

ASPECT

Definition: 'as - pekt / 1. a position facing a particular direction
2. appearance to the eye & mind.

THE DEGIFS NEWSLETTER

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The "Editorial"

Sharon Scott, P.Geo., Eng. L.

Spring has finally sprung!!!!.....and a good thing since winter really sprung a leak here on the coast! All of the rain and storms we have been experiencing are generating interesting discussions on the possible cause: be it from the effect of climate change or floating soot particles changing the chemistry of the air. The bottom line is that this weather certainly makes for interesting field excursions.

Field work is shifting into high gear now as the snow disappears and I am sure that we are all organizing our field/project work for the year. And just thinkwith the spring forward time change occurring three weeks earlier than before, our potential daylight working hours increase so we can get more done.....once we acclimatize to the change that is!

Your executive has been busy over the winter months dealing with the official DEGIFS response to the proposed WCB regulation changes. An update on this will be coming in our next issue.

We have a number of announcements about upcoming events in this issue, as well as clarification regarding terrain report content, and some interesting reading about the influence of root reinforcement and groundwater on slope stability from last years DEGIFS bursary winner Victoria Stevens.

So take a moment to sit back and relax as ASPECT eases you into that sublime terrain frame of mind.....

Please note: DEGIFS Executive does not necessarily support or agree with the opinions and conclusions indicated in the editorial.

DIVISION OF ENGINEERS AND GEOSCIENTISTS IN THE FOREST SECTOR

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CLARIFICATION OF RECOMMENDATIONS IN GILLIAN PICHLER ARTICLE IN DECEMBER 2006 ASPECT

By the DEGIFS executive

The following comments are provided by the DEGIFS executive in response to a request for clarification of item 1a in the article titled "Common Practice Oversights and Omissions: Reminder to Members doing Terrain Stability Assessments in the Forest Sector", by Gillian Pichler, P.Eng., of APEGBC. This article can be found on Page 2 of the October 2006 edition of ASPECT.

Gillian's article identified a number of items that the Review Panel noted as requiring improvement in some of the TSA reports reviewed during applications for the expedited 'Limited Licence in Civil Engineering for Professional Geoscientists carrying out Terrain Stability Assessments for Forest Roads and Other Excavations'. Item 1a of the ASPECT article indicated:

1. Specifications and Rationale for Cutslopes and Fillslopes
 - a. Reports should specify cutslope angles, cut heights, fillslope angles, fill heights and rationale for these.

Some DEGIFS members indicated that they interpreted this recommendation to mean that all TSA reports should include specific prescriptions for cut/fill slope angles, cut/fill heights and supporting rationale regardless of the proposed size of the cut/fill or the type of terrain over which the road will be constructed (i.e. even on gentle slopes). This was not the intent of recommendation 1a in the ASPECT article and as such, some clarification is needed.

The Review Panel noted that some TSA reports did not include any recommendations for appropriate cut/fill slope angles or height limits and supporting rationale where proposed roads were located on moderately steep or steep ground or other potentially unstable or unstable

terrain. The Review Panel considered this omission in the TSA reports to be unacceptable. TSA reports should include specific recommendations for road cuts and fills and supporting rationale where roads are located on slopes that have been identified as having a moderate or high hazard of landslide initiation or that pose particular slope stability concerns (e.g. wet sites). For example, simply providing a reference to full bench cut without noting an appropriate cutslope angle is not acceptable. In addition, as the stability of a slope varies significantly with respect to the slope height, the height (depth) of cut should be considered within the TSA and where appropriate, limits on the height (depth) of cut may be required. Similar conditions should be considered for the road fills and specific recommendations may be warranted.

