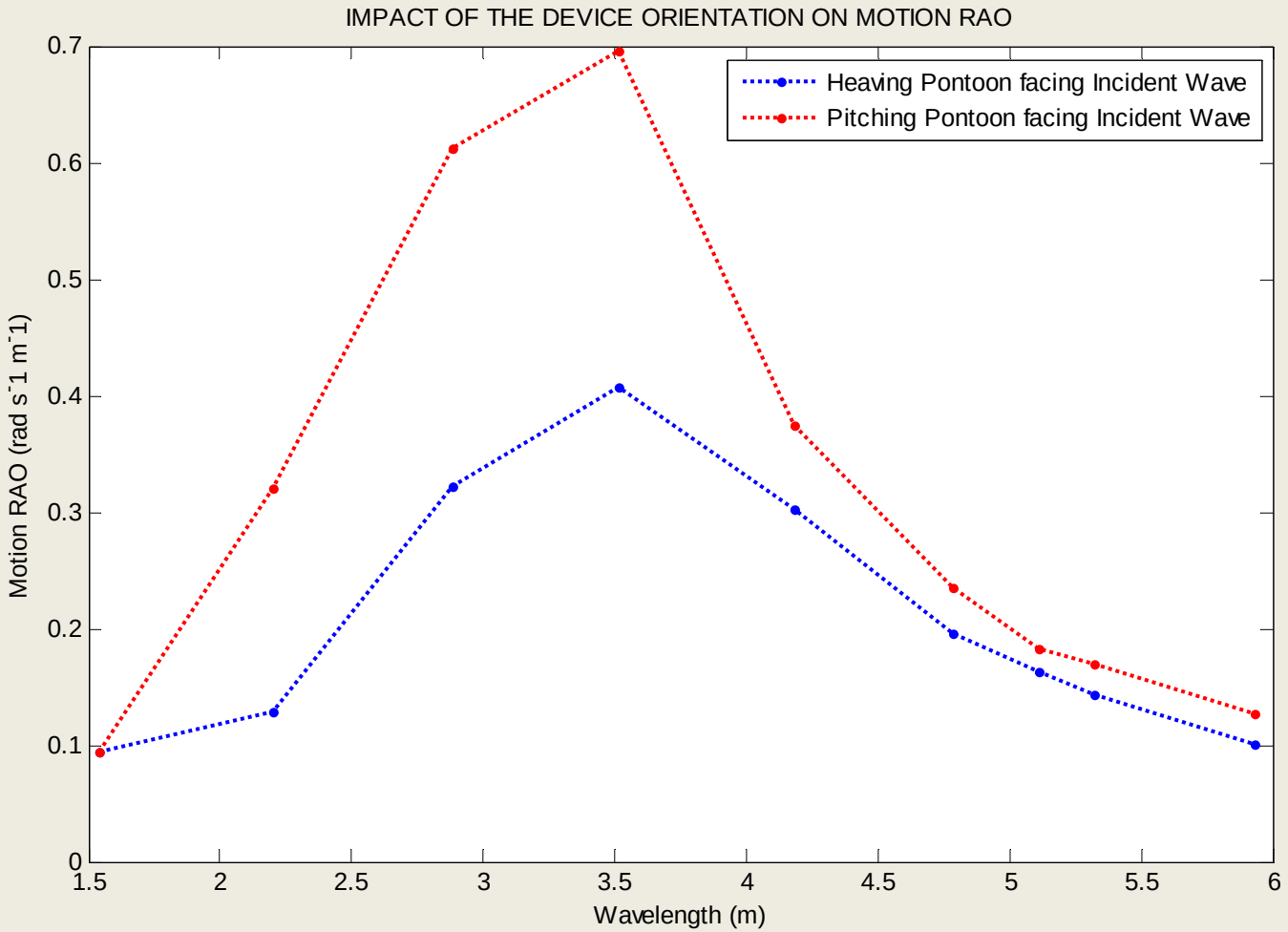
Configuration 2

n.b. Motion RAO is measured in angular velocity per metre wave height



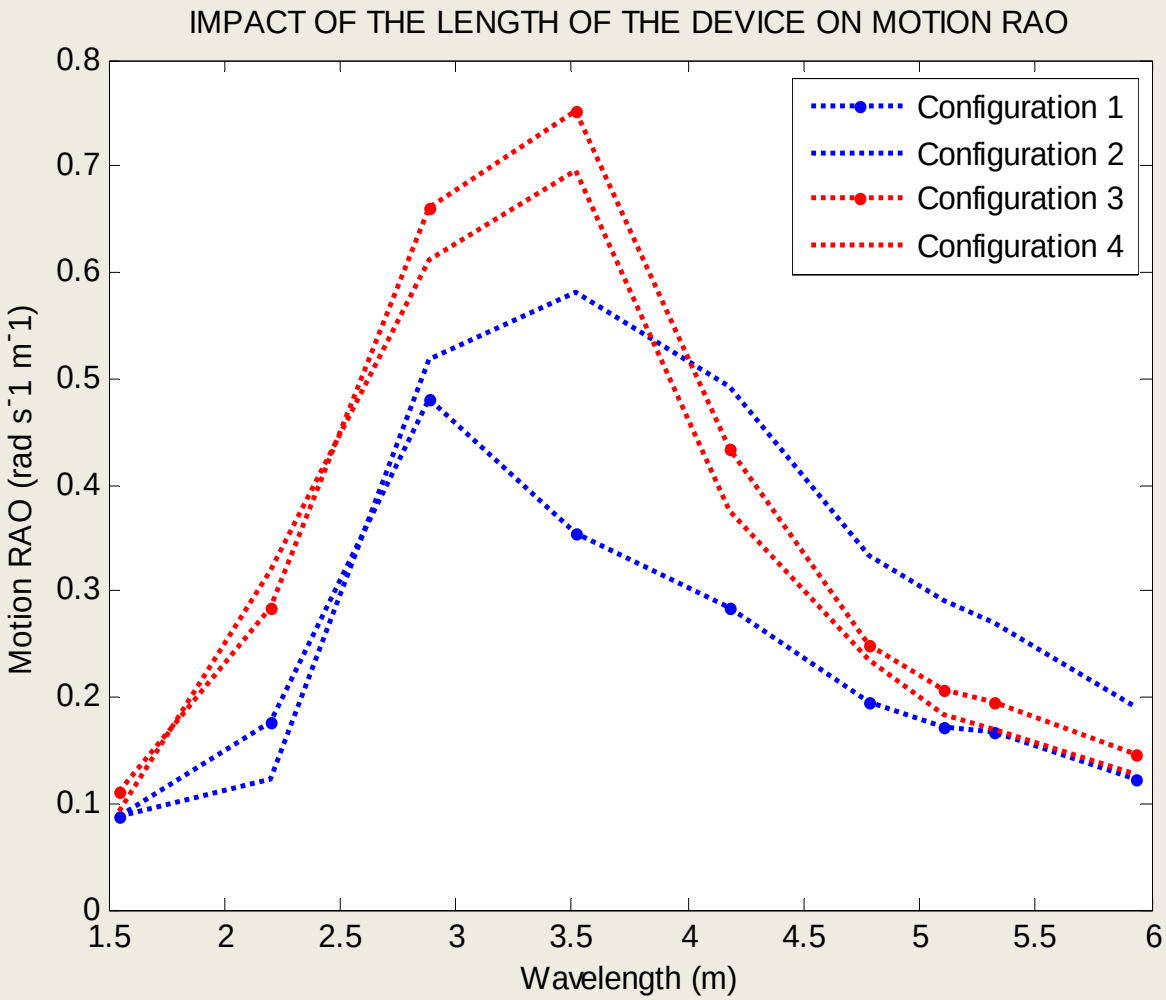
Configuration 3

