BANDO N. 400.14 IRPI PNRR pubblicato sul portale InPA il 07/05/2024
Prova orale del giorno 30 luglio 2024

FOGLIO DOMANDE (A)

1) Il candidato descriva in che modo pensa di poter impiegare nell'ambito della tematica di progetto riportata nel bando, le competenze dichiarate nel proprio curriculum vitae.

2) Il candidato illustri una o più tecniche di monitoraggio topografico impiegate nell'analisi dei versanti instabili.

3) (Da Passalacqua et al., 2015 - Analyzing high resolution topography for advancing the understanding of mass and energy transfer through landscapes: A review. Earth-Science Reviews 148, p. 184)

   Initiation of a landslide near a ridge crest is likely to cause deposition of a slug of sediment in the valley bottom. Bank erosion at one or many individual locations throughout a watershed is likely to influence turbidity and sediment flux at the mouth of the watershed. Such predictions can only be reliable if the critical features can be identified and the transport mechanisms between the points of interest are known. High resolution topography provides a new mechanism for satisfying the inputs needed for detailed models of mass and energy transfer and takes us a step closer to robust spatially distributed modeling over large domains. Improved algorithms to quantify landscape topology and conduct ensemble feature mensuration enable analysis of spatial relationships, from simple metrics such as distance, height, and volume to more complex evaluations of feature proximity and transport pathways.

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FOGLIO DOMANDE (B)

1) Il candidato descriva in che modo pensa di poter impiegare nell'ambito della tematica di progetto riportata nel bando, le competenze dichiarate nel proprio curriculum vitae.

2) Il candidato descriva uno o più sensori utilizzati per il monitoraggio di parametri ambientali connessi allo sviluppo di fenomeni franosi o alluvionali.

3) (Da Lentile et al., 2006 - Remote sensing techniques to assess active fire characteristics and post-fire effects. International Journal of Wildland Fire, 15, p. 320)

   Multi-temporal remote sensing techniques have been effectively employed to assess and monitor landscape change in a rapid and cost-effective manner. Remotely sensed data give researchers a means to quantify patterns of variation in space and time. The utility of these data depends on the scale of application. Coarse-scale maps of fire regimes based largely on remotely sensed biophysical data have been used for planning and prioritizing fuels treatments at regional and national levels, but may have limited local applicability (Loveland et al. 1991; Morgan et al. 1996, 2001; Hardy et al. 1999). Higher spatial-resolution remote sensing of spectral patterns before, during, and after wildfire may facilitate prediction of areas likely to burn or experience uncharacteristic effects when they burn, and may assist with strategic decisions about fuels management before fires occur, suppression as fires burn, and post-fire rehabilitation efforts.

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FOGLIO DOMANDE (C)

1) Il candidato descriva in che modo pensa di poter impiegare nell'ambito della tematica di progetto riportata nel bando, le competenze dichiarate nel proprio curriculum vitae.

2) Il candidato presenti una o più tecniche di data processing impiegate nell'ambito del monitoraggio ambientale.

3) (Da Wilson et al., 2021 - Hillslope sediment fence catch efficiencies and particle sorting for post-fire rain storms. Earth Surface Processes and Landforms, 46, p. 268)

   The quantity and type of erosion and sediment transport varies with rainfall and site characteristics. Typically, increased rainfall intensity leads to higher erosivity and the potential for overland flow and detachment and transport of sediment (Farmer, 1973; Bagnold, 1977; Wan and El-Swaify, 1998; Shi et al., 2012; Cawson et al., 2013). While rainsplash can detach a wide range of soil particle sizes, smaller particles are more readily entrained and transported from hillslopes by diffuse overland flow (Sutherland, 1991; Wan and El-Swaify, 1998). In cases where the surface runoff is concentrated into rills, the deeper and faster flow can both detach and transport coarser particles (Wan and El-Swaify, 1998; Shi et al., 2012). Along a hillslope, coarser particles tend to be deposited in areas with lower slopes, while organic matter and finer particles are more readily transported downslope (Parsons et al., 2006), where they are more likely to enter streams, affect water quality, and pose problems for water treatment and supplies and aquatic organisms (Emelko et al., 2011; Smith et al., 2011; Jones et al., 2012; Bixby et al., 2015; Martin, 2016; Hallema et al., 2019).

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