It is incumbent on the TSA practitioner (P.Eng/P.Geo) to know what is proposed for construction. All designs for road sections included within a TSA should be reviewed by the TSA practitioner to provide assurance that the designs are consistent with specific prescriptions contained within the TSA report. For road sections rated as low likelihood of landslides (where detailed cut/fill slope angles and height restrictions may not have been provided within the TSA) the TSA practitioner should review the designs to provide assurance that the road design procedures being proposed by the road designer are reasonable for the terrain conditions and will not increase the terrain stability hazard ratings above low. Where appropriate, the TSA practitioner should make recommendations for modifications to the road design to address any geotechnical concerns and all reviews and recommendations should be documented.

It is fairly common practice that during road construction, roads are 'field fitted' or modified slightly from their original design to accommodate local ground conditions. Where field adjustments are made during construction that result in the development of cuts or fills higher than the maximum height(s) recommended in the TSA



report, or steeper than the maximum slope angle(s) recommended in the TSA report, then the TSA practitioner should be informed of such changes and given the opportunity to review the constructed cuts/fills to assess the implications to slope stability and worker safety. TSA reports should include a recommendation that the TSA practitioner be notified if such a situation arises.

DEGIFS 2007 AGM – CALL FOR POSTERS

The APEGBC and DEGIFS 2007 AGM will be held in Whistler, October 25 and 26th. A fieldtrip in the Squamish area is planned for Wednesday, October 24th. Again, there will be two (almost) full days of presentations, most of them speaking to this year's theme 'Working under the Forest and Range Practices Act: perspectives from the field'. Given that the Forest and Range Practices Act came into effect January 31, 2004, and that the transition period for forestry and range tenure holders to have approved plans under the Forest and Range Practices Act is being extended to March 31, 2007, this topic is timely for this year's AGM. A draft agenda is attached below.

The DEGIFS AGM conference also provides an opportunity for members to network and discuss their work. This year, the organizers would like to invite posters from DEGIFS members to present their work. Posters on all topics related to engineering or geoscience in the forest (resource) sector are welcome. Posters will be showcased throughout the day on Thursday, October 25th and/or Friday, October 26th, in conjunction with the DEGIFS-stream presentations. No designated poster session is scheduled. Interested poster presenters should contact Dave Wilford (Dave.Wilford@gov.bc.ca) or Irena Weiland (iweiland@telus.net) by June 30th, 2007. Unfortunately, we are not able to offer poster presenters a rebate on the AGM registration fee.

The DEGIFS AGM is scheduled for Thursday afternoon, starting after the 3pm coffee break.

This time was selected to allow members to attend the AGM and to socialize over wine and cheese later that afternoon.

2007 DEGIFS AGM - Program Draft AGM Theme – *Working under the Forest and Range Practices Act: perspectives from the field.*

Stream Coordinators: Irena Weiland, P.Geo., Eng.L. and Dave Wilford, P.Geo., R.P.F.

Wednesday, October 24th

Fieldtrip led by Pierre Friele, P.Geo. – based in the Squamish area - hazards and risk management: debris flows and floods

Thursday, October 25th

Jeremy Araki, P.Eng. – Practicing Engineering under FRPA

Bill Grainger, P.Geo. – Practicing Geoscience under FRPA

Coffee

Doug Erickson, RFT – Forest Engineering Legacy of FPC and the new world of FRPA

Don Dobson, P.Eng. – Practicing Hydrology under FRPA

Lunch

Kevin Turner, P.Eng. – Aspects of professional reliance related to FRPA, including Terrain Management Guidelines

Jeff Fisher, RPF and **Dave Southam, RPF** – How retaining engineering and geoscience professionals has changed as a result of FRPA.

Coffee

DEGIFS AGM

Friday, October 26th

Shannon Janzen, RPF, Coast Forest Conservation Initiative – Ecosystem Based Management – an overview (to be confirmed)



Glynnis Horel, P.Eng. – Implications of Ecosystem Based Management for DEGIFS members

Coffee

Bruce Fraser, PhD – Forest Practices Board perspectives on engineering and geoscience under FRPA

Victoria Stevens, G.I.T. – The influence of root reinforcement and groundwater on slope stability (DEGIFS bursary winner).