n.b. Motion RAO is measured in angular velocity per metre wave height



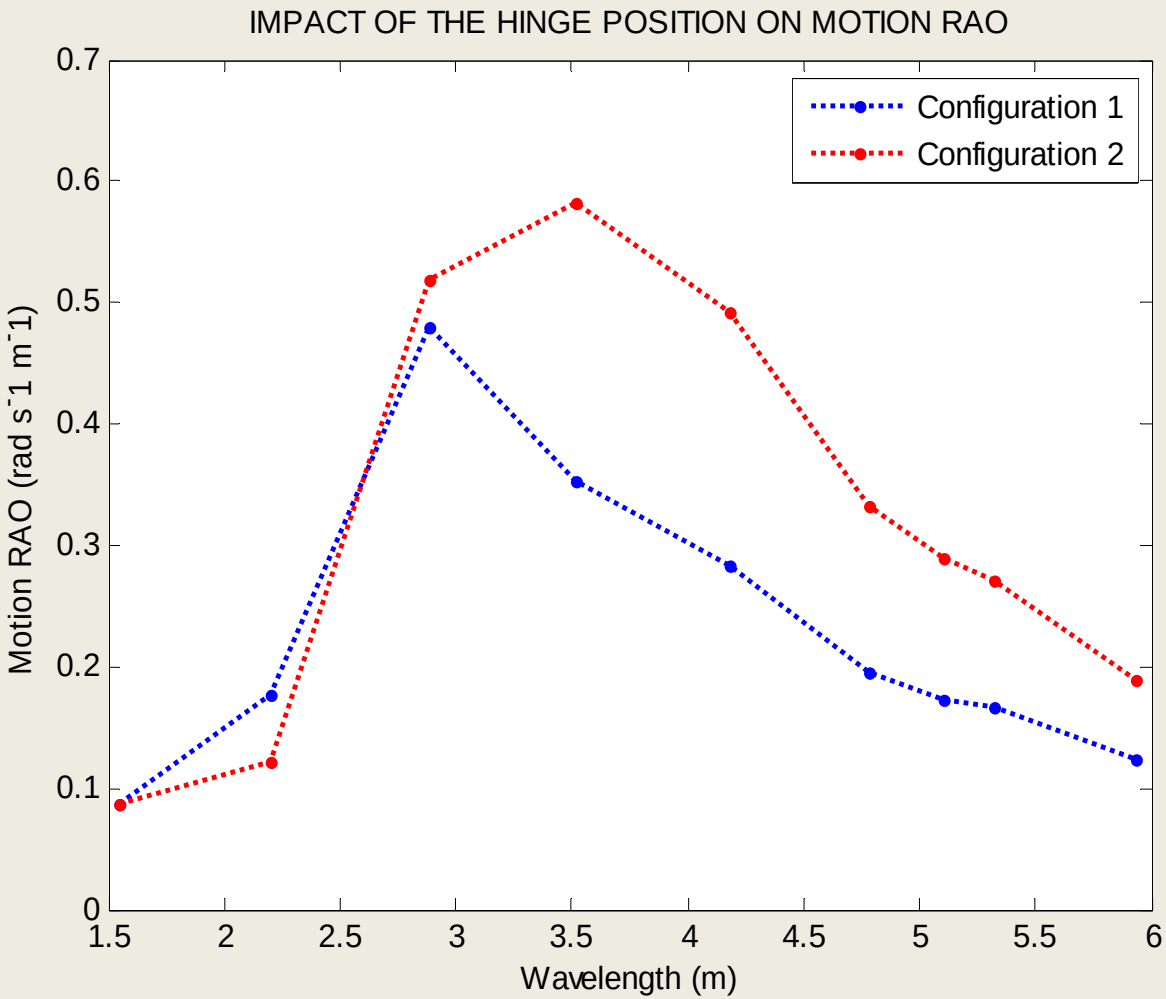
Configuration 4

n.b. Motion RAO is measured in angular velocity