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## Vegetation Phonologies in Lhasa Area Using the Discrete Fourier Transform

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**Abstract:** The vegetation phonologies are well articulated in the temporal frequency domain using the Discrete Fourier Transform (DFT) and it is a useful technique for quantitatively analyzing the vegetation and land cover. Based on the NOAA AVHRR Global Vegetation Index (GVI), this technique used in analyzing seasonality of vegetation in Lhasa area of Tibet. The result shows that as a temperate semi-arid climatic zone the mean or 0th order harmonic indicates the overall level of productivity and the first order captures most of the temporal variability in NDVI at Lhasa area. The explained variance of first order harmonic reaches to 97.57%. The method can be used in other remotely sensed data of temporal sequences and in analyzing land cover changes and land classifications for a certain period as well.

**Key words:** DFT, NDVI, land cover change, Tibet

## 封面照片说明: 甘肃舟曲三眼峪和罗家峪泥石流

三眼峪和罗家峪位于甘肃省甘南藏族自治州舟曲县县城北面,嘉陵江一级支流白龙江的左岸,流向由北到南。三眼峪和罗家峪与白龙江的汇口处海拔约 1 320 m,流域最高点分别为 3 825 m 和 3 780 m。流域所在区域处于秦岭山脉与龙门山山脉的接合部,为我国南北地震带中北段,晚第四纪构造活动强烈,活动断裂非常发育,地震活动频繁。有史记载以来,曾发生过公元前 186 年武都 7 级、1654 年天水南 8 级和 1879 年武都南 8 级等特大地震。出露的地层岩性主要是泥盆系、二叠系的千枚岩、硅质灰岩、碳质页岩和板岩等。岩石经受多次构造运动作用,褶皱、裂隙、节理发育,很容易风化形成岩屑和粘土。脆弱的地质条件和生态环境使得这一区域成为我国泥石流滑坡灾害最为发育的地区之一。2010 年 8 月 7 日 23 时左右,这两条沟同时暴发大规模的泥石流,毁坏了近三分之一的舟曲县城,造成了重大的人员伤亡和经济损失。有关这次泥石流事件的详细情况,参见本刊 628~640 页。

(胡凯衡)