Lunch

Doug Bennett, P.Eng., RPF and Al Bradley, P.Eng., RPF, FERIC - update on research and perspectives on how FRPA is influencing the research program

George Mathison - Worksafe BC – WCB Rules and Regulations – Update to changes - Professional reliance and expectations

Coffee

Doug VanDine, P.Eng., P.Geo. and Mike Wise, P.Eng., MBA – LMH 56 – An update on risk related to professional work under FRPA

Richard Thompson – Fish passage through drainage structures

Professional Geoscientist upon completion of their studies. Studies should relate directly to the practice of engineering or geoscience/geotechnique in the forest sector.

Eligibility:

- i) Applicants must be enrolled in at least the third year of an undergraduate program or any year of a post graduate program directly related to the practice of forest engineering and/or geoscience/geotechnique, leading to membership in the Association of Professional Engineers and Geoscientists of British Columbia;
- ii) All applicants shall demonstrate above average grades.

Applicants to submit:

- i) A covering letter describing the applicant's area of study and how it relates to the advancement of the practice of forest engineering and/or geoscience, career goals and their financial need. The application should include **permanent** contact address, phone number(s) **and** e-mail information;
- ii) An official copy of their most recent transcript showing grades accompanied by a list of current courses and/or program of study; and
- iii) A paper or essay of, **no more** than 5 typewritten pages including figures and diagrams, describing/summarizing the proposed work that will be completed and how it relates to the advancement of forest engineering and/or forest geoscience/geotechnique. Submitted papers may be published in *Aspect*, the DEGIFS newsletter, at the discretion of DEGIFS Executive. Please provide a **hardcopy as well as an electronic copy** of your paper, preferably in MS Word, with your submission.

Applications should be submitted to the DEGIFS Bursary Sub-committee, c/o APEGBC, 200 – 4010 Regent St., Burnaby, BC, V5C 6N2.

The deadline for receipt of applications is: JUNE 30, 2007.

ANNOUNCEMENT:

DEGIFS \$2,000 BURSARY

The Division of Engineers and Geoscientists in the Forest Sector (DEGIFS) is pleased to offer a \$2,000 bursary, in 2007/2008, aimed at advancing the practice of engineering and geoscience/geotechnique education and practices in BC. The bursary is intended to provide financial assistance to a student, registered in an accredited post-secondary or post-graduate program at a degree-granting institution in BC, who intends to apply for registration as either a Professional Engineer or



Evaluation of Applicants: The DEGIFS Bursary Sub-committee will evaluate submissions based on: applicant's field of study as relevant to the practice of engineering and geoscience/geotechnique in the forest sector, career goals, grades, financial need and submitted paper. Papers shall be reviewed for: relevance to engineering/geoscience/geotechnique in the forest sector, organization, clarity and references. Applicants are advised to provide complete submissions based on the foregoing criteria.

Award: A \$2,000 bursary will be awarded to the selected student by August 15, 2007. DEGIFS reserves the right not to award the bursary if suitable candidates are not found. A successful applicant from an immediately preceding year will not be considered. Prior to award, the selected recipients will be required to provide confirmation of current registration to the DEGIFS Bursary Sub-committee. For additional information regarding DEGIFS, please visit our web site at: <http://www.degifs.com> or contact Julien Henley (henleyj@ae.ca)

suction and root reinforcement, provides insight not only into the mechanics of landslide generation but also into how disturbance of the forest by humans can affect slope stability. O'Loughlin (1974) found that forests deplete soil moisture to considerable depth and can maintain a depressed water table and therefore, removal of the forest cover can cause a dramatic rise in local watertables. Along with vertical anchorage, the lateral roots of many plants and trees can create a dense network that acts as a thin reinforcement zone in surficial soils or as long, fibrous binders in weak soil (Ziemer, 1981). Deterioration of tree roots and alteration of the subsurface hydrostatic status of soils are the most significant logging-related factors involved in accelerated mass wasting on recently deforested slopes. Sidle and Swanston (1981) note that mid-slope and upslope concave depressions are particularly susceptible to mass movement as groundwater can migrate to these areas by interflow through highly permeable forest soils. Linking the influence of root reinforcement, groundwater seepage forces and overall topography on slope stability can assist forest managers in the understanding and mitigation of the effects of forest harvesting on landslide initiation.