per metre wave height



Pitching Pontoon facing Incident Waves

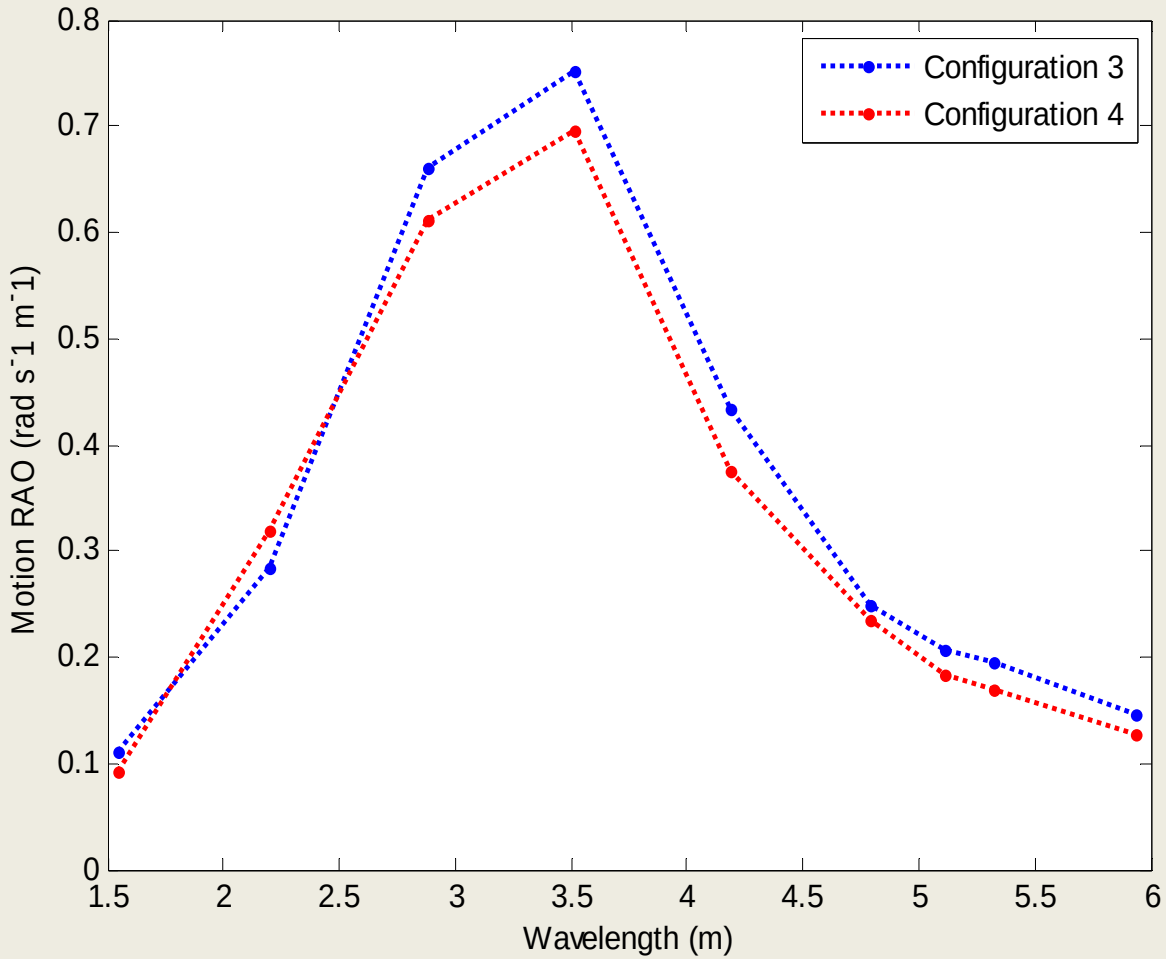
n.b. Motion RAO is measured in angular velocity per metre wave height



