



Project Student: Amani Becker

Supervisors: David Copplestone (University of Stirling), Andrew Tyler (University of Stirling), Nick Smith (National Nuclear Laboratory)

Project title: Redistribution of intertidal sediment contaminants by benthic diatoms

Project Outline: As an important component of the intertidal zone microphytobenthos interacts with the sediment and fauna to influence sediment distribution and resuspension, it adsorbs contaminants (e.g. heavy metals and radionuclides) and forms a key part in the estuarine food chain. Time series airborne remote sensing will be used to build on previous studies and further examine relationships between sediment and microphytobenthos cover with a particular focus on seasonality and extreme weather events. Through the use of a mesocosm, adsorption and uptake of contaminants from various sediment types by microphyte assemblages will be studied in the laboratory. Spectral measurement will enable the upscaling of results to characterise microphytobenthos in the intertidal zone. The potential for contaminant redistribution by suspended microphytobenthos will be examined using a particle tracking model developed by the National Oceanography Centre (NOC). Potential environmental and human health impacts arising from ingestion of microphytobenthos by razorshells and cockles will also be addressed through the use of contaminant accumulation models.

Student Biography: Amani completed an MSc in River Basin Management at University of Stirling in January 2013, prior to which she gained a BSc in Environmental Studies from the Open University. Her MSc dissertation was an investigation of sediment sources to a salt marsh using fingerprinting techniques and mixing models. Her main research interests are in estuarine processes, climate change and anthropological impacts which she will continue to progress within the ARCoES project.