And now in keeping with the bursary theme, here is the paper submitted by last years DEGIFS Bursary winner:

THE INFLUENCE OF ROOT REINFORCEMENT AND GROUNDWATER ON SLOPE STABILITY

By Victoria M. Stevens

INTRODUCTION

Slope stability in forested terrain is a fine balance of driving and resisting forces – forces that are subject to fluctuation with time and disturbance. Examination of the interplay between these forces, such as pore water pressure, matric

INTERACTION OF ROOTS AND GROUNDWATER

Throughout the literature, the term 'root cohesion' is used interchangeably with the term 'root reinforcement' but this usage is not strictly correct. 'Root cohesion' is typically used to denote the increase in strength of a soil due to the presence of roots. This usage of a 'root cohesion' constant may be misplaced, as root strength is well known to degrade within months to years of harvesting or tree death (Johnson and Wilcock, 2002). Root reinforcement should be understood as a frictional resistance between roots, root hairs and the soil matrix. The role of groundwater in reducing the frictional resistance of soils is well understood, but it may also have an effect on the frictional resistance of a root-soil



interface. Moisture content has been found to affect root strength (O'Loughlin, 1974, Cofie et al., 2000), therefore groundwater could affect root reinforcement in several ways:

- Reducing the frictional resistance at the root:soil interface
- Seepage forces disrupting or eroding the root:soil interface
- Affecting moisture levels within the roots, thereby affecting root strength

An estimate of the magnitude of the frictional resistance can be best inferred where the root:soil interface bond is so strong that slow deformation of the soil results in splitting of the tree. Various examples of this can be seen throughout British Columbia, most significantly at the Slesse Park Slide, where large red cedar trees growing on a large, complex slide in overconsolidated glacio-lacustrine clay and silt deposits (Fletcher, 2000) have been observed to be split up the centre as a result of slope deformation (see Figure 1). As well, roots are observed throughout the slide area to be stretched across numerous tension cracks and may be slowing the failure of the slide mass.



Figure 1 – Split red cedar tree at Slesse Park, Chilliwack, BC.

OBJECTIVES AND METHODS

The objective of this study is to characterize and improve our understanding of the role of roots in reinforcing soil slopes, and the effect of groundwater on the ability of roots to reinforce soil. This will be accomplished through characterization of the density, strength and moisture levels of the root-soil mass through two on-going research projects:

i.) An investigation into the phenomenon of splitting trees will be undertaken through tree coring and root strength testing in order to provide insight into how root reinforcement may change with soil type and soil characteristics.

ii.) Rooting density and relative groundwater conditions around landslide headscarps will be characterized through field research which is presently underway. A time-domain reflectometry probe was used to characterize the relative moisture profile of the forest soils around landslide headscarps, and rooting density will be determined through analysis of digital photography of the headscarp. Furthermore, coupled groundwater – mechanical numerical analysis of root-reinforced conceptual slopes will provide further information on the interaction between groundwater and root reinforcement in forested terrain.

PRELIMINARY OBSERVATIONS

While the field research for this project is on-going, a few preliminary observations can be made. All of the slides that were found were located in clearcuts that were 5-10 years old, indicating that degradation of the root mat after harvesting plays an important role in slope stability. As well, many of the landslides occurred directly below degrading stumps (see Figure 2), indicating that the large roots of mature trees can provide soil reinforcement for many years after harvesting.



Figure 2 – Landslide headscarp located below two harvested stumps. Headscarp was approximately 1.5 metres high. Slide is located near Bamfield, B.C.