Pitching Pontoon facing Incident Waves

n.b. Motion RAO is measured in angular velocity per metre wave height

IMPACT OF THE SPACING BETWEEN THE PITCHING BODY PONTOONS ON MOTION RAO

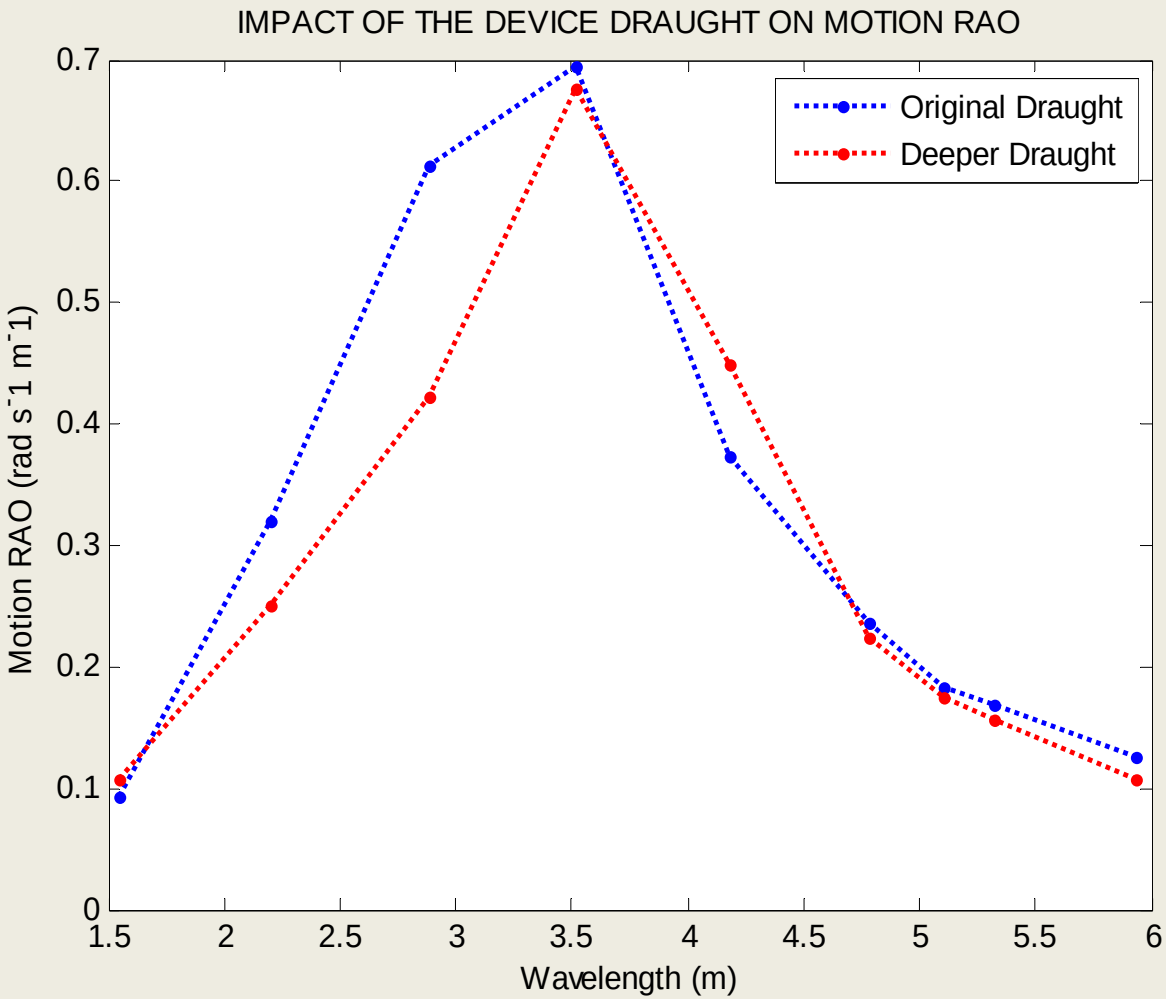


Pitching Pontoon facing Incident Waves

n.b. Motion RAO is measured in angular velocity per metre wave height

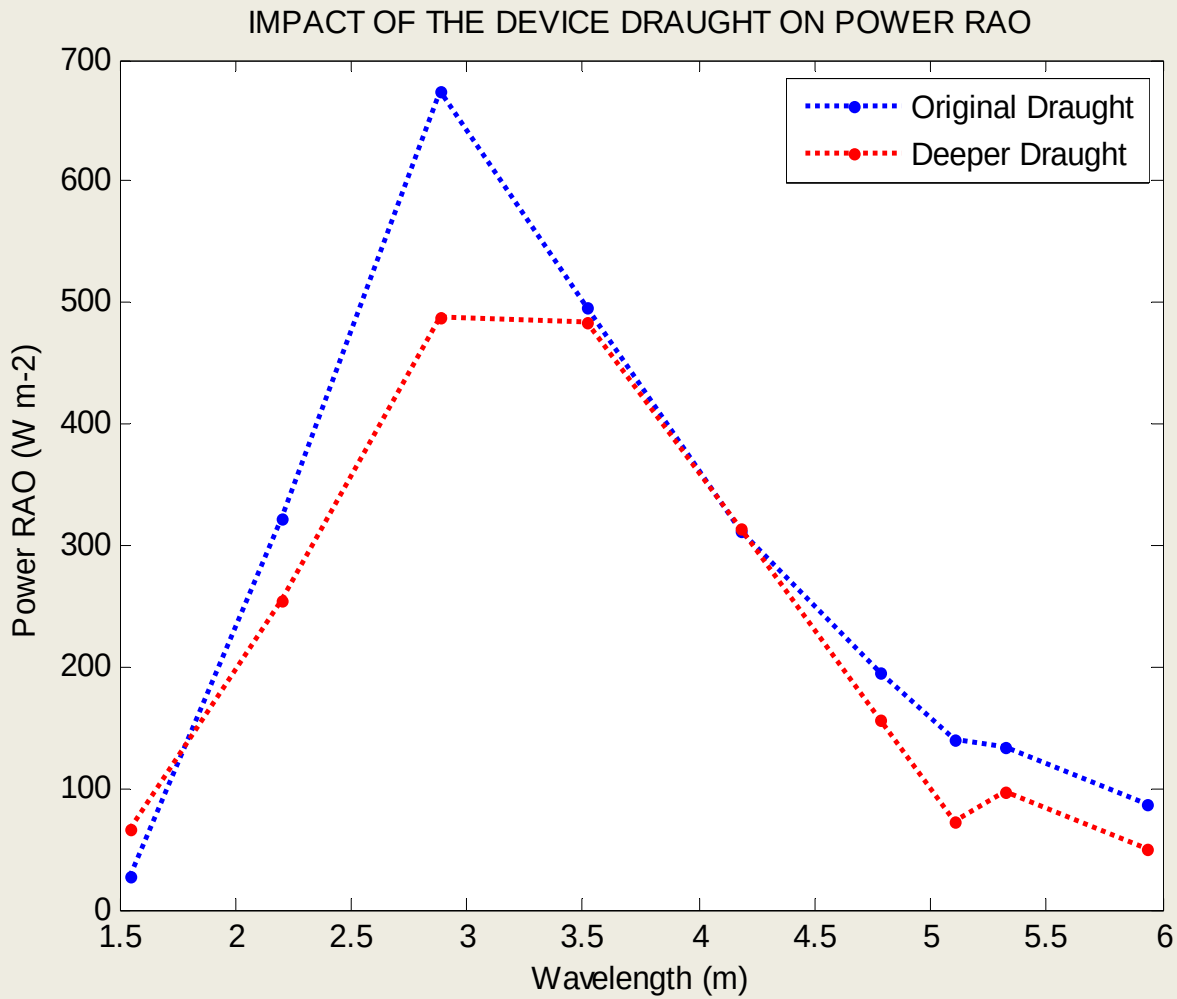
Outcomes

- Length of device and configuration of pontoons
- Position of pitching pontoon in relation to wave propagation
- **Draft of the device**
- Direction of the incident wave
- Power take off system