As well, two common slope configurations were observed at the various landslide sites, each of which can have a major effect on groundwater seepage vectors – concave depressions of slope (concentration of seepage vectors), and gentle-over-steep slopes (seepage vectors emerging from the slope face rather than following the steeper slope angle) (see Figure 3).



Figure 3 – Slides occurring in “gentle-over-steep” topography. Slope angle in the channel was 34° while above the slides was a flatter, benched area. The

slides are located in the Tsitika Valley, near Sayward, B.C.

The time-domain reflectometry data was collected with a probe recording percent-moisture content at 15 centimetre intervals. This data will be analyzed to see if there are any dominant patterns in relative moisture content throughout the soil profile. This data will be combined with information on root density of the headscarps in order to develop a model of the interaction of root reinforcement and groundwater on harvested slopes.

CONCLUSION

The accepted ‘root cohesion’ model requires refinement in order to include adequate consideration of both the importance of groundwater flow and the three dimensional architecture of root systems. The results of this study will provide evidence on the importance of root reinforcement to forest slope stability, and how groundwater forces influence destabilization of slopes. Maintenance of the root mat, through different harvesting methods such as shelterwood or leave strips, could be found to be important to preventing and mitigating mass wasting in harvested watersheds. As well, further investigation of root mat characterization will allow simpler incorporation of the root mat into routine slope stability analysis.

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DEGIFS MEMBER PROFILE:

Irena Weiland, P. Geo, Eng. L.

Interview by: Sharon Scott

Who are you and how did you get to where you are now?

I grew up in Freiburg, Germany, and went to University in Munich to study geology. The program offered a focus on hydrogeology and engineering geology and I was interested in both. In the end, I did my masters in quaternary geology (mapping component) and analysis of clay samples used in Roman brick roofing shingles (research component). Studying geology in Germany at that time was considered a jobless pursuit, but I was lucky to find work with a small geotechnical engineering firm several months before I graduated. In 1989, I immigrated to BC for personal reasons. After a year of odd jobs in spectacular country in Northwest BC and the Yukon I was hired as assistant geomorphologist with the Ministry of Forests' Forest Sciences Section in Smithers. In 1995, I started consulting on my own. Between 1998 and 2003, I completed the forest engineering training offered through IFEBBC (later FMIBC), to add some forestry training to my geology background.

What do you do?

While I worked for the Ministry of Forests, I did some reconnaissance assessments of river channel changes over time. After becoming self-employed, a lot of my work initially was terrain stability mapping and some bioterrain mapping. I had the good fortune to get excellent mentorship from Denny Maynard during the mapping projects. Once FRBC funding for TSM dried up, I took on more terrain stability field assessments. Over the years, I have also done numerous sediment source mapping projects. Most of my work takes place in Northwest BC, between Burns Lake, Prince Rupert and Iskut. That's relatively close to home, and yet it covers an amazing range of biogeoclimatic zones, from interior to coastal to northern ecosystems.

What has been your favorite project experience?

I can't single out a particular project. Fieldwork has taken me to beautiful places. One of the favorite aspects of my work is the opportunity to the work in such diverse environments ranging from interior to coastal to alpine settings. Paradoxically, I find (north) coastal forests are the most impressive place I have worked in, although definitely not the most pleasant.

If you could impart some advice to young DEGIFS members what would it be?

I haven't considered myself elder enough to impart advice to young members. I guess, in hindsight, finishing university including a thesis, and moving on into the work environment seemed like a huge challenge, and required enormous determination. Now the challenge seems to be to create enough opportunities for structured learning.

In your opinion, how can APEGBC or DEGIFS better meet the needs of its members?

I think they are doing a fairly good job. APEGBC has added several 1-2 day courses, which are relevant to engineers and geoscientists in the forest sector to the CPD program. DEGIFS AGM offers an opportunity for members to network.



Aspect provides a discussion forum. One of the questions now is whether DEGIFS members are expanding their services into other resource sectors and whether DEGIFS should expand its focus as well.

And the fun question.... If you could be any kind of geomorphic event, what would you be?