Configuration 4, Pitching Pontoon facing Incident Waves

n.b. Motion RAO is measured in angular velocity per metre wave height

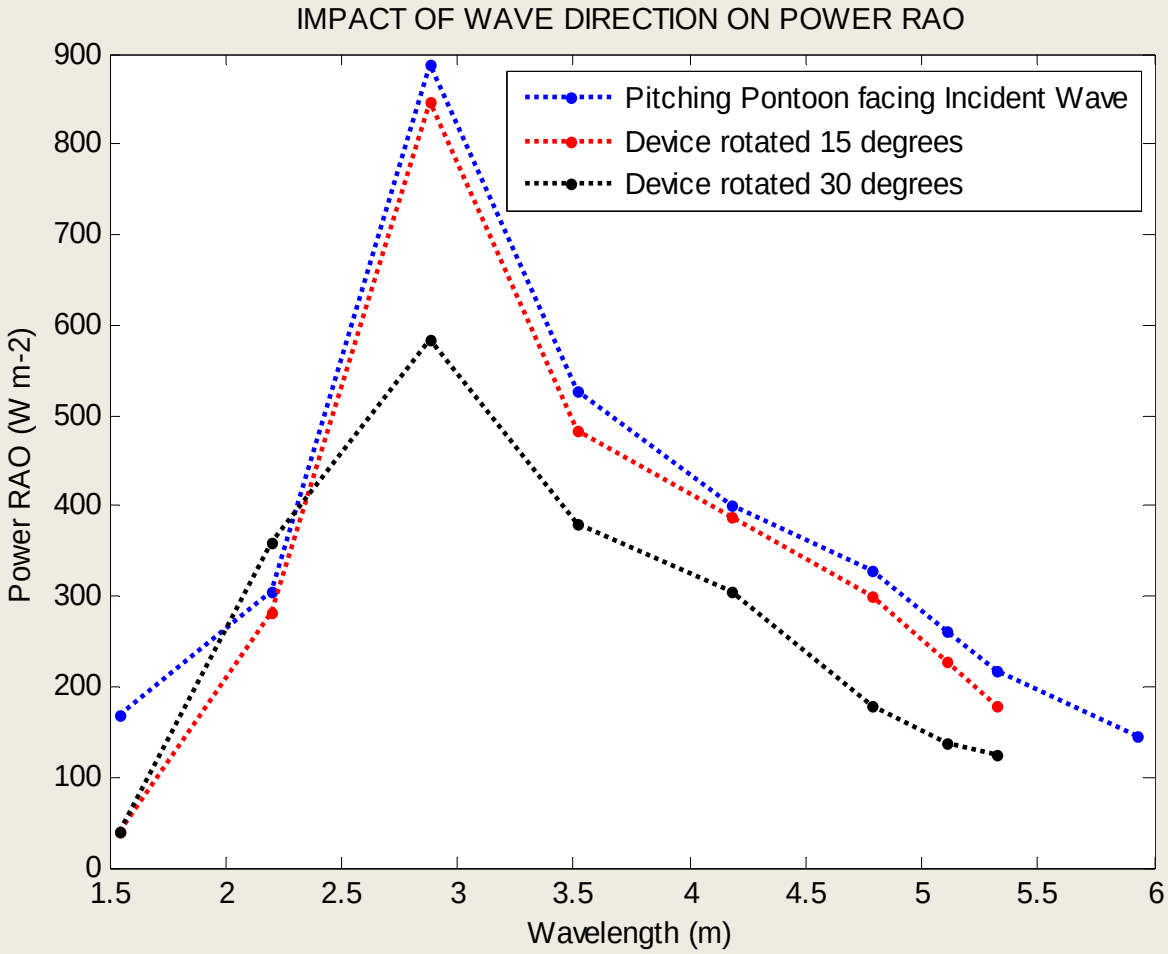


Configuration 3, Pitching Pontoon facing Incident Waves

n.b. Power RAO is measured in power per metre wave height squared

Outcomes

- Length of device and configuration of pontoons
- Position of pitching pontoon in relation to wave propagation
- Draft of the device
- **Direction of the incident wave**
- Power take off system



Configuration 5

n.b. Power RAO is measured in power per metre wave height squared

Outcomes

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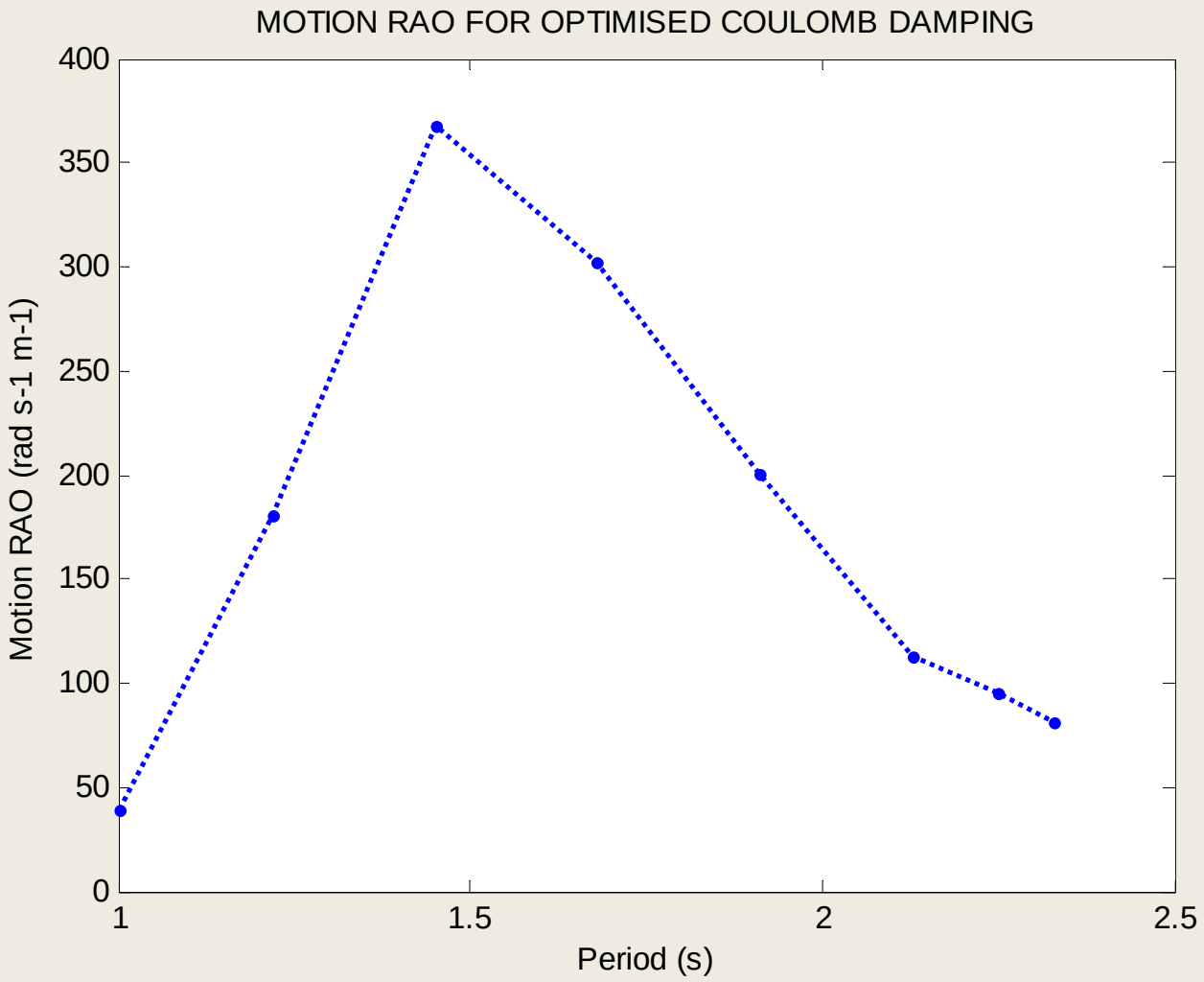
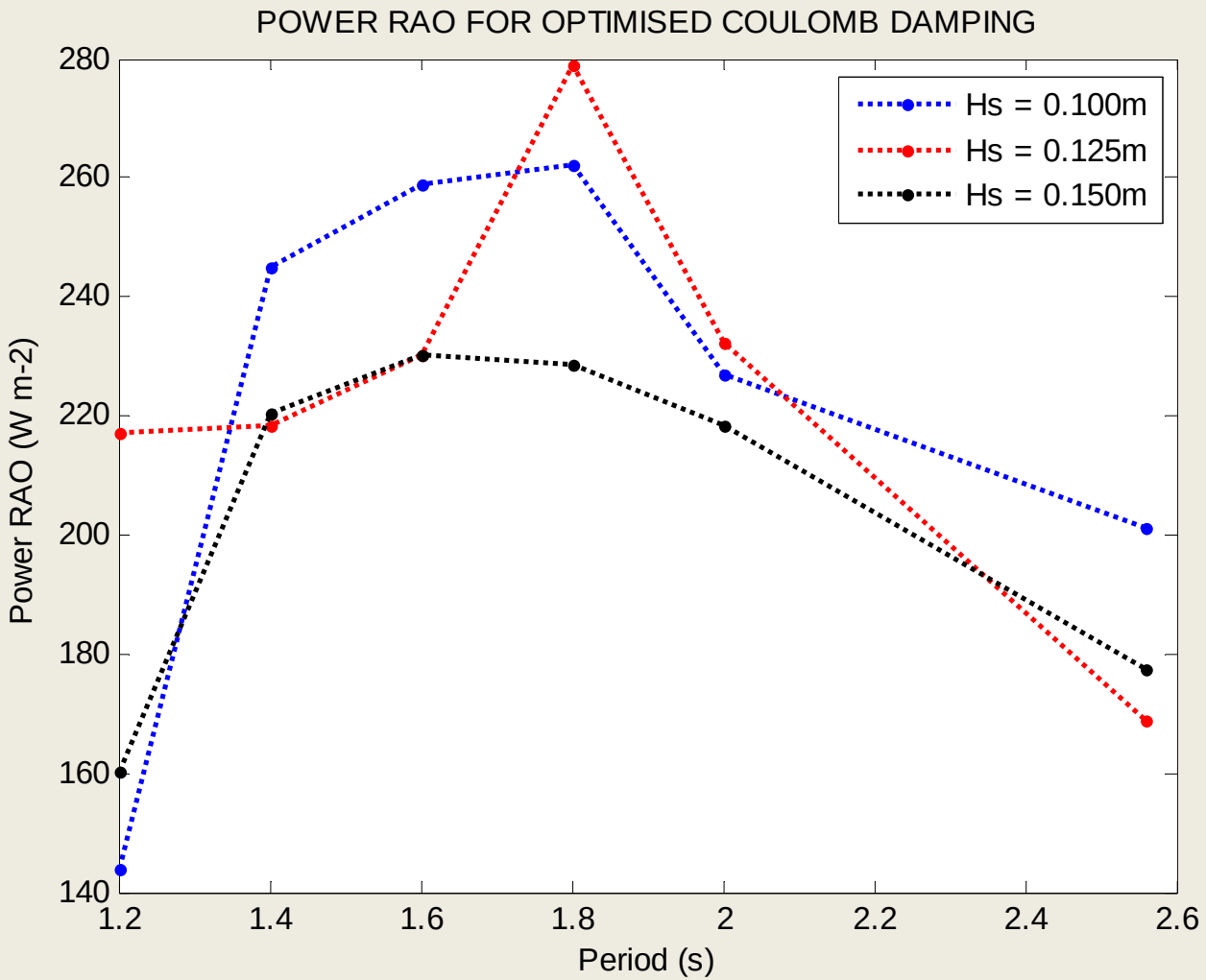
- Position of pitching pontoon in relation to wave propagation
- Draft of the device
- Direction of the incident wave
- **Power take off system**

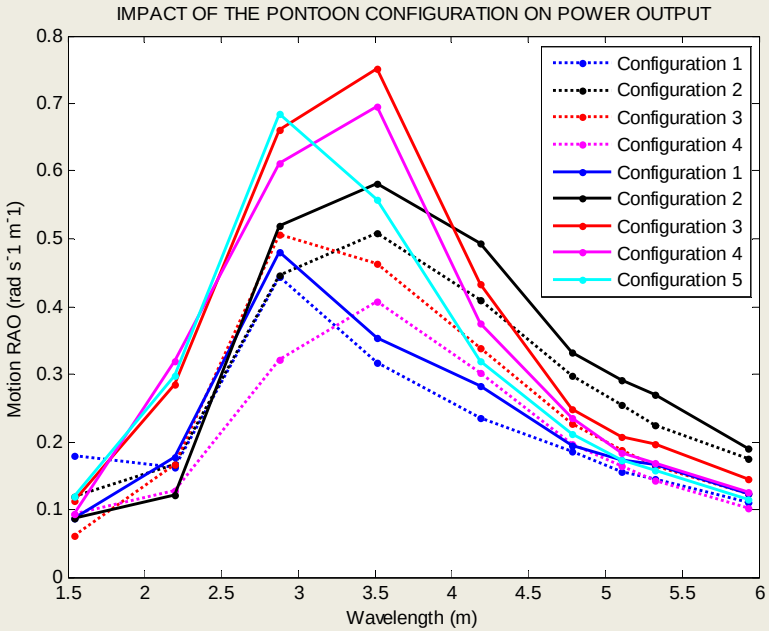


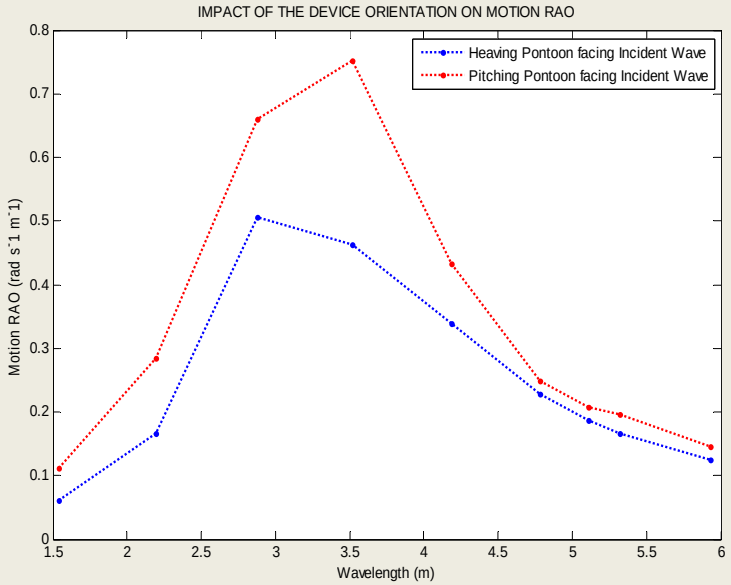
n.b. Power RAO is measured in power per metre wave height squared



n.b. Power RAO is measured in power per metre wave height squared

Conclusion





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