A lot of geomorphic events tend to be destructive, full of debris, muddy, murky or in a horrible rush and aren't that appealing. Stretching the meaning of 'geomorphic event' a bit, I would be the mean monthly discharge for July on the Bulkley River, preferably on a warm sunny day. The water would be clear, maybe with just a trace of glacial flour to add a bit of green. The first salmon runs of the year would be coming up. There would be enough standing waves, interesting eddy lines and whitewater holes to bring out some colourful plastic play boats. And if an event wanted to slow down, it could hang out in a floodplain section for a while for an exchange with the hyporheic flow. For some more excitement, I could move on to Moricetown falls, gushing over the rocks before raging through Moricetown Canyon, forming whirlpools and boils.



Bulletin for APEGBC members

Please note the following:

Clarification of MOF small scale timber salvage program.

As per the Small Scale Salvage Program Professional Application Provincial Guidelines dated June 1, 2004, APEGBC P. Eng./P. Geo. members can sign applications under this program as they meet definition 4 of that guideline. Definition 4 states: "Professional" means a member of a professional regulatory body, who is registered to practice in B.C., is qualified for the work and can be held accountable by the professional regulatory body.

CONTINUING PROFESSIONAL DEVELOPMENT OPPORTUNITIES

APRIL 2007. UNBC: GEOTECHNICAL ENGINEERING AND RESOURCE ROAD WORKSHOP.

This two day classroom workshop will focus on geotechnical engineering principles and their application in resource road planning, construction, and maintenance. Offered in 3 locations Fort St. John April 10; Cranbrook April 16; and Hinton April 24. More information:

www.unbc.ca/continuingstudies/nrme/index.html#GeotechnicalEngineering.

APRIL 4, 2007. CURRENT PRACTICE IN ACID ROCK DRAINAGE PREDICTION.

Kelowna. This seminar will provide an introduction to the methods available to predict the reactivity of rock and the chemistry of drainage in contact with rock, and the use of the results to identify technologies to address ML/ARD. The seminar will appeal primarily to engineers and geoscientists working in the mining, transportation and utility industries. For further information see:

http://www.apeg.bc.ca/prodev/events/current_practice_kelowna.html



**APRIL 24, 2007. TERRAIN MAPS:
UNDERSTANDING AND APPLYING.**
Vancouver.

A review of terrain mapping and related interpretations, such as landslide and erosion hazards, from the point of view of the map user and according to current provincial (British Columbia) standards. Topics covered include a review of the Terrain Classification System for British Columbia, origin of surficial materials by glacial and post-glacial processes, engineering characteristics of surficial materials (soils), landslides and other slope processes, how terrain mapping is done, applications of terrain maps, terrain survey intensity levels, and the reliability and limitations of terrain and slope (terrain) stability mapping. The course does not attempt to

teach the art and science of terrain mapping but will give the participant practice in making decisions based on terrain mapping products.

http://www.apeg.bc.ca/prodev/events/terrain_map_s.html

**MAY 27-31, 2007. CORDILLERAN SECTION
GSA 103RD ANNUAL MEETING.** This year's Geological Society of America Cordilleran Section Meeting is in Bellingham, from May 4th through the 6th.

<http://www.geosociety.org/sectdiv/cord/07cdmtg.htm#thm>

**MAY 27-31, 2007. 1ST CANADA-US ROCK
MECHANICS SYMPOSIUM.** Presented by the Canadian Rock Mechanics Association (CARMA) and American Rock Mechanics Association (ARMA). Theme: "Rock Mechanics: Meeting Society's Challenges and Demands." Sheraton Wall Centre, Vancouver. Information:

www.canada-us-rockmechanics.ca

JUNE 4-8, 2007. CANQUA. At Carlton University, Ottawa. The Canadian Quaternary

Association conference in 2007 will be hosted at Carleton University, Ottawa, Ontario, Canada, on June 4-8, 2007. The conference will provide an invigorating forum for those interested in the interdisciplinary field of Quaternary geoscience, including geologists, geomorphologists, physical geographers, biologists, botanists, oceanographers, archaeologists, environmentalists, and others. Special session include: Quaternary Climate and Environmental Change; Geological Hazard Mapping: Methods and Applications; and Rivers and Fluvial Processes

http://www.canquaottawa2007.ca/index_e.php

JUNE 18-22, 2007. ALLUVIAL FANS. Three days of presentation sessions and two days of mid-conference field trips. Banff Park Lodge, Banff, Alberta. Dr. David Wilford, PGeo, of BC Ministry of Forests and Range will be one of the speakers. See details in first circular. Information:

alluvialfans2007@smu.ca,
husky1.stmarys.ca/~pgiles/AF2007/AlluvialFans2007.htm.

**JULY 10, 2007. MOUNTAIN PINE BEETLE AND
WATERSHED HYDROLOGY WORKSHOP:
PRELIMINARY RESULTS OF RESEARCH
FROM BC AND ALBERTA.** Kelowna. FORREX, the BC Ministry of Forests and Range and the Canadian Water Resources Association - BC Branch are collaborating to organize a 1-day workshop on the hydrologic effects of the Mountain Pine Beetle. The objective of the workshop is to present preliminary research results from ongoing projects in BC and Alberta. Rapid communication of relevant, interim research results is needed in order to incorporate the most current and best available knowledge into BC's forests land management response to the MPB infestation.

<http://www.selkirk-management.com/events.html>



JULY 11, 2007. THE UPPER PENTICTON CREEK WATERSHED EXPERIMENT: RESULTS OF A PAIRED WATERSHED STUDY INTO THE EFFECTS OF FOREST MANAGEMENT ON WATER RESOURCES.

Kelowna. FORREX and the BC Ministry of Forests and Range are collaborating to organize a 1-day workshop reviewing the results of the Upper Penticton Creek Watershed Experiment, a paired-basin study examining the hydrologic effects of forest management. The objective of the workshop is to present both long-term and recent research results that highlight the state of the knowledge on hydrological effects of forest management in the southern interior of BC.

<http://www.selkirk-management.com/events.html>

AUGUST 22 - 24/07. 18TH CANADIAN HYDROTECHNICAL CONFERENCE, WINNIPEG, MB.

The 3-day conference will continue the tradition of biennial CSCE hydrotechnical specialty conferences. Practitioners, academics, and students are invited to attend. The abstract deadline is January 31, 2007. For more information, see the conference web site, <http://www.csce.ca/2007hydrotechnical> or contact the Technical Program Chair, Shawn Clark.

Record your completed training online at:

<http://www.apeg.bc.ca/prodev/online.html>

For more information on continuing professional development guidelines see:

<http://www.apeg.bc.ca/prodev/cpdguidelines/cpdguideline.pdf>

Web sites of interest:

APEGBC at

<http://www.apeg.bc.ca/prodev/prodevents.html>

FORREX at:

<http://www.forrex.org/>

MOF at

http://www.for.gov.bc.ca/hfp/mountain_pine_beeble/stewardship/hydrology/

Got something to say?

ASPECT welcomes announcements, technical articles, letters to the Ed, project profiles, photos, tips, jokes, etc.....basically anything that would benefit DEGIFS members.



Who We Are

DEGIFS EXECUTIVE 2005/06

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ASPECT SUBMISSIONS

LAST DATE FOR TO ASPECT SUBMISSIONS	NEWSLETTER RELEASE DATE
JUNE 15, 2007	JUNE 29, 2007
SEPTEMBER 14, 2007	SEPTEMBER 28, 2007
NOVEMBER 30, 2007	DECEMBER 14, 2007

Electronic submissions in **Word format (only)** should be made to Sharon Scott (sharon.scott@hayes.bc.ca) by the date listed above.

Refer to *Guidelines for Submission on the website* <http://www.degifs.com/guidelines.doc> for submission